Earnings Guidance and Managerial Myopia

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ABSTRACT

We examine whether firms that frequently issue quarterly earnings guidance behave myopically, where myopic behavior is defined as sacrificing long-term growth for the purpose of meeting short-term goals (Porter [1992]). We find that dedicated guiders invest significantly less in research and development (R&D) than occasional guiders. We also find that, in comparison to occasional guiders, dedicated guiders meet or beat analyst consensus more frequently. However, we find that dedicated guiders' long-term earnings growth rates are significantly lower than those of occasional guiders. Overall, our results are consistent with dedicated guiders engaging in myopic R&D investment behavior and meeting short-term earnings targets with possible adverse effects for long-term earnings growth.

EARNINGS GUIDANCE AND MANAGERIAL MYOPIA

Anne Mulcahy, Chairman and CEO of Xerox, calls pressure from Wall Street for short-term performance "a huge problem" that may be hurting public companies in the long run. "It's one of the most dysfunctional things going on in the marketplace today," she said during a Wharton leadership lecture presentation. "I applaud companies that have pulled back from setting earnings expectations and are trying to reshape the rules of the road."[1]

1. Introduction

Recently, a number of firms have discontinued the practice of providing quarterly earnings guidance to the capital markets. For example, Coca-Cola, a company known for meeting earnings expectations with enviable consistency, announced in 2002 that it would stop issuing quarterly earnings guidance, but instead provide more information about its progress towards meeting long-term objectives. Following Coca-Cola, a host of other companies including Alcoa, AT&T, Clear Channel Communications, Mattel, PepsiCo, and Sun Microsystems have announced their intention to discontinue providing quarterly earnings guidance. A recent survey by the National Investor Relations Institute (NIRI) finds that the percentage of companies providing quarterly earnings guidance has declined from 75% in 2003 to 61% in 2005.[2]

The benefits of voluntary disclosure to the capital markets—including improved liquidity, reduced information asymmetry, lower cost of capital, and lower stock volatility—are widely documented (see Healy and Palepu [2001]). However, firms discontinuing quarterly earnings guidance are concerned about the potential *costs* of such disclosures. They argue that frequent earnings guidance encourages investors and analysts to emphasize meeting short-term earnings

[1] See http://knowledge.wharton.upenn.edu/index.cfm?fa=viewArticle&id=1318&specialId=41.
[2] See http://www.niri.org/irresource_pubs/alerts/ea050330.cfm.

targets which fosters myopic managerial behavior that is detrimental to firms' long-term growth and value creation. For example, managers at Coca-Cola believe that discontinuing quarterly earnings guidance will help the company focus on long-term objectives, such as expanding its business into new markets, without having to worry about meeting short-term earnings targets (McKay and Brown [2002]). For similar reasons, CFOs interviewed by Graham et al. [2005] also deplore the culture of providing quarterly earnings guidance and subsequently having to meet these targets. Such viewpoints are also shared by prominent regulators and academics who believe that CEOs must say "no" to the earnings guidance game (e.g., see Levitt [2000], Fuller and Jensen [2002]).

While there is much anecdotal evidence alleging that quarterly earnings guidance fosters myopic behavior, the only research examining the relation between disclosure frequency and managerial myopia is Bhojraj and Libby [2005]. However, Bhojraj and Libby examine the effect of *mandatory* disclosure frequency on managerial myopia in an experimental setting. To date, there is no systematic archival evidence associating voluntary disclosures with managerial myopia. Therefore, in this paper we examine whether firms that frequently issue quarterly earnings guidance behave myopically, where myopic behavior is defined as sacrificing long-term growth for the purpose of meeting short-term goals through underinvestment in long-term value creating activities (Porter [1992]).

We classify firms as "dedicated guiders" or "occasional guiders" based on their quarterly earnings guidance frequency during 2001-2003 and examine whether dedicated guiders engage in more myopic behavior than occasional guiders over a contemporaneous period. Our proxy for myopic behavior is underinvestment in research and development (R&D). We find that, *ceteris paribus,* dedicated guiders spend significantly less on R&D than occasional guiders, which

suggests that earnings guidance is indeed associated with myopic behavior with respect to R&D spending. We next examine the effects of such myopic behavior on the trade-off between short-term and long-term earnings performance. We find that dedicated guiders are significantly more likely to meet or beat analyst earnings forecasts over a contemporaneous period, suggesting their greater emphasis on achieving short-term earnings targets. At the same time, dedicated guiders have significantly lower earnings (ROA) growth over the 2001-2003 period, which is consistent with negative consequences of myopic behavior on long-term growth and value creation.[3]

Overall, we document a positive association between quarterly earnings guidance frequency and managerial myopia. Our evidence is consistent with claims by managers of firms discontinuing quarterly earnings guidance that frequent quarterly earnings guidance *causes* managerial myopia by pressuring managers to meet their short-term earnings forecasts, which leads to myopic decisions if circumstances warrant. However, providing earnings guidance in itself is a managerial choice that can arise endogenously based on the managers' propensity to indulge in myopic activities. This myopic propensities can arise because of incentives that emphasize short-term performance, such as short-term need to raise capital (Bhojraj and Libby [2005]), short managerial horizon (Dechow and Sloan [1991]), incentive compensation (Matsugana and Park [2001], Brian and Murphy [2003]) and job-tenure concerns (Fundenberg and Tirole [1995]). Therefore, the association between frequent earnings guidance and myopic investments can arise endogenously.

Finally, reduction in R&D expenditures may be a rational response by firms to adverse economic circumstances which are reflected in reduced earnings growth rates. And it is possible

[3] We examine myopic behavior (i.e., lower R&D expenditure) and its adverse effects (i.e., lower ROA growth) over a contemporaneous period because of data constraints (see Section 3 for why we limit our sample to 2001 and later). We address potential problems with this contemporaneous design and discuss results of sensitivity analyses that evaluate the robustness of our results to alternative designs in Section 6.3.

that firms facing such adverse circumstances may more likely issue earnings guidance to avoid negative earnings surprises (e.g., Skinner [1994]).[4] While we control for firm performance in our empirical tests, we acknowledge that we can not completely rule out this alternative explanation.

Our paper contributes to the literature on several dimensions. First, we add to the voluntary disclosure literature by investigating possible reasons why companies have recently discontinued providing quarterly earnings guidance to the capital markets. Chen et al. [2005] broadly investigate causes and consequences of the decisions by firms to discontinue quarterly earnings guidance. In contrast, we examine and find evidence consistent with claims by managers of companies discontinuing quarterly earnings guidance that such guidance forces short-term orientation and impedes investment in long-term value creation. Our paper thus provides systematic empirical evidence that offers a rationale for this recent economic phenomenon.

More importantly, our evidence suggests a potential cost of voluntary disclosure: managerial myopia. While a large literature has documented myriad benefits of voluntary disclosure to the capital market, such as reduced information asymmetry and improved liquidity, there is little (if any) empirical research examining costs of voluntary disclosure. Our paper is one of the first to document empirical evidence regarding potential costs associated with quarterly earnings guidance. Our results have implications for managers who make voluntary disclosure policies as well as for investors who interpret firms' disclosure information. We note, however, that our results highlight costs associated with one particular type of voluntary disclosure: quarterly earnings guidance. We are not implying that managerial myopia is a

[4] At the same time, however, prior literature also generally finds a *positive* association between firm performance and disclosure level (e.g., Lev and Penman [1990]; Lang and Lundholm [1993]).

necessary consequence of all forms of voluntary disclosure. On the contrary, even firms that have discontinued explicit short-term earnings guidance have substituted such guidance with disclosures regarding long-term plans and progress towards long-term goals (e.g., Coca-Cola).

Our paper also adds to the literature on managerial myopia. In a recent survey by Graham, et al. [2005], managers describe a trade-off between the short-term need to "deliver earnings" and the long-term objective of making value-maximizing investment decisions. Consistent with their claim, there is a growing body of empirical evidence showing that managers are willing to sacrifice long-term value creation to achieve short-term earnings targets. Prior research documents that firms reduce R&D expenditure in response to concerns regarding reported income (Baber et al. [1991]) and to cater to the short-term needs of transient institutional investors (Bushee [1998]). More recently, Bhojraj et al. [2005] document that using accruals or discretionary expenditures (such as R&D expenditure) to meet or beat analyst forecasts results in short-term positive impact on firm performance, but long-term underperformance relative to firms that do not manage earnings to meet forecasts. Along this line of research, our paper adds a new dimension to the literature on managerial myopia—the association between quarterly earnings guidance and managerial myopia. To the extent that quarterly earnings guidance causes managerial myopia, firms have the option to "liberate" themselves from the earnings guidance game and focus on long-term value creation, as many have chosen to do in the recent past.

2. Motivation and Hypotheses

2.1 PRIOR RESEARCH AND MOTIVATION

U.S. managers have often been criticized for excessive obsession with short-term performance and resulting myopic investment behavior (e.g., Porter [1992], Jacobs [1991]). Such

short-term focus has been attributed to the willingness of U.S. managers to yield to capital market pressures by actively participating in the earnings "game" (e.g., Fuller and Jensen [2002]). For example, Rappaport [2005] observes that investors and managers have a "mutually reinforcing obsession with short-term performance," with earnings being the metric of short-term performance.

Two conditions are required for myopic managerial behavior (Bushee [1998], Stein [1988, 1989]). First, managers must place sufficient weight on the current market value of their firm. When managers overweigh current market value vis-à-vis future market value, they are unwilling to wait until the temporary mispricing (if any) based on short-term performance is corrected and hence unwilling to adopt a long-term perspective. Managers can be motivated to overweigh current stock price because of poorly designed equity incentives (Brian and Murphy [2003], Rappaport [2005]), takeover threats (Stein [1988]), need to raise capital (Bhojraj and Libby [2005]) or employment concerns (Fundenberg and Tirole [1995], Graham et al. [2005]). Second, the capital markets should misprice current earnings without regard to its underlying economics or managers should believe that they do. Markets can incorrectly price current earnings if investors have a short-term focus (Ellis [2004]) or misinterpret the persistence of earnings components (e.g., Sloan [1996]). Also, managerial myopia can result even when the capital markets are efficient as long as managers believe the markets can be fooled (Stein [1989]), which they do (e.g., Graham et al. [2005]).

Prior research documents evidence of managerial myopia, primarily with respect to R&D spending. Some studies show underinvestment in R&D in situations where managers' horizons are excessively short-term—for example, Dechow and Sloan [1991] study firms prior to CEO retirement and Baber et al. [1991] examine loss making firms. Bushee [1998] directly studies the

effects of capital market pressures on myopia, by documenting that myopic R&D spending is more pronounced in firms that are held by transient institutional investors. Roychowdhury [2003] also reports evidence of earnings management through real activities to meet short-term earnings targets. Finally, Bhojraj et al. [2005] examine the capital market effects of managerial myopia: they show that firms that meet earnings targets through real (or cosmetic) earnings management are able to boost stock price in the short run but suffer adverse price reversals a few years later.

Prior research is yet to examine the association between managerial myopia and voluntary disclosure. This is surprising given the crucial role that earnings guidance plays in perpetrating the mutually self-enforcing obsession of both managers and the capital markets with short-term earnings performance. As Michael Jensen contends, earnings guidance leads to a short-term mentality for both companies and investors, thereby shifting the focus from the firm's fundamentals to bottom-line earnings (Prince [2005]). Once expectations are managed through earnings guidance, companies are under intense pressure to meet their earnings forecasts for two reasons. First, earnings guidance induces investors to place too much emphasis on meeting or beating earnings targets, resulting in extreme price drops when firms fail to meet targets (Skinner and Sloan [2002]). Second, managers may face loss of reputation and credibility if they are unable to deliver on their forecasts (Graham et al. [2005]). The pressure to meet short-term earnings targets in turn precipitates actions that destroy long-term shareholder value, such as reduction in R&D spending or cancellation of marketing campaigns, when the firm is otherwise in danger of not being able to meet its forecast. Fuller and Jensen [2002] argue that this earnings "game" even disrupts budgeting and planning processes in organizations. The deleterious effects of short-term performance obsession arising from the earnings "game" is often cited as one

reason why many companies have recently discontinued the practice of providing quarterly earnings guidance (Prince [2005]).

While there has been much speculation and discussion based on anecdotal evidence, to date there is no systematic evidence that shows frequent earnings guidance is associated with managerial myopia. Bhojraj and Libby [2005] conduct an experiment where they examine whether short-term capital market pressures can force managers to make myopic investment decisions. They also show that the frequency of *mandatory* disclosure (i.e., annual, bi-annual or quarterly) can affect the manner in which managers react to capital market pressures. However, Bhojraj and Libby do not examine the role of *voluntary* earnings guidance in managerial myopia. In this paper we systematically examine the association between the frequency of earnings guidance and managerial myopia.

2.2 HYPOTHESES

Without necessarily attributing causality, our main research objective is to test the validity of the "myopia hypothesis" which predicts that frequent quarterly earnings guidance is associated with managerial myopia. Myopia refers to sub-optimal underinvestment in long-term projects for the purpose of meeting short-term goals (e.g., Porter [1992]). This definition has three aspects: (1) there should be underinvestment in long-term projects, such as R&D; (2) the underinvestment should occur with the objective of meeting short-term goals, such as meeting/beating analyst earnings forecasts; and (3) such underinvestment must be sub-optimal in the sense of impairing long-term growth and value creation. The first aspect reflects myopic behavior, and the second and third aspects (i.e., short-term and long-term performance) reflect the motivation and consequence of myopic behavior. Our hypotheses and associated empirical tests address each of the three aspects in order. We motivate our hypotheses below.

For examining whether earnings guidance results in underinvestment in long-term projects, we examine differences in R&D spending levels between dedicated guiders and occasional guiders. R&D expenditures are particularly appropriate for examining myopic behavior because they have important but opposite implications for short-term and long-term performance. First, since R&D expense is immediately expensed under U.S. GAAP, under-investing in R&D will boost short-term earnings. Second, adequate investment in R&D is crucial for the viability and success of firms in many industries. However, gains from R&D are realized only in the long-term—in contrast to, say, advertising expense that can boost sales in the short-term. Prior research (e.g., Dechow and Sloan [1991], Bushee [1998]) uses R&D expenditures to evaluate myopic behavior. Also survey evidence (Graham et al. [2005]) suggests that managers use R&D expenditures to play the earnings "game". Accordingly, our first hypothesis (in alternative form) is:

H_{1A}: *Dedicated guiders invest less in R&D than occasional guiders*.

Recent research provides evidence that there is pressure on firms to avoid missing analyst earnings forecasts and that such pressure has intensified in recent years (e.g., Matsumoto [2002], Kasznik and McNichols [2002], Skinner and Sloan [2002]). In particular, Brown and Caylor [2005] find that in recent years (since mid-1990s), managers seek to avoid negative quarterly earnings surprises more than to avoid either quarterly losses or quarterly earnings decreases. Therefore, if dedicated guiders are more prone to play the myopic earnings "game", we should observe that such firms are more likely to meet/beat analysts forecasts. Accordingly, our second hypothesis (in alternative form) is:

H_{2A}: *Dedicated guiders meet or beat analysts' quarterly earnings forecasts more frequently than occasional guiders.*

Finally, if the lower investment in R&D by dedicated guiders is myopic, i.e., sub-optimal, it must be reflected in impaired long-term growth and value creation. Examining future stock price performance can be problematic because the markets anticipate future performance. Accordingly, we analyze long-term performance by examining growth in earnings (ROA), which leads to our third hypothesis (in alternative form):

H_{3A}: *Dedicated guiders have lower long-term growth in earnings (ROA) than occasional guiders.*

It is important to note that, even though earnings guidance can cause myopia by making both investors and managers excessively focus on meeting short-term earnings targets, providing earnings guidance in itself is a managerial choice that arises endogenously. The decision to issue earnings guidance can be viewed as an optimal managerial response that trades off costs and benefits. The costs and benefits of providing earnings guidance—and thus participating in the earnings "game"—are based on various factors such as compensation policies and equity incentives (Brian and Murphy [2003], Matsugana and Park [2001]), need to raise capital (Bhojraj and Libby [2005]), job-tenure concerns (Fundenberg and Tirole [1995]) and managerial horizon (Dechow and Sloan [1991]). Therefore, both myopic investment behavior and providing earnings guidance can arise endogenously from a managerial orientation towards myopic behavior. The objective of our paper is not necessarily to establish causality between frequent earnings guidance and managerial myopia. Rather, our purpose is to establish that earnings guidance is an important and integral dimension of managerial myopia by showing a significant association between the two.

3. Sample and Descriptive Statistics

Regulation Fair Disclosure (FD), effective October 2000, has changed corporate earnings guidance practice by prohibiting private communication with select market participants (e.g., Heflin et al. [2003]). We begin our sample from 2001 to ensure that our results are not contaminated by private earnings guidance issued during the pre-FD period, which we cannot identify using the CIG (Company Issued Guidelines) database from First Call. Accordingly, our initial sample includes all firm-quarters in the "Actuals" database of First Call with fiscal quarters ending between 2001 and 2003. We next require the following information be available in different databases of First Call: (1) actual earnings per share and earnings announcement date for the firm-quarter; (2) the last summary statistics of analyst forecasts for the firm-quarter, including number of analysts following and mean of analyst forecasts; and (3) the stock-split adjustment factor. We delete firm-quarters with earnings announcement dates before or 45 days after the fiscal quarter end. We also delete firm-quarters if the last analyst update occurs after the earnings announcement. We make these deletions to eliminate data errors or other irregularities. This selection procedure yields an initial sample of 32,432 firm-quarters.

We next obtain SIC information from Compustat and classify our sample firms into 12 industries according to Fama and French [1997]. Because of their peculiarities, we exclude utilities (SIC code between 4900 and 4949) and financial service firms (SIC code between 6000 and 6999). Finally, to ensure that quarterly earnings guidance practice we observe reflects the firm's disclosure policy/commitment over a relatively long period, we require that our sample firms are in the sample for the twelve successive quarters from 2001 to 2003. This process leads to a sample of 11,868 firm-quarters, representing 989 distinct firms in 10 industries. The number

of firms varies from 13 in the telecommunications industry to 342 in the business equipment industry.

We obtain quarterly earnings guidance information for our sample from the CIG database in First Call.[5] We define quarterly earnings guidance frequency as the number of quarters (out of the 12 quarters during 2001-2003) for which the firm makes at least one earnings forecast. We do not consider guidance issued more than 90 days before or 45 days after the fiscal quarter end to ensure the guidance represents earnings forecasts for the current quarter.

Table 1 provides descriptive statistics of quarterly earnings guidance frequency for the 989 firms in our sample. Overall, our sample firms' quarterly earnings disclosure frequency has a mean of 5.02 and a median of 4. The first quartile is 2 while the third quartile is 8. Out of the 989 sample firms, 153 firms (15%) do not provide any quarterly earnings guidance during our sample period and 57 firms (6%) issue earnings guidance every quarter. The distribution suggests different propensities for firms to provide quarterly earnings guidance—some firms do so quite frequently, while others provide guidance sporadically.

We also examine variation in quarterly earnings guidance frequency across industries. There is considerable variation in guidance frequency across different industries. Firms in the wholesale and retails industries have the highest guidance frequency with mean of 6.78 (median of 8) quarters—out of 12 quarters—having at least one voluntary earnings forecast. In addition, firms in the industries of business equipment, chemicals, and consumer durables provide relatively frequent quarterly earnings guidance as well. On the other hand, firms in the energy sector have the lowest guidance frequency with mean of 2.73 (median of 1) quarters, followed by

[5] To check the comprehensiveness and accuracy of First Call's coverage of earnings guidance, we randomly select 5 dedicated firms and 5 occasional firms in our sample and compare the CIG data in First Call with the PR Newswire data in Lexis-Nexis. We find that in general, the CIG data covers more earnings guidance than the PR Newswire, and that for the guidance that we are able to find in both data sources, they generally report the same guidance dates and earnings estimates.

healthcare and telecommunications industries. The standard deviations range from 3.56 to 4.27, suggesting some within-industry variation in guidance frequency. In each industry, there are a number of firms that do not provide any guidance during the 12 quarters of our sample period; there are also a few firms that provide guidance in each of the 12 successive quarters.

Our empirical analyses require classifying our sample firms into different groups based on their propensity to issue quarterly earnings guidance. When a firm's quarterly earnings guidance frequency is in the top (bottom) third of their respective industry's frequency distribution, we classify the firm as a "dedicated" (an "occasional") guider.[6] In our empirical analyses, we exclude firms whose guidance frequency is in the middle third of the corresponding industry's distribution as their propensity to issue quarterly earnings guidance is ambiguous. Thus, our final sample reduces to 649 distinct firms, including 309 dedicated guiders and 340 occasional guiders.

Consistent with our categorization of earnings guidance propensity, the first row in Table 2 shows that dedicated guiders have a significantly higher guidance frequency than occasional guiders. Out of the 12 quarters, dedicated guiders on average provide earnings guidance for 9.72 quarters while occasional guiders do so only for 1.08 quarters; the median guidance frequency is 10 and 1, respectively. This indicates that we have considerable variation in disclosure frequency across dedicated and occasional guiders.

The rest of Table 2 presents descriptive statistics for various firm characteristics conditional on earnings guidance categories, based on firm-year observations. The data for firm characteristics is obtained from Compustat, First Call, and CDA/Spectrum database. We first compare two size measures: total assets (*TA*) and market value (*MV*). Overall, dedicated guiders

[6] Occasional guiders also include non-guiders, i.e., those firms that never issue any quarterly earnings guidance during our sample period.

are significantly larger, both statistically and economically, than occasional guiders for both measures, consistent with prior literature that larger firms are more likely to provide voluntary disclosures (e.g., Lang and Lundholm [1993]). We also analyze book-to-market ratio (*BM*) as a proxy for firms' growth opportunities. Consistent with prior evidence that a firm's growth prospects affects its voluntary disclosure practice (Lang and Lundholm [1993], Graham et al. [2005]), dedicated guiders have significantly lower book-to-market ratio, i.e., higher growth opportunities, than occasional guiders. Finally, dedicated guiders have significantly greater analyst coverage (*NUMANA*) and higher institutional ownership (*%INST*), consistent with dedicated guiders responding to outside demand/pressure for more information by providing frequent quarterly earnings guidance (Graham et al. [2005]).

4. Guidance Frequency and R&D Expenditure

4.1 UNIVARIATE ANALYSIS

We test H_{1A} by examining differences in R&D spending across dedicated and occasional guiders. We measure R&D expenditure intensity by *RDX*, which is R&D expenditure for the year deflated by the total assets at the beginning of the year. We use annual data to conduct our analyses in this section because firms typically report R&D expenditures annually as opposed to quarterly. We begin our analyses with univariate tests. Table 3 Panel A reports the comparison of mean and median *RDX* between dedicated guiders and occasional guiders during 2001-2003 for the pooled sample and by industry. For the pooled sample, dedicated guiders' mean R&D intensity is significantly lower than that of occasional guiders ($p<0.01$), but the median is only marginally lower ($p=0.11$).

Unreported results show that the industries of healthcare, business equipment, and chemicals on average have the highest investment intensity in R&D, spending about 16%, 10%, and 4% of their total assets every year. For these R&D intensive industries, *t*-statistics in Table 3 show that dedicated guiders' investment in R&D is significantly lower than that of occasional guiders, consistent with dedicated guiders behaving myopically. The Wilcoxon tests for medians are significant for the healthcare industry and marginally significant for the business equipment industry among these three industries. For the other seven industries, the implications are mixed depending on the industry or the specific test. Overall, the most significant results are in the healthcare industry: the mean (median) R&D is 9% (6%) for dedicated guiders versus 24% (17%) for the occasional guiders.

4.2 REGRESSION ANALYSIS

Our univariate results are affected by correlated omitted variable bias because many factors that affect R&D intensity are also potentially correlated with guidance frequency. In particular, it is possible that firm performance affects both R&D intensity and guidance frequency. Accordingly, we estimate the following ordinary least square (OLS) regression (firm-year subscripts are omitted):

$$RDX=\beta_0+\Sigma\beta_i IND_i+\beta_1 DEDICATED+\beta_2 BM+\beta_3 GROWEST+\beta_4 LOGMV+\beta_5 LEV$$
$$+\beta_6 \%INST+\beta_7 CAPX+\beta_8 SALES+\beta_9 NUMANA+\beta_{10} FCF+\varepsilon \quad (1)$$

The model is a modified version of that in Bushee [1998] and Berger [1993]. While Bushee models changes in R&D, we model R&D levels (as does Berger [1993]). Our interest in modeling R&D levels arises from our desire to examine cross-sectional differences in R&D intensity between dedicated guiders and occasional guiders, rather than changes across years. This is because while we expect myopic firms to underinvest in R&D on average, we do not necessarily expect them to reduce R&D investment every year.

RDX is as defined above. *DEDICATED* takes value of 1 for dedicated guiders and 0 for occasional guiders. If dedicated guiders behave myopically, we expect the coefficient on *DEDICATED* to be significantly negative; that is, dedicated guiders invest significantly less in R&D, *ceteris paribus*. We include industry dummies IND_i because there is considerable variation in R&D intensity across different industries as shown in Panel A of Table 3. For the control variables, we expect *RDX* to be negatively related to book-to-market ratio (*BM*), firm size (*LOGMV*), leverage (*LEV*), and positively related to analyst long-term growth forecasts (*GROWEST*) because firms with lower book-to-market ratio, smaller size, lower leverage or higher long-term growth forecast are considered as having more valuable R&D or growth opportunities and face a higher cost of underinvesting in R&D for myopic reasons (Myers [1984], Berger [1993], Bushee [1998]). We also expect the level of R&D investment to be positively related to the percentage ownership by institutional investors (*%INST*) who are expected to serve a monitoring role in reducing myopic behavior (Bushee [1998]).

In addition, we expect the level of R&D investment to be negatively related to capital expenditure (*CAPX*) but positively related to total revenue (*SALES*), as firms with lower capital expenditure or better sales performance have more funds available for R&D.[7] We expect *NUMANA*, number of analysts following the firm, to be positively related to *RDX*, as Barth et al. [2001] provide evidence that analysts tend to follow firms with higher intangible assets (e.g., higher R&D intensity). While *NUMANA* is not necessarily a determinant for R&D intensity, to the extent that our measure of quarterly earnings guidance frequency is highly correlated with analyst following (as shown in Table 2), it is important to control for it.

[7] *SALES* also serves as a control for firm performance in order to address the possibility that dedicated firms' underinvestment in R&D is a rational reaction to poor performance. In addition, we also check the robustness of our results to controlling for ROA. The results are qualitatively similar.

Finally, following Bushee [1998], we also include free cash flow deflated by lagged total assets (*FCF*) as a control variable. Bushee [1998] predicts a positive relation between these two variables. He suggests that firms with substantially negative free cash flows have a greater need to raise equity in the short-term, and thus have incentives to boost earnings by reducing discretionary expenditures such as R&D. On the other hand, since we measure *RDX* and *FCF* concurrently, firm-years with higher R&D expenditures tend to have lower free cash flow. This implies a (mechanical) negative relation between these two variables. Thus, we do not make a directional prediction regarding the relation between *FCF* and *RDX*.

Panel B of Table 3 presents descriptive statistics of the variables in model (1) based on the 1,513 firm-years used in the model estimation. On average, these firms invest about 5.8% of their total assets annually in R&D during 2001-2003. The average book-to-market ratio is 0.49; the average analyst forecast for long-term growth is about 17%; the average market value is about $ 6,323 million; the average leverage is about 19%; and the average institutional ownership is about 62%. Capital expenditures and free cash flows on average are 5.7% and 1.5% of total assets, while sales is about 1.1 times of total assets. On average, our sample firms are followed by approximately 9 analysts.

Panel C presents the estimation results for model (1). As hypothesized, the coefficient on *DEDICATED* is significantly negative at -0.0068 (p=0.05), suggesting that after controlling for other factors in the model, dedicated guiders on average spend 0.68% of total assets less on R&D than occasionally guiders. This is consistent with dedicated guiders behaving myopically.

Regarding the control variables, as expected, firm-years with lower book-to-market ratio, higher long-term growth forecast, smaller size, lower leverage, lower capital expenditure, and higher analyst following tend to invest more on R&D. Inconsistent with expectations, however,

percentage of institutional ownership and total sales are not significantly related with R&D expenditures. Free cash flows are negatively related with R&D investment.[8]

Finally, we make a few observations regarding the economic significance of our results. In our univariate analysis, dedicated guiders on average spend 4.8% of total assets in R&D, compared to 6.3% for occasional guiders. This represents an average reduction of 1.5% of total assets, which implies that dedicated firms spend around 25% less than occasional firms on R&D. After appropriate controls, this difference reduces to 0.68% of total assets, which still represents over 10% lower spending on R&D by dedicated firms when compared to occasional firms. As such, our R&D results are economically significant.

4.3 ADDITIONAL ANALYSES

To check whether our results hold for R&D intensive industries, we also estimate model (1) for the five industries whose average R&D investments amount to at least 2% of total assets (i.e., *RDX*>=0.02), including the industries of business equipment, chemical, consumer durables, healthcare, and manufacturing. The results are qualitatively similar, if not stronger. Specifically, the coefficient on *DEDICATED* is –0.01, significant at better than 0.05 level. Since the average R&D level for the occasional (dedicated) firms in these industries is 9.4% (7.2%) of total assets, these results again suggest that on average the dedicated guiders' R&D investments are more than 10% less than occasional guiders, which is economically significant.

As discussed above, we adopt a levels specification, as opposed to a changes specification, for our tests of R&D investment. One criticism of the levels specification is that our results may simply be due to differential firm characteristics. Since our definition of dedicated (occasional) firms is within each industry and we include industry dummies in our

[8] We note that all our regression results in Sections 4-6 are insensitive to winsorization at the extreme 1% of the absolute values of all continuous variables.

regression (in addition to other control variables), we believe our levels specification does control for the most significant cross-sectional differences in R&D spending. Nevertheless, we run a robustness test in which we include the lagged *RDX* in model (1). Our results are robust to this alternative specification.

5. Short-Term Performance

5.1 UNIVARIATE ANALYSIS

H_{2A} predicts that dedicated guiders will more likely meet or beat analyst earnings forecasts than occasional guiders given their short-term orientation. Panel A of Table 4 presents the results of univariate tests of this hypothesis. We first report signed analyst forecast error measured as the actual earnings per share minus the analyst consensus forecast both at the beginning of the quarter (*FE0*) and prior to the earnings announcement (*FE*). Both variables are deflated by stock price at the beginning of the fiscal quarter. In general, there is no significant difference in signed analyst forecast errors between dedicated guiders and occasional guiders, except for the Wilcoxon test with *FE0*.

We also examine differences in analyst forecast accuracy between dedicated and occasional guiders using absolute values of forecast errors (*AFE0* and *AFE*). On average, the quarter starts and ends with more accurate analyst forecasts for dedicated guiders than for occasional guiders. However, dedicated guiders' analyst forecast accuracy improves by a greater extent than that of occasional guiders. Specifically, dedicated guiders' mean analyst forecast accuracy at the earnings announcement (*AFE*=0.0022) is less than half of that at the beginning of the quarter (*AFE0*=0.0056). In contrast, occasional guiders' mean analyst forecast accuracy only

improves from 0.0114 to 0.0074 over the quarter. The implications with medians are qualitatively similar.

Panel A also reports our key variables of interest *MBE0* and *MBE*, which are indicator variables for meeting or beating expectations corresponding to the signs of *FE0* and *FE* respectively, i.e., *MBE0*=1 (*MBE*=1) when *FE0*≥0 (*FE*≥0) and 0 otherwise. Only 50% of dedicated guiders would meet or beat analyst consensus forecast measured at the beginning of the quarter (*MBE0*=1 for 50% of the dedicated guiders), in comparison to 53% of occasional guiders. In contrast, by the time of earnings announcements, dedicated guiders have a significantly higher percentage of meeting/beating market expectations. Specifically, dedicated guiders meet or beat market expectations 86% of the time (*MBE*=1 for 86% of dedicated guiders), compared to only 75% for the occasional guiders. This difference is statistically significant at better than 0.01 level.

To shed further light on the role of earnings guidance in meeting short-term earnings targets (through managing market's earnings expectations downward[9]), in Panel B of Table 4 we report the interaction between *MBE0* and *MBE* for the dedicated guiders and occasional guiders separately. While the distribution of *MBE* is similar between the two categories of firms conditional on *MBE0*=1, a much higher percentage of *MBE0*=0 firms eventually meet or beat analyst consensus at the time of earnings announcement (i.e., *MBE*=1) for dedicated firms (75%) than for occasional firms (52%). A chi-square test suggests that this difference is statistically significant (χ^2=207 and p<0.01). Thus, the results in Panel A and Panel B both suggest that dedicated guiders have greater emphasis on meeting or beating analyst forecasts.

[9] Expectations management does not preclude the possibility of the firm using other approaches, such as earnings management or real operations management (i.e., cutting R&D expenditures or foregoing positive-NPV projects) to meet or beat market expectations. For example, Kasznik[1999] finds that managers who issue earnings forecasts also manage reported earnings toward their forecasts; Matsumoto [2002] finds that managers use both earnings management and expectations management to avoid negative earnings surprises.

5.2 REGRESSION ANALYSIS

In Table 5 we report results from our estimation of a logistic regression that controls for different factors affecting the probability of meeting or beating quarterly analyst consensus. We follow Matsumoto [2002] who models this probability based on firms' incentives to avoid negative earnings surprises. Specifically, we estimate the following logistic regression model (firm-quarter subscripts are omitted):

$$Prob(MBE=1)=F(\beta_0+\Sigma\beta_i IND_i+\beta_1 DEDICATED+\beta_2 ML\%INST+\beta_3 MLRDX +\beta_4 MLLABR+\beta_5 LOSS+\beta_6 GROWEST+\beta_7 POSUE+\beta_8 LOGMV+\beta_9 AFE0+\varepsilon) \quad (2)$$

MBE and *DEDICATED* are as defined above. *DEDICATED* is our variable of interest and to the extent that firms frequently issuing earnings guidance are more likely to meet or beat earnings targets, we expect the coefficient on *DEDICATED* to be significantly positive. Matsumoto (2002) shows that firms with higher institutional ownership (*ML%INST*), higher R&D expenditures (*MLRDX*), and higher labor intensity (*MLLABR*) are more likely to meet or beat analyst consensus. Accordingly, we control for these variables. As in Matsumoto (2002), *ML%INST* is the average percentage of institutional ownership over the previous four quarters where institutional ownership information is obtained from CDA/Spectrum Institutional Holdings (13f) database; *MLRDX* is the average R&D expenditure deflated by total assets over the previous four quarters[10] and *MLLABR* is the average labor intensity over the previous four quarters, where labor intensity is measured as one minus property, plant, and equipment deflated by total assets.

Following Matsumoto [2002], we also expect *MBE* to be negatively correlated with *LOSS*, an indicator variable that takes value 1 if the firm reports loss for every quarter in the previous four quarters and 0 otherwise; positively correlated with *GROWEST*, the I/B/E/S median analyst

[10] Similar to Matsumoto [2002], when firms do not report quarterly, but report annual R&D information, we use one-fourth of the annual R&D for each of the four quarters during the corresponding fiscal year. In addition, we set R&D to zero if the variable is missing in both quarterly and annual Compustat.

estimate for long-term earnings growth measured at the end of the previous year;[11] positively correlated with *POSUE*, an indicator variable that equals to 1 if the earnings of the quarter is greater than that of the same quarter in the previous year, and 0 otherwise. Finally, we expect firms with larger firm size (measured as *LOGMV*, log of market value at the end of the quarter) and lower uncertainty in forecasting environment (measured as *AFE0*, the deflated absolute value of analyst forecast error at the beginning of the quarter) to be more likely to meet or beat analyst consensus. We also include industry dummy variables (IND_i) to control for industry-specific factors that affect the industry's overall likelihood of meeting or beating analyst consensus. Because of the inclusion of the industry dummies, we omit the following industry-specific variables from Matsumoto's model: indicators for durable goods industry and high litigation risk industry, and industry-specific measure for value relevance of earnings.

In Panel A of Table 5 we report descriptive statistics of the dependent and independent variables based on the 5,782 firm-quarters with non-missing values for all variables in model (2). Overall, our sample firms meet or beat analyst consensus 81% of the time. The sample firms on average have about 63% of institutional ownership. This percentage is somewhat higher than the 45% in Matsumoto [2002], which is likely due to an increase in institutional ownership over time (Gompers and Metrick [2001]) since Matsumoto's sample period is 1993-1997 while ours is 2001-2003.[12] Average quarterly R&D spending is about 1.4% of total assets and average labor intensity is about 74%. About 14% of the firm-quarters report loss in each of the previous four quarters, while 58% of the firm-quarters have a positive change in earnings relative to the same quarter of the prior year, compared to 5% and 66% respectively in Matsumoto [2002]. The worse

[11] We use median, as opposed to mean, analyst long-term growth estimate because I/B/E/S recommends its use due to the variance in methodologies for the calculation of long-term growth estimate among analysts. However, our results are qualitatively unchanged when we use mean analyst long-term growth estimate instead.
[12] Ashbaugh et al. [2004] report a mean of 63% and a median of 67% institutional ownership for their sample in fiscal year 2002.

performance in terms of both prior losses and seasonal changes of earnings with our sample is likely due to the down-market in our sample period. The analyst forecast for long-term growth is 19.5%, slightly higher than 18% reported in Matsumoto [2002]. The average market value is 6,914 and the median is 1,175 million dollars, larger than those in Matsumoto [2002]. This again is likely due to our different sample periods. Finally, the average absolute analyst forecast error at the beginning of the quarter is 0.0068, more accurate than that in Matsumoto [2002].

The results of the logistic regression estimation are presented in Panel B of Table 5. As expected, the coefficient on *DEDICATED* is significantly positive at 0.57 with p-value less than 0.01, suggesting that dedicated guiders meet or beat analyst consensus significantly more frequently than occasional guiders. The marginal effect on *DEDICATED* indicates that the probability of meeting/beating expectations for dedicated guiders is higher than that of occasional guiders by 3.52%. All the control variables have coefficients consistent with our expectations as described above.

5.3 ADDITIONAL ANALYSIS

The above analyses provide evidence that dedicated guiders meet or beat market expectations more frequently, suggesting a greater propensity on the part of the dedicated guiders to emphasize on achieving short-term performance benchmarks. Prior studies on expectations management have documented that firms use earnings guidance to achieve meetable/beatable market expectations (e.g., Matsumoto [2002], Cotter et al. [2004]). Thus, our results may not reflect the inherent myopia (i.e., emphasis on short-term goals) of the dedicated firms, but simply reflect the effects of earnings guidance on market expectations. To address this concern, we conduct additional analyses by re-estimating model (2) using quarters when the sample firms do not provide earnings guidance. The results are consistent with those reported in Table 5,

suggesting that the higher frequency of meeting or beating market expectations by dedicated guiders is not completely driven by explicitly using earnings guidance to lower market expectations, but that it reflects dedicated guiders' inherent emphasis on short-term goals.

To shed further light on the use of R&D expenditures to meet or beat market expectations, we also compare the percentage of firm-quarters cutting R&D expenditures conditional on *MBE0*. We find that when *MBE0*=0 (i.e., the firm starts the quarter with expectations higher than its earnings), 49.8% of dedicated guiders cut its R&D relative to the previous quarter, in comparison to only 44.3% of occasional guiders. The difference is statistically significant based on a chi-square test (χ^2=4.74 and p=0.03). On the other hand, when *MBE0*=1, there is no statistical difference in percentage of firms cutting R&D expenditures between dedicated and occasional guiders. Thus, these results add to the analyses in both Sections 4 and 5 that dedicated firms are more likely to engage in myopic R&D decisions to achieve short-term earnings targets.

6. Long-Term Performance

6.1 UNIVARIATE ANALYSIS

As discussed in Section 2, our primary measure of long-term performance is the three-year change in ROA (*CROA*) from year 2000 to year 2003. ROA is calculated as annual net income before extraordinary items deflated by the total assets at the beginning of the corresponding year. Panel A of Table 6 presents univariate analyses of *CROA* for the pooled sample and by industry. For the overall sample, both the mean and median of *CROA* are smaller for dedicated guiders (-2.7% and -2.4% respectively) than for occasional guiders (7.8% and -0.5% respectively) and the differences are significant at better than 0.05 and 0.01 levels respectively. This indicates that dedicated guiders experience significantly lower earnings

growth than occasional guiders. For by-industry analysis, in general, the changes in return on assets for dedicated guiders are smaller than for occasional guiders. The differences, however, are usually not significant within each industry. This might be caused by the lack of power for our small sample comparisons within industry.

6.2 REGRESSION ANALYSIS

Univariate analyses do not take into account other factors that may potentially affect a firm's long-term earnings growth. To further explore the relationship between the three-year changes in return on assets and the frequency of issuing quarterly earnings guidance, we control for other potential determinants of changes in ROA by estimating the following OLS regression (firm subscripts are omitted):

$$CROA=\beta_0+\Sigma\beta_i IND_i+\beta_1 DEDICATED+\beta_2 BM_{2000}+\beta_3 LOGMV_{2000}+ \beta_4 GROWEST_{2000}+\beta_5 AGE_{2000}+\beta_6 NUMANA_{2000}+\varepsilon \quad (3)$$

CROA and *DEDICATED* are as defined previously. We again include industry dummies (IND_i) to control for industry-specific factors that affect the long-term earnings growth. All other control variables are measured at the end of fiscal year 2000 (indicated with subscripts *2000*) in order to control for economic conditions at the beginning of the period for which we measure the earnings growth. We include book to market ratio (BM_{2000}), firm size ($LOGMV_{2000}$), and median analyst forecast for long-term growth ($GROWEST_{2000}$) to control for market expectations at the end of 2000 for future performance growth. We expect firms with lower BM_{2000}, smaller $LOGMV_{2000}$, or higher $GROWEST_{2000}$ to have higher *CROA* over the next three years. We also include firm age, measured as number of years the company has been listed in an exchange (AGE_{2000}), as we expect older firms to have less growth opportunities and hence lower change in return on assets. Finally, prior literature suggests that higher analyst coverage ($NUMANA_{2000}$) reduces information asymmetry (e.g., Healy and Palepu [2001]), and that there is a negative

relation between the level of information asymmetry and a firm's long-term performance (D'Mello and Ferris [2000]). Accordingly, we expect firm's long-term performance as measured by *CROA* is positively related to $NUMANA_{2000}$.

Table 6 Panel B reports the descriptive statistics based on 499 firms used in estimating model (3). Overall, these firms have a mean (median) *CROA* of 3.5% (-1.7%) from 2000 to 2003. The average book to market ratio is about 0.47 at the end of 2000. The mean and median of market value at the end of 2000 is $ 9,806 and $ 1,384 million, respectively. On average, financial analysts predict long-term earnings growth rate of about 22.5%. This is relatively higher than that reported in Table 5, probably because here we measure the growth forecast as of the end of 2000, i.e., before the market crash in 2001, while in Table 5 we measure the growth forecast during 2001-2003. The average firm age as of the end of 2000 is 20.8, and the median is 14. At the end of 2000, the average firm is followed by about 6 analysts.

Table 6 Panel C reports the results of the OLS regression for model (3). As predicted, *DEDICATED* has a negative coefficient of -0.12, which is significant at the 0.05 level. $GROWEST_{2000}$ is significantly positively related to *CROA*. However, inconsistent with our expectations, BM_{2000} has a significantly positive coefficient, suggesting that firms with higher book-to-market ratio tend to have higher growth in future operating performance. Finally, $LOGMV_{2000}$, AGE_{2000}, and $NUMANA_{2000}$ are not significantly correlated with changes in return on assets.

In terms of economic significance, our univariate results reveal that the mean (median) *CROA* over the 2000-2003 period for the dedicated firms is -2.7% (-2.4%) compared to 7.8% (-0.5%) for the occasional firms. The differences in growth rates thus appear economically

significant. Our multivariate specification suggests an average growth rate differential of over 12% across the two groups, which is also economically significant.

6.3 ADDITIONAL ANALYSIS

Our measure of ROA does not adjust for R&D expense. Since R&D decreases ROA and in Section 4 we document that R&D expense is lower for dedicated guiders, this should work against the myopia hypothesis that CROA is lower for dedicated guiders. Nevertheless, we check the robustness of our results by adjusting ROA for R&D, i.e., excluding R&D expenditures in the ROA calculation. We make the adjustment in two alternative ways. First, we add back 0.65 (i.e., assuming a marginal tax rate of 35%) times R&D expenditure to net income before extraordinary items before deflating it by lagged total assets. Second, we measure operating performance by adding back R&D expenditure to pre-tax income. As expected, in either case, our results are qualitatively unchanged after controlling for R&D.

We next address a potential problem with the time period over which we examine long-term performance. Ideally, to examine the long-term performance effects of managerial myopia, we need to examine the long-term performance over a period that *follows* the period during which we expect the dedicated firms to behave myopically (i.e., 2001-2003). However, due to data constraints, we are unable to analyze a non-overlapping period subsequent to 2003. Accordingly, we choose to examine the change in ROA over the same 2001-2003 period when we examine myopic behavior. We conduct the following additional analyses to address this problem.

The analysis of a concurrent period of the long-term performance is valid under the assumption that different firms exhibit myopic (or non-myopic) patterns of behavior consistently over a relatively long time period. If this is the case, we expect the lower operating performance

we document in Table 6 reflects the consequence of myopic behavior prior to 2001. Accordingly, we redo the R&D expenditure analyses in Section 4 over the 1998-2000 time frame.[13] The results are consistent with those reported in Table 3 in that dedicated firms invest significantly less in R&D even during the three years *prior* to 2001. The consistent pattern in R&D expenditure lends support to our analyses of long-term negative effects of myopic behavior.

We also examine the earnings growth for 2004, the only year after our sample period with operating performance data available, with respect to 2000, the starting point of our sample period. The results are qualitatively similar to those reported in Table 6. Finally, we examine univariate statistics of size-adjusted stock returns over 2004 and find that the mean is marginally different ($p=0.10$) and the median is significantly different ($p=0.04$), with signs suggesting dedicated guiders experience worse market performance than occasional guiders in the year subsequent to our measurement period.

To summarize, consistent with the myopia hypothesis, our results provide evidence that ROA growth is significantly lower for dedicated guiders than for occasional guiders, after controlling for other determinants of changes in ROA. While we note that this result should be interpreted with caution due to our contemporaneous design, our attempts to address this issue using limited data appear to support the myopia hypothesis. Thus, the empirical evidence in Sections 4-6 collectively supports the alleged conjecture that frequent quarterly earnings guidance is associated with managerial myopic behavior, i.e., sacrificing long-term performance for the purpose of meeting short-term objectives.

[13] We still use the 2001-2003 guidance frequency categorization because as explained earlier, we are unable to observe all earnings guidance in pre-FD period.

7. Conclusion

Recent discontinuance of quarterly earnings guidance by many firms has ignited a debate about the costs and benefits of providing such guidance (e.g., McKay and Brown 2002). At issue are the implications of earnings guidance for myopic managerial behavior. For example, managers of companies discontinuing earnings guidance have remarked that earnings guidance precipitates myopic decisions by forcing managers to emphasize meeting short-term earnings targets rather than long-term value creation.

We provide empirical evidence that firms that frequently issue quarterly earnings guidance appear to be relatively more myopic than those that provide less frequent guidance. Specifically, we document that dedicated guiders invest less in R&D, meet or beat analyst consensus forecasts more frequently and have significantly lower ROA growth than occasional guiders.

Our paper adds to the recent literature (Bushee [1998], Bhojraj et al. [2005]) that identifies different factors associated with managerial myopia. However, our research design does not allow us to assert that earnings guidance *causes* managerial myopia. Future research could explore this perspective and help us further understand the exact mechanism by which earnings guidance leads to managerial myopia. One possible extension to our paper is to focus on firms that stop issuing quarterly earnings guidance and examine whether they behave less myopically afterwards. Another interesting extension of our research is to examine the determinants and consequences of firms' decisions to stop issuing quarterly earnings guidance (as recently examined by Chen et al. [2005]). Such investigation could help us better understand firms' trade-offs between costs and benefits of earnings guidance.

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Table 1: Description of Quarterly Earnings Guidance Frequency

Industry	# firms	Mean	Median	Std. Dev.	Q1	Q3	# firms FREQ=0	# firms FREQ=12
Overall	989	5.02	4	3.87	2	8	153	57
Business Equipment	342	5.43	5	3.60	3	9	28	20
Chemicals	37	5.46	5	4.13	1	9	4	4
Consumer Durables	33	5.30	5	4.22	1	10	6	4
Consumer Non-Durables	64	4.89	4	4.12	1	8	12	6
Energy	37	2.73	1	3.56	0	4	16	1
Healthcare	74	3.61	2	3.84	0	6	23	3
Manufacturing	148	4.61	4	3.72	2	8	23	8
Telecommunications	13	3.92	2	4.27	1	8	3	1
Wholesale and Retails	111	6.78	8	4.01	3	10	14	10
Other	130	4.35	3	3.67	1	8	24	0

Table 1 reports descriptive statistics of quarterly earnings guidance frequency from 2001 to 2003. Quarterly earnings guidance frequency is defined as the number of quarters for which a firm issues at least one earnings guidance. The industry classification is according to the 12 categories in Fama and French (1997), with the utilities industry and the financial service industry excluded.

Table 2: Descriptive Statistics of Firm Characteristics Conditional on Quarterly Earnings Guidance Categories

	# of Observations		Mean		Median	
Variables	**Dedicated**	**Occasional**	**Dedicated**	**Occasional**	**Dedicated**	**Occasional**
FREQ	309	340	9.72	1.08	10.00	1.00
			(0.00)		(0.00)	
TA	926	1017	9006.70	4707.25	1603.97	727.11
			(0.00)		(0.00)	
MV	926	1017	8908.94	5813.71	1682.45	807.30
			(0.01)		(0.00)	
BM	926	1017	0.47	0.57	0.40	0.45
			(0.01)		(0.00)	
NUMANA	927	1018	10.65	6.99	8.00	5.00
			(0.00)		(0.00)	
%INST	902	990	0.67	0.57	0.69	0.59
			(0.00)		(0.00)	

Table 2 reports descriptive statistics of firm characteristics conditional on quarterly earnings guidance categories from 2001 to 2003. Numbers in parentheses are two-sided p-values. For means, the p-values are from *t* test; for medians, the p-values are from Wilcoxon test. FREQ is based on firm-specific observations. All other variables are based on firm-year-specific observations. "Dedicated" ("occasional") refers to firms that are in the top (bottom) third of their respective industry's distribution of guidance frequency. The variables are defined as follows:

FREQ= number of quarters for which a firm issues at least one earnings guidance,
TA= total asset (Compustat data#12) at the end of the year,
MV= market value (Compustat data#25 x data#199) at the end of the year,
BM= ratio of book value of equity (Compustat data#60) to market value of equity (Compustat data#25 x data#199) at the end of the year,
NUMANA= number of analysts following at the end of the calendar year from First Call Summary database,
%INST= percentage of institutional holding at the end of the year from CDA/Spectrum Institutional (13f) Holdings database.

Table 3: Tests for Research and Development Expenditures

Panel A: Univariate Analyses

	# of Firm-Years		Mean		Median	
Industries	**Dedicated**	**Occasional**	**Dedicated**	**Occasional**	**Dedicated**	**Occasional**
Overall	927	1020	0.0479	0.0629	0.0187	0.0195
				(0.00)		(0.11)
Business Equipment	318	366	0.0976	0.1085	0.0916	0.0976
				(0.06)		(0.11)
Chemicals	33	42	0.0219	0.0459	0.0201	0.0157
				(0.10)		(0.66)
Consumer Durables	30	33	0.0186	0.0286	0.0192	0.0180
				(0.09)		(0.31)
Consumer Non-Durables	60	66	0.0039	0.0047	0.0000	0.0000
				(0.71)		(0.37)
Energy	30	48	0.0010	0.0026	0.0000	0.0000
				(0.22)		(0.74)
Healthcare	69	69	0.0900	0.2381	0.0605	0.1735
				(0.00)		(0.00)
Manufacturing	138	165	0.0284	0.0254	0.0220	0.0135
				(0.52)		(0.00)
Telecommunications	12	9	0.0213	0.0000	0.0007	0.0000
				(0.08)		(0.02)
Wholesale and Retails	108	114	0.0038	0.0024	0.0000	0.0000
				(0.56)		(0.00)
Other	129	108	0.0082	0.0021	0.0000	0.0000
				(0.01)		(0.01)

Panel B: Descriptive Statistics

Variables	N	Mean	Median	Std. Dev.	Q1	Q3
RDX	1513	0.0578	0.0242	0.0840	0.0000	0.0939
DEDICATED	1513	0.4917	0.0000	0.5001	0.0000	1.0000
BM	1513	0.4877	0.4200	0.3842	0.2565	0.6224
GROWEST	1513	17.3991	15.0000	8.7889	11.0000	20.0000
MV	1513	6323.20	1200.41	22452.02	382.35	3808.39
LOGMV	1513	7.1754	7.0904	1.6729	5.9463	8.2450
LEV	1513	0.1867	0.1781	0.1810	0.0056	0.3014
%INST	1513	0.6203	0.6513	0.2003	0.5001	0.7702
CAPX	1513	0.0570	0.0388	0.0572	0.0221	0.0692
SALES	1513	1.0930	0.9307	0.7875	0.5734	1.3847
NUMANA	1513	8.9498	7.0000	7.2687	3.0000	12.0000
FCF	1513	0.0148	0.0415	0.1569	-0.0252	0.0908

Panel C: Regression Analyses

Dep. Var. = RDX; # Obs. = 1513			
Independent Variables	**Predicted Sign**	**Coefficient**	**p-value**
Industry Dummies	*	*	*
DEDICATED	-	-0.0068	0.05
BM	-	-0.0345	0.00
GROWEST	+	0.0007	0.00
LOGMV	-	-0.0058	0.00
LEV	-	-0.0445	0.00
%INST	+	0.0042	0.64
CAPX	-	-0.0757	0.03
SALES	+	0.0004	0.89
NUMANA	+	0.0007	0.04
FCF	?	-0.1129	0.00
Adj-Rsq		43.26%	

Table 3 Panel A reports univariate analyses for R&D expenditures by industry. Numbers in parentheses are two-sided p-values. For means, the p-values are from *t* test; for medians, the p-values are from Wilcoxon test. Panel B describes statistics of variables in regression analyses of R&D expenditures. Panel B reports descriptive statistics of variables based on the1,513 firm-years used in estimating model (1). Panel C reports the coefficients and two-sided p-values of the ordinary least square regressions of R&D expenditures. DEDICATED is firm specific, and all other variables are firm-year specific. The variables are defined as follows:

DEDICATED= one (zero) if the firm's quarterly earnings guidance frequency is in the top (bottom) third of their respective industry's distribution of guidance frequency,

RDX= R&D expenses (Compustat data#46) for the year scaled by total assets (Compustat data#6) at the beginning of the fiscal year,

BM= ratio of book value of equity (Compustat data#60) to market value of equity (Compustat data#25 x data#199) at the end of the year,

GROWEST= median of analysts' long-term growth forecasts at the end of the year from IBES Summary file

MV= market value (Compustat data#25 x data#199) at the end of the year,

LOGMV= log of market value at the end of the fiscal year,

LEV= short-term debt (Compustat data#34) plus long-term debt (Compustat data#9) over total assets (Compustat data#6) at the end of the fiscal year,

%INST= percentage of institutional holding at the end of the year from CDA/Spectrum Institutional (13f) Holdings database,

CAPX= capital expenditure (Compustat data#30) for fiscal year scaled by total assets (Compustat data#6) at the beginning of the fiscal year,

SALES= sales (Compustat data#12) for the fiscal year scaled by total assets (Compustat data#6) at the beginning of the fiscal year,

NUMANA= number of analysts following at the end of the calendar year from First Call Summary database,

FCF= free cash flow measured using income (Compustat data#18) minus the change of current assets (Compustat data#4) plus the change of current liabilities (Compustat data#5) plus the change of cash and short-term investments (Compustat data#1) minus the change of short-term debt (Compustat data#34) plus depreciation (Compustat data#14) minus capital expenditure (Compustat data#30) scaled by total assets (Compustat data#6) at the beginning of the fiscal year.

Table 4: Tests for Quarterly Performance: Meeting/Beating Analyst Forecast

Panel A: Univariate Analysis

	# of Observations		Mean		Median	
Variables	**Dedicated**	**Occasional**	**Dedicated**	**Occasional**	**Dedicated**	**Occasional**
FE0	3631	3966	-0.0019	-0.0016	-0.0002	0.0000
			(0.67)		(0.06)	
FE	3708	4080	0.0012	0.0014	0.0005	0.0004
			(0.76)		(0.23)	
AFE0	3631	3966	0.0056	0.0114	0.0021	0.0028
			(0.00)		(0.00)	
AFE	3708	4080	0.0022	0.0074	0.0007	0.0015
			(0.00)		(0.00)	
MBE0	3631	3966	0.4966	0.5313	0.0000	1.0000
			(0.00)		(0.00)	
MBE	3708	4080	0.8611	0.7453	1.0000	1.0000
			(0.00)		(0.00)	

Panel B: Quarterly Earnings Guidance and Meeting/Beating Analyst Forecasts

	Dedicated		**Occasional**	
	MBE=0	MBE=1	MBE=0	MBE=1
MBE0=0	466 (25.49%)	1362 (74.51%)	899 (48.36%)	960 (51.64%)
MBE0=1	37 (2.05%)	1766 (97.95%)	108 (5.13%)	1999 (94.87%)

Table 4 Panel A reports quarterly analyst forecast error, analyst forecast accuracy, and the frequency of meeting/beating analyst forecasts for our sample from 2001 to 2003. Numbers in parentheses are two-sided p-values. For means, the p-values are from *t* test; for medians, the p-values are from Wilcoxon test. Panel B reports the interaction between the frequency of meeting/beating analyst forecasts at the beginning of the quarter and that at the earnings announcement for dedicated guiders and occasional guiders separately.

All variables are based on firm-quarter-specific observations. “Dedicated” (“occasional”) refers to firms that are in the top (bottom) third of their respective industry’s distribution of guidance frequency. The variables are defined as follows:

FE0= quarterly actual earnings per share minus the last analyst forecast mean outstanding at the beginning of the quarter deflated by beginning-of-quarter stock price,

FE= quarterly actual earnings per share minus the last forecast mean for the quarter deflated by beginning-of-quarter stock price,

AFE0= absolute value of FE0,

AFE= absolute value of FE,

MBE0= one if FE0 is greater or equal to zero, and zero otherwise,

MBE= one if FE is greater or equal to zero, and zero otherwise.

Table 5: Regression Analysis for Quarterly Performance: Meeting/Beating Analyst Forecast

Panel A: Descriptive Statistics

Variables	N	Mean	Median	Std. Dev.	Q1	Q3
MBE	5782	0.8136	1.0000	0.3895	0.0000	1.0000
DEDICATED	5782	0.5005	1.0000	0.5000	0.0000	1.0000
ML%INST	5782	0.6260	0.6567	0.2093	0.4956	0.7825
MLRDX	5782	0.0136	0.0056	0.0187	0.0000	0.0228
MLLABR	5782	0.7371	0.7960	0.2011	0.6313	0.8956
LOSS	5782	0.1387	0.0000	0.3457	0.0000	0.0000
GROWEST	5782	19.5150	15.5000	11.2350	12.0000	25.0000
POSUE	5782	0.5766	1.0000	0.4941	0.0000	1.0000
MV	5782	6913.68	1175.39	25709.22	384.48	4024.68
LOGMV	5782	7.1797	7.0694	1.7131	5.9519	8.3002
AFE0	5782	0.0068	0.0022	0.0213	0.0007	0.0064

Panel B: Logistic Regression Analyses

Dep. Var. = MBE; # Obs. = 5782				
Independent Variables	**Predicted Sign**	**Coefficient**	**p-value**	**Marginal Effect**
Industry Dummies	*	*	*	*
DEDICATED	+	0.5727	0.00	3.52%
ML%INST	+	0.6726	0.00	0.81%
MLRDX	+	6.2037	0.02	0.67%
MLLABR	+	0.9460	0.00	1.07%
LOSS	-	-0.2545	0.04	-1.57%
GROWEST	+	0.0075	0.07	0.52%
POSUE	+	1.1569	0.00	7.65%
LOGMV	+	0.1342	0.00	1.36%
AFE0	-	-8.3811	0.00	-1.04%

Table 5 Panel A reports descriptive statistics of variables based on the 5,782 firm-quarters used in estimating model (2). Panel B reports the coefficients, two-sided p-values and marginal effects of the logit regressions of the probability of meeting or beating analyst forecasts. The marginal effects for continuous variables (ML%INST, MLRDX, MLLABR, GROWEST, LOGMV, AFE0) reflect the estimated probability change caused by the change of one standard deviation of the independent variable. The marginal effects for indicator variables (DEDICATED, LOSS, POSUE) reflect the estimated probability change caused by the change of the independent variable from 0 to 1. DEDICATED is firm-specific, GROWEST is firm-year specific, and all other variables are firm-quarter specific. The variables are defined as follows:

MBE= one if quarterly actual earnings per share is greater than or equal to the last analyst forecast mean for the quarter, and zero otherwise,

DEDICATED= one (zero) if the firm's quarterly earnings guidance frequency is in the top (bottom) third of their respective industry's distribution of guidance frequency,

ML%INST= percentage of shares held by institutional investors averaged over the previous four quarters,

MLRDX= research and development expenses (Quarterly Compustat data#4) over total assets (Quarterly Compustat data#44) averaged over the previous four quarters,

MLLABR= one minus property, plant, and equipment (Quarterly Compustat data#42) divided by total assets (Quarterly Compustat data#44) averaged over the previous four quarters,

LOSS= one if quarterly net income (Quarterly Compustat data#8) in each of the previous four quarters is negative, and zero otherwise,

GROWEST= median of analysts' long-term growth forecasts at the end of the year from IBES Summary file

POSUE= one if earnings (Quarterly Compustat data#8) in the quarter is greater than earnings of the same quarter in the prior year, and zero otherwise,

MV= market value of equity (Quarterly Compustat data#61 x data#14) at the end of the quarter,

LOGMV= log of market value of equity at the end of the quarter,

FE0= absolute value of quarterly actual earnings per share minus the last analyst forecast mean outstanding at the beginning of the quarter deflated by beginning-of-quarter stock price.

Table 6: Tests for Long-Term Performance: Increase in ROA from 2000 to 2003

Panel A: Univariate Analyses

	# of Firms		Mean		Median	
Industries	**Dedicated**	**Occasional**	**Dedicated**	**Occasional**	**Dedicated**	**Occasional**
Overall	308	338	-0.0269	0.0775	-0.0235	-0.0052
			(0.03)		(0.00)	
Business Equipment	105	120	-0.0392	0.2063	-0.1031	-0.0287
			(0.06)		(0.02)	
Chemicals	11	14	-0.0051	0.0348	-0.0018	-0.0142
			(0.54)		(0.60)	
Consumer Durables	10	11	-0.0184	-0.0431	-0.0253	-0.0100
			(0.37)		(0.92)	
Consumer Non-Durables	20	22	0.0010	0.0268	-0.0022	0.0208
			(0.33)		(0.33)	
Energy	10	16	-0.0429	-0.0167	-0.0299	-0.0149
			(0.18)		(0.26)	
Healthcare	23	23	-0.0038	0.1204	0.0184	0.0643
			(0.04)		(0.11)	
Manufacturing	46	55	-0.0510	-0.0267	-0.0212	-0.0133
			(0.25)		(0.19)	
Telecommunications	4	3	0.0222	-0.0316	0.0007	-0.0246
			(0.13)		(0.05)	
Wholesale and Retails	36	38	-0.0296	-0.0047	-0.0224	0.0023
			(0.41)		(0.02)	
Other	43	36	-0.0023	0.0019	-0.0139	0.0059
			(0.82)		(0.01)	

Panel B: Descriptive Statistics

Variables	N	Mean	Median	Std. Dev.	Q1	Q3
CROA	499	0.0354	-0.0172	0.6736	-0.0883	0.0240
DEDICATED	499	0.4990	0.0000	0.5005	0.0000	1.0000
BM_{2000}	499	0.4707	0.3408	0.5602	0.1701	0.6011
MV_{2000}	499	9806.35	1383.67	36123.61	456.89	5376.25
$LOGMV_{2000}$	499	7.3800	7.2325	1.7939	6.1244	8.5897
$GROWEST_{2000}$	499	22.4763	18.5000	13.8480	13.0000	28.0000
AGE_{2000}	499	20.8357	14.0000	16.5072	7.0000	35.0000
$NUMANA_{2000}$	499	5.9860	4.0000	5.4484	2.0000	7.0000

Panel C: Regression Analyses

Dep. Var. = CROA; # Obs. = 499			
Independent Variables	**Predicted Sign**	**Coefficient**	**p-value**
Industry Dummies	*	*	*
DEDICATED	-	-0.1234	0.05
BM_{2000}	-	0.1855	0.00
$LOGMV_{2000}$	-	0.0225	0.38
$GROWEST_{2000}$	+	0.0103	0.00
AGE_{2000}	-	-0.0011	0.65
$NUMANA_{2000}$	+	-0.0041	0.58
Adj-Rsq		6.91%	

Table 6 Panel A reports univariate analyses for change in ROA by industry. Numbers in parentheses are two-sided p-values. For means, the p-values are from *t* test; for medians, the p-values are from Wilcoxon test. Panel B describes statistics of variables in regression analyses of change in ROA. Panel C reports the coefficients and two-sided p-values of ordinary least square regressions of change in ROA. All variables are based on one observation per firm. The variables are defined as follows:

DEDICATED= one (zero) if the firm's quarterly earnings guidance frequency is in the top (bottom) third of their respective industry's distribution of guidance frequency,

CROA= return on assets (Compustat data#18 / lag of data#6) for fiscal year 2003 minus that for fiscal year 2000,

BM_{2000}=	ratio of book value of equity (Compustat data60) to market value of equity (Compustat data#25 x data#199) at the end of fiscal year 2000,
MV_{2000}=	market value (Compustat data#25 x data#199) at the end of fiscal year 2000,
$LOGMV_{2000}$=	log of market value at the end of fiscal year 2000,
$GROWEST_{2000}$=	median of analysts' long-term growth forecasts at the end of calendar year 2000 from IBES Summary file,
AGE_{2000}=	number of years the firm has been listed in an exchange as of calendar year 2000,
$NUMANA_{2000}$=	number of analysts following at the end of calendar year 2000.