Financial Management

# Corporate Disclosure, Market Valuation, and Firm Performance

**Yawen Jiao***

*In this paper, I study the relationship between the Association for Investment Management and Research disclosure rankings and several corporate performance measures. I find a positive relationship between these rankings and stock returns. Furthermore, disclosure rankings are highly correlated with firm value. Specifically, Qs of firms ranked at the top of disclosure rankings are 35% higher than those of firms ranked at the bottom. I also find positive associations between disclosure rankings and future net profit margins, sales growth, and research and development intensity. Finally, I document a positive correlation between changes in disclosure rankings and future earnings surprises.*

Corporate disclosures (both mandatory financial reporting and voluntary disclosures made by firms' investor relations programs or through other channels) have drawn significant attention in the wake of corporate scandals in recent years. High-quality disclosures may facilitate communication between management and the equity market, thereby reducing misvaluation and managerial myopia arising from information asymmetry and short-run market pressures.[1] Therefore, managers with favorable (yet private) information about future earnings have strong incentives to improve disclosure quality to convey such information to investors.[2] This argument implies a negative relationship between disclosure quality and the degree to which a firm's stocks are undervalued. It represents an arbitrage opportunity for a strategy of buying stocks of firms with high-quality disclosures and shorting stocks of firms with low-quality disclosures. In addition, if high-quality disclosures were driven by managers' desires to communicate favorable information to investors, one would expect positive links not only between disclosure quality and stock returns and market value, but also between disclosure quality and future operating performance (the "information transmission" hypothesis).[3]

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* *Yawen Jiao is an Assistant Professor of Finance in the Lally School of Management and Technology at the Rensselaer Polytechnic Institute, Troy, NY.*

[1] For example, the treasurer of Progressive Direct Insurance Co., Tom King, stated in the Roundtable on Corporate Disclosure (2004) that the voluntary increase in the frequency of financial reporting (from quarterly to monthly) reduced the volatility of Progressive's stocks by as much as 50% from 2001 to 2004. In addition, several theoretical studies (Grossman, 1981; Milgrom, 1981; Diamond and Verrecchia, 1991; Easley and O'Hara, 2004) point out the importance of high-quality and expanded disclosures in correcting misvaluation and lowering information risk.

[2] Participants at the 2004 Roundtable on Corporate Disclosure of the National Corporate Finance Forum pointed out "when application of this 'present value rule' requires that near-term earnings be sacrificed for long-term value, companies should make a serious effort to prepare the market and explain why earnings are going to be down. If the company's strategy is credible and its investor relations people are doing a good job, then the market should respond to the message."

[3] Evidence regarding the relationship between disclosure quality and stock returns has been scarce. A notable exception is Healy, Hutton, and Palepu (1999). They provide evidence regarding significant improvements in stock returns in the year of disclosure increases and the following year among firms with large and sustained increases in disclosure ratings.

However, two other explanations exist for potential links between disclosure quality and stock returns and market value that do not require the transmission of real information between management and investors. First, the perceived high disclosure quality may result from managers' misleading successful efforts to "hype" their firms' stocks (the "hyping" hypothesis). Although corporate disclosures contain no information about future earnings, managers' hyping efforts are successful in influencing investors' expectations and, as such, stock returns and market value.[4] When compared to the information transmission hypothesis, this hypothesis implies no significant relationship between disclosure quality and current or future operating performance. Additionally, since disclosure quality is extremely difficult to measure, any ratings on it may contain systematic bias toward certain groups of firms. In particular, one may subconsciously assign high ratings to firms with strong current performance even if the disclosures themselves contain no information about future earnings (the "rating bias" hypothesis).[5] If such biased ratings successfully affect investors' expectations, a positive association between disclosure quality and stock returns, market value, and current operating performance would arise, yet there would be no association between disclosure quality and future operating performance.

This paper contributes to the extant literature by empirically identifying the relationships between disclosure quality and stock returns and market value, and by analyzing the sources of these relationships. I use the annual Association for Investment Management and Research (AIMR) corporate disclosure rankings to measure the perceived adequacy and precision of corporate disclosures. These rankings represent assessments of the completeness, clarity, and timeliness of firms' disclosures by leading financial analysts, and encompass both the qualitative and quantitative aspects of corporate disclosures. They span the period from 1979 to 1996 and cover hundreds of firms in more than 40 industries each year.[6] In sum, they are the most extensive measure of disclosure quality and accounting transparency available.[7]

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There are three main differences between my paper and Healy et al. (1999). Healy et al. (1999) do not examine the source of the positive relationship between disclosure rankings and stock returns, which is the focus of my paper. Additionally, Healy et al. (1999) restrict their sample to 97 firms with large and sustained improvements in disclosure rankings, and study the effects of such improvements on stock returns, whereas I study the relationship between the levels of disclosure rankings and stock returns for a large sample of AIMR firms from 1982 to 1996. Moreover, Healy et al. (1999) employ only the overall disclosure rankings in the AIMR surveys to compute the average relative rankings, while I analyze the effects of all four AIMR disclosure rankings: 1) the overall disclosure rankings, 2) the rankings on annual reports, 3) the rankings on quarterly reports, and 4) the rankings on investor relations programs.

[4] Corporate disclosures may not always be credible as managers have strong incentive to hype stocks when their compensation is tied to stock performance. For example, Hutton, Miller, and Skinner (2003) document that good news disclosures are not credible unless they contain verifiable forward-looking information.

[5] One may argue that analysts may also be (subconsciously) inclined to assign high disclosure quality ratings to firms with potential higher future performance. However, if this is the case, the perceived disclosure quality would be the result of real information transmission about future earnings between corporate managers and analysts. In other words, such disclosure quality ratings result from effective disclosures instead of rating bias. Thus, they fall into the information transmission scenario discussed in the previous paragraph.

[6] The AIMR disclosure rankings are discontinued after 1996, and there are regulation changes in disclosure requirements afterward. One prominent example of such changes is Regulation FD. Thus, one potential concern regarding the results in this paper is whether they are driven by private disclosures to analysts, which are no longer allowed under Reg FD. However, my findings of positive relationships between mandatory disclosure rankings and various performance measures are in contrast with this argument, thereby underscoring the implications of my study in the current disclosure environment.

[7] AIMR reports four disclosure rankings in each year: 1) the overall ranking, 2) the ranking on annual reports, 3) the ranking on quarterly reports, and 4) the ranking on investor relations programs. The overall rankings span the period from 1979 to 1996, while the remaining three rankings begin in 1982. Since I investigate the roles of all four rankings in corporate performance, my analyses focus on the period from 1982 to 1996.

My paper is the first in the literature to provide systematic evidence regarding the association between disclosure quality and stock returns and market valuation. Further, it is the first to disentangle the three possible explanations for these associations by analyzing the link between disclosure quality and future operating performance. Finally, although the effect of disclosures on managerial myopia has been widely discussed in the popular press, my analyses represent the first attempt in the literature to empirically identify it.

Based on the industry-adjusted AIMR rankings on firms' disclosure quality, I find positive and significant associations between disclosure rankings and stock returns and market valuation. To disentangle the three possible explanations for these positive associations, I explore the relationships between disclosure rankings (and changes in them) and future operating performance (and future unexpected performance), and identify a positive link between them. In addition, I find a negative relationship between disclosure quality and future managerial myopia. Overall, my findings illustrate the efficacy of high-quality disclosures in communicating favorable information about future earnings to investors and in reducing stock misvaluation and short-run market pressures. Furthermore, my results highlight the value of precise measurement of disclosure quality to firms and the equity market.

Academic research has provided little evidence regarding the stock performance benefits of high-quality disclosures and the sources of such benefits. Because the theoretical determinants of stock performance are poorly understood and leading models for them (e.g., the capital asset pricing model and the factor-based models) do not provide an obvious role for disclosure quality, my results are of significant value to future theoretical and empirical studies alike. Further, by quantifying the benefits of high-quality disclosures to firms' stock returns, my results have important implications for corporate managers in search of optimal disclosure policies. In addition, my results are useful to regulators such as the SEC and the FASB, which are under increasing pressure to explicitly trade off benefits and costs of proposed disclosure requirements in recent periods.

This paper also highlights the importance of examining the relationship between disclosure quality and corporate performance in the post Sarbanes-Oxley (SOX) disclosure environment. Although disclosure enhancement is one of the objectives of SOX, there has been surprisingly little attention to the effects of SOX on disclosure quality and their implications in academic research.[8] Performing an analysis similar to that in this paper in the post-SOX disclosure environment and comparing it with my study clearly provides useful input for evaluating the efficacy of SOX, especially when the existing studies on SOX focus on its impacts on corporate governance and found mixed evidence (DeFond, Hann, and Hu, 2005; Chhaochharia and Grinstein, 2007; Zhang, 2007). Furthermore, a comparison between such an analysis and that in this paper can also generate insight when evaluating the benefits and costs of various changes in firms' disclosure policies, be they mandatory or voluntary.

The rest of the paper is organized as follows. Section I reviews the existing literature and discusses the hypotheses tested in this paper. Section II describes the data and sample selection, and presents summary statistics of the main variables. Section III examines the association between disclosure quality and stock returns. Section IV analyzes the relationship between disclosure quality and market valuation. Section V explores the affiliation between disclosure quality, future operating performance, and managerial myopia, as well as the relationship between disclosure quality changes and future unexpected performance. Section VI provides robustness checks, while Section VII presents my conclusions.

[8] Regulators' attempts for disclosure enhancement through SOX are exemplified by accelerated filing requirements and requiring firms to disclose more about special purpose entities and off balance sheet arrangements, etc.

# I. Literature Review, Hypothesis Development, and Research Methodology

The theoretical literature has suggested various channels through which disclosures can affect firm value and performance. Grossman (1981) and Milgrom (1981) argue for the importance of high-quality and expanded disclosures in correcting misvaluation and attracting investors. Diamond and Verrecchia (1991) and Easley and O'Hara (2004) observe that private information is priced in securities as a source of risk, thereby implying a negative relationship between disclosure quality and information risk. Agency theories (Jensen and Meckling, 1976; Healy and Palepu, 2001) point out analysts' role as external monitors for management and imply a negative association between analysts' monitoring costs and disclosure quality. Financial analysts possess substantial financial and industrial expertise. They not only track firms' financial statements on a regular basis, but also interact directly with management through earnings release conferences. Therefore, they may be particularly suited to monitor management.[9] In sum, these studies suggest strong motivation to improve disclosure quality in an effort to reduce stock under valuation and short-run market pressures among managers with favorable private information about future earnings.[10,11] I call this implication the information transmission hypothesis.

The information transmission hypothesis posits a negative relationship between disclosure quality and the degree to which a firm's stocks are undervalued. In other words, an arbitrage opportunity exists for an investment strategy buying stocks of high disclosure quality firms and shorting stocks of low disclosure quality firms. Similarly, this hypothesis also implies a positive association between disclosure quality and firms' market valuation. Further, under the information transmission hypothesis, disclosure quality is expected to have a positive link with future operating performance but a negative correlation with future managerial myopia as high-quality disclosures are driven by managers' efforts to communicate favorable future earnings-related information to investors and to reduce short-run market pressures.

It is worth noting that in addition to the information transmission explanation, two other explanations may also drive the positive relationships between disclosure quality and stock returns and market value. The first is the hyping hypothesis. Under this hypothesis, the perceived high disclosure quality arises from managers' efforts to hype their firms' stocks. If managers believe hyping can successfully influence investors, they have obvious reasons to do so when their compensation is tied to stock performance. For example, Hutton et al. (2003) document firms' tendency to offer favorable, but not credible disclosures. In other words, under the hyping hypothesis, although corporate disclosures may not contain credible information regarding future earnings, managers' hyping efforts are successful in influencing investors' expectations. Thus,

[9] Analysts have been directly involved in the discovery of corporate fraud in companies such as Compaq Computer, CVS, Electronic Data System, Gateway, Global Crossing, Motorola, PeopleSoft, and Qwest Communication International (Dyck, Morse, and Zingales, 2010). Yu (2008) finds a negative association between earnings management and analyst following.

[10] Some models (Shin, 2003; Verrecchia, 1983) argue for the incredibility of disclosures stemming from the conflict of interest faced by managers. This strand of literature contends that disclosure-related costs introduce noise to markets and induce managers to withhold information. As a result, investors discount the value of the firms. According to these theories, reported firm value contains upward biases, but such biases are negatively related to disclosure quality. These theories do not generate directly testable implications for the current paper as I do not focus on the magnitude of upward biases in disclosures.

[11] Newman and Sansing (1993) argue that corporate disclosures may reveal valuable information to competitors that, in turn, reduce firm value. This model implies negative relationships between disclosure ratings and corporate performance measures. My results contradict these implications.

**Table I. Summary of Hypotheses**

| | Relationship between Disclosure Quality and *Current* Operating Performance | Relationship between Disclosure Quality and *Future* Operating Performance |
|---|---|---|
| H1: Information transmission | None | Positive |
| H2: Hyping | None | None |
| H3: Rating bias | Positive | None |

positive links between the perceived disclosure quality and stock returns and market value arise. In contrast with the information transmission hypothesis, the hyping hypothesis implies no significant relationship between disclosure quality and future operating performance. Further, because managers' hyping efforts are not related to corporate performance under the hyping hypothesis, no significant relationship is expected to exist between disclosure quality and the current operating performance.

The second explanation for the positive association between disclosure quality and stock returns and market value with no real information transmission between management and the investors is the rating bias hypothesis. Under this hypothesis, since disclosure quality is extremely difficult to accurately measure, disclosure ratings may be systematically biased toward certain groups of firms. The difficulty in measuring disclosure quality may render a subconscious bias toward firms with strong current performance when analysts evaluate disclosure practices, although the disclosures themselves contain no information about future earnings. Such biased ratings may successfully affect investors' expectations, thereby leading to a positive association between disclosure quality and stock returns and market value. When compared to the information transmission and hyping hypotheses, the rating bias hypothesis implies a positive correlation between the perceived disclosure quality and current operating performance. However, it suggests no link between disclosure quality and future operating performance.

The predictions of the above three hypotheses are summarized in Table I. In this paper, my goal is to examine the relationships between disclosure quality and stock returns and market value, and to draw distinctions among these three hypotheses by examining the link between disclosure quality and firms' future operating performance.

## II. Data and Sample

### A. The AIMR Annual Survey

I use the annual corporate disclosure rankings published by the AIMR to measure the quality of firms' mandatory and voluntary disclosures. AIMR's objective is to actively encourage improvements in corporate reporting and disclosures. It conducts an annual survey in which leading financial analysts rate firms' disclosures.[12] For each year from 1979 to 1996, AIMR organizes industry subcommittees for more than 40 industries, and selects approximately 13 leading analysts to serve on each subcommittee.[13] It also provides a checklist of criteria for the subcommittees

[12] AIMR also presents annual awards to firms with the most effective disclosures or the most significant improvements in disclosures based on these ratings.

[13] One limitation of using AIMR disclosure rankings as proxies for disclosure quality is they generally cover large firms with significant analyst following in a limited number of industries, leading to concerns as to whether my results can be generalized to firms with less analyst attention and/or in other industries.

to use in evaluating firms to standardize the rating process. The industry subcommittees decide on the set of firms to be evaluated and the important criteria for their assessment. Based on evaluations of the adequacy, timeliness, and clarity of disclosures, each committee member rates the firms on a scale of 0 to 100 in each of the three subcategories: 1) annual reports (10K), 2) quarterly reports (10Q), and 3) investor relations programs. These ratings are then averaged across committee members and aggregated into an overall disclosure rating. In computing the overall disclosure rating, ratings on annual reports are assigned a weight of 40% to 50%, ratings on quarterly reports are assigned a weight of 30% to 40%, and ratings on investor relations programs are assigned a weight of 20% to 30%.[14] These ratings are published annually, along with a qualitative discussion by the subcommittees regarding the significant factors affecting their judgments. It is worth noting that ratings by individual analysts are never made public reducing the analysts' incentive to manipulate ratings for private benefits.[15]

There are both benefits and limitations associated with using AIMR ratings to proxy for disclosure quality. AIMR ratings account for both mandatory disclosures (i.e., annual reports and quarterly reports) and voluntary disclosures (i.e., disclosures made by investor relations programs or through other channels), and are the most comprehensive measures of disclosure quality that cover most aspects of firms' disclosure practices. Furthermore, they are constructed based on the ratings by leading financial analysts, who possess substantial industrial expertise and background knowledge about the firms they evaluate, which reduces the idiosyncratic elements in the measures.

A potential concern with AIMR ratings is the different scales used for different industries as analysts in each subcommittee are only responsible for their own industry's ratings. This results in difficulties when comparing raw disclosure ratings across industries. Additionally, there are rare occasions where raw scales within an industry change over time, resulting in difficulties when comparing raw ratings within that industry over time. To address this issue, following prior studies (Lang and Lundholm, 1996; Bushee and Noe, 2000; Haggard, Martin, and Pereira, 2008), I use firms' percentile rankings within each industry in each year instead of raw disclosure ratings.

Additionally, it can be difficult to determine the periods to which the disclosure rankings apply. The AIMR annual survey is typically released in November, and I assume the period the AIMR rankings cover ends on December 31.[16] In other words, by the time analysts are surveyed by AIMR, firms are expected to have completed most activities rated in the survey (e.g., publishing their financial reports). Although this is not a perfect measure for the disclosure period, I believe it is largely consistent with firms' disclosure practices since AIMR targets to choose their survey time such that the analyst rankings best reflect firms' disclosure quality.

## B. Other Variables

I form portfolios based on firms' disclosure rankings and use monthly stock returns to these portfolios to measure stock performance. I use Tobin's $Q$ as the proxy for market value. Tobin's $Q$ has been widely used as a measure of market valuation in the literature, and I compute $Q$ as

[14] These weights vary over time and, as such, may introduce time-series inconsistency into the overall disclosure ratings. However, since these weights have no correlation with time, I believe they do not cause systematic bias in the overall disclosure ratings. Furthermore, I also study the individual effects of AIMR ratings on annual reports, quarterly reports, and investor relations programs, respectively, where such time-series inconsistency rarely exists. My findings with these three ratings are largely consistent with those of the overall ratings implying that my results are not driven by any systematic bias in the construction of the overall disclosure ratings.

[15] See Lang and Lundholm (1993, 1996) for a more detailed discussion regarding the construction of the AIMR corporate disclosure ratings.

[16] For example, the AIMR rankings for 1993 reflect firms' disclosure quality for the period from January 1, 1993 to December 31, 1993.

the market value of assets divided by the book value of assets, where the market value of assets is calculated as the book value of assets plus the market value of common stock, less the book value of common stock and balance sheet deferred taxes.[17]

I use industry median adjusted net profit margin (income divided by sales) and one-year sales growth as proxies for operating performance.[18] Following Meulbroek et al. (1990), I use research and development (R&D) intensity (R&D divided by sales) as the proxy for the degree of managerial myopia.

Finally, I use earning surprises to measure unexpected operating performance and define it as the reported earnings per share minus the most recent consensus analyst earnings forecast from Institutional Brokers' Estimate System (I/B/E/S), scaled by the stock price at the end of the previous quarter.[19]

Following Shin and Stulz (2000), I use the log of total assets and the log of firm age as control variables in analyses on the relationship between disclosure rankings and market valuation. Following Core, Guay, and Rusticus (2006), I use the log of book-to-market ratio and the log of firm size as control variables in analyses of the correlation between disclosure rankings and future operating performance and managerial myopia. Firm size (market capitalization) is defined as the product of share price and the number of shares outstanding. Book-to-market ratio is defined as the book value of equity for the fiscal year ended before the most recent June 30 divided by size as of December 31 during that fiscal year.

I collect stock returns, value-weighted market returns, firm age, share prices, and the numbers of shares outstanding from Center for Research in Security Prices (CRSP). The book value of equity, book value of total assets, operating income before depreciation, and sales are from Compustat. Analyst earnings forecasts are from I/B/E/S.

## C. Descriptive Statistics

Table II contains information regarding the corporate disclosure rankings of firms in my sample. The AIMR annual survey spans the period from 1979 to 1996. However, during 1979 to 1981, only the overall disclosure rankings are available, while the individual rankings on firms' annual reports, quarterly reports, and investor relations programs are not. Therefore, in this paper, I focus on the period from 1982 to 1996.

Panel A of Table II reports the frequency and summary statistics of firms' overall disclosure rankings in each year of my sample period. The sample size generally increases during the first half (from 322 firms in 1982 to 477 firms in 1989) of the sample period and decreases afterward (to 242 firms in 1996). Firms in my sample have an average (industrial percentile ranked) overall

[17] My estimate of Tobin's *Q* is the same as those used in Kaplan and Zingales (1997) and Gompers, Ishii, and Metrick (2003). This measure and its simpler version that drops the deferred taxes have been widely used in the literature in light of the complexities involved in the more sophisticated measures of Tobin's *Q* (Lindenberg and Ross, 1981) and the evidence of high correlations between this proxy and more sophisticated ones (Chung and Pruitt, 1994).

[18] In unreported analyses, I also use the industry median adjusted return on equity (*ROE*) and return on assets (*ROA*) to proxy for operating performance. When I use next year's industry median adjusted *ROE* as a dependent variable, it is positively related to disclosure rankings, albeit with slightly weaker statistical significance than the results reported in Section V. When I use next year's industry median adjusted *ROA* as a dependent variable, it has negative but insignificant associations with disclosure rankings constituting a limitation to my study. These results are not reported, but are available upon request.

[19] I define the consensus analyst forecast as the mean analyst earnings forecast from the unadjusted summary file (of I/B/E/S) before the actual earnings announcement. Results are qualitatively similar if using the median analyst forecast instead.

## Table II. Corporate Disclosures

This table reports the number of firms and the time-series summary statistics of the AIMR industry percentile rankings of disclosure quality, as well as their industrial distribution. The sample period is from 1982 to 1996. Panel A presents summary statistics for the overall disclosure rankings. Panel B represents summary statistics for rankings on the firms' annual reports. Panel C displays summary statistics for rankings on the firms' quarterly reports, while Panel D offers summary statistics for rankings on the firms' investor relations programs. Panel E presents the industrial distribution of disclosure rankings. The sample includes all firms in the AIMR annual survey.

| Year | # of Firms | Mean | Median | Standard Deviation | Minimum | Maximum |
|---|---|---|---|---|---|---|
| | | | *Panel A. Overall Ranking* | | | |
| 1982 | 322 | 51.09 | 50.00 | 31.17 | 0 | 100 |
| 1983 | 320 | 51.15 | 50.00 | 31.49 | 0 | 100 |
| 1984 | 430 | 50.62 | 50.00 | 30.66 | 0 | 100 |
| 1985 | 424 | 50.16 | 52.79 | 30.78 | 0 | 100 |
| 1986 | 383 | 49.86 | 50.00 | 30.73 | 0 | 100 |
| 1987 | 376 | 50.11 | 50.00 | 31.10 | 0 | 100 |
| 1988 | 380 | 49.77 | 50.00 | 30.66 | 0 | 100 |
| 1989 | 477 | 50.39 | 50.00 | 30.96 | 0 | 100 |
| 1990 | 444 | 50.32 | 50.00 | 31.28 | 0 | 100 |
| 1991 | 461 | 50.69 | 50.00 | 31.24 | 0 | 100 |
| 1992 | 442 | 51.27 | 53.33 | 31.39 | 0 | 100 |
| 1993 | 408 | 50.95 | 51.39 | 31.13 | 0 | 100 |
| 1994 | 296 | 50.25 | 50.00 | 31.41 | 0 | 100 |
| 1995 | 258 | 51.48 | 52.79 | 30.85 | 0 | 100 |
| 1996 | 242 | 51.35 | 50.93 | 30.70 | 0 | 100 |
| Total | 6534 | 50.64 | 50.00 | 31.00 | 0 | 100 |
| | | | *Panel B. Annual Report/10-K Ranking* | | | |
| 1982 | 179 | 56.67 | 57.14 | 28.44 | 5.26 | 100 |
| 1983 | 191 | 56.12 | 57.14 | 29.08 | 4.17 | 100 |
| 1984 | 166 | 55.19 | 53.94 | 28.83 | 4.35 | 100 |
| 1985 | 186 | 55.32 | 55.56 | 29.06 | 3.70 | 100 |
| 1986 | 189 | 55.19 | 56.00 | 29.07 | 4.00 | 100 |
| 1987 | 202 | 55.12 | 55.90 | 29.02 | 4.00 | 100 |
| 1988 | 253 | 55.26 | 55.56 | 28.84 | 5.00 | 100 |
| 1989 | 300 | 55.16 | 57.14 | 28.81 | 3.70 | 100 |
| 1990 | 270 | 56.25 | 58.33 | 29.04 | 4.17 | 100 |
| 1991 | 255 | 55.67 | 54.55 | 28.97 | 3.85 | 100 |
| 1992 | 316 | 56.72 | 58.33 | 29.19 | 2.94 | 100 |
| 1993 | 279 | 55.91 | 56.25 | 28.82 | 3.33 | 100 |
| 1994 | 224 | 55.74 | 57.14 | 29.13 | 3.45 | 100 |
| 1995 | 206 | 56.28 | 55.56 | 29.07 | 3.57 | 100 |
| 1996 | 196 | 55.77 | 57.69 | 28.63 | 3.23 | 100 |
| Total | 3412 | 55.78 | 56.25 | 28.89 | 2.94 | 100 |

(*Continued*)

**Table II. Corporate Disclosures (*Continued*)**

| Year | # of Firms | Mean | Median | Standard Deviation | Minimum | Maximum |
|---|---|---|---|---|---|---|
| *Panel C. Quarterly Report/10-Q Ranking* | | | | | | |
| 1982 | 179 | 55.34 | 57.14 | 29.25 | 5.26 | 100 |
| 1983 | 191 | 56.34 | 56.25 | 29.15 | 4.17 | 100 |
| 1984 | 174 | 55.47 | 57.14 | 28.98 | 4.35 | 100 |
| 1985 | 186 | 54.84 | 57.29 | 28.46 | 5.00 | 100 |
| 1986 | 204 | 54.84 | 54.55 | 28.45 | 4.00 | 100 |
| 1987 | 216 | 54.51 | 54.55 | 28.41 | 4.00 | 100 |
| 1988 | 266 | 55.47 | 55.56 | 29.42 | 3.70 | 100 |
| 1989 | 311 | 56.33 | 58.33 | 29.05 | 3.70 | 100 |
| 1990 | 270 | 56.20 | 57.29 | 29.12 | 4.17 | 100 |
| 1991 | 255 | 56.31 | 58.33 | 29.29 | 3.85 | 100 |
| 1992 | 318 | 57.14 | 58.82 | 29.25 | 2.94 | 100 |
| 1993 | 244 | 56.25 | 57.90 | 28.74 | 3.33 | 100 |
| 1994 | 224 | 56.74 | 57.14 | 29.28 | 3.85 | 100 |
| 1995 | 206 | 56.56 | 58.33 | 29.27 | 3.57 | 100 |
| 1996 | 196 | 55.73 | 54.69 | 29.69 | 3.23 | 100 |
| Total | 3440 | 55.95 | 57.14 | 29.02 | 2.94 | 100 |
| *Panel D. Investors Relations Ranking* | | | | | | |
| 1982 | 176 | 56.48 | 57.14 | 29.23 | 5.26 | 100 |
| 1983 | 188 | 56.08 | 56.25 | 29.08 | 4.17 | 100 |
| 1984 | 174 | 54.77 | 52.79 | 28.93 | 4.35 | 100 |
| 1985 | 186 | 54.94 | 50.00 | 29.25 | 3.70 | 100 |
| 1986 | 204 | 54.02 | 50.00 | 29.28 | 4.00 | 100 |
| 1987 | 216 | 54.69 | 54.55 | 29.21 | 4.00 | 100 |
| 1988 | 266 | 56.39 | 56.70 | 29.26 | 5.00 | 100 |
| 1989 | 311 | 55.72 | 54.55 | 29.47 | 3.70 | 100 |
| 1990 | 270 | 55.58 | 54.55 | 28.92 | 4.55 | 100 |
| 1991 | 255 | 55.01 | 54.17 | 28.94 | 3.85 | 100 |
| 1992 | 299 | 56.67 | 58.33 | 28.67 | 2.94 | 100 |
| 1993 | 263 | 55.83 | 57.14 | 28.64 | 4.76 | 100 |
| 1994 | 199 | 56.79 | 57.69 | 29.55 | 3.45 | 100 |
| 1995 | 180 | 56.89 | 58.33 | 29.43 | 3.57 | 100 |
| 1996 | 170 | 55.98 | 58.33 | 29.21 | 3.70 | 100 |
| Total | 3,357 | 55.74 | 55.56 | 29.07 | 2.94 | 100 |

*Panel E. Industry Distribution of Disclosure Rankings*

| Industry | *TR* | | *AR* | | *QR* | | *IR* | |
|---|---|---|---|---|---|---|---|---|
| | # of Obs. | % | # of Obs. | % | # of Obs. | % | # of Obs. | % |
| Aerospace | 131 | 2.00 | 91 | 2.67 | 91 | 2.65 | 91 | 2.71 |
| Airline | 149 | 2.28 | 114 | 3.34 | 114 | 3.31 | 114 | 3.40 |
| Apparel | 145 | 2.22 | 114 | 3.34 | 114 | 3.31 | 114 | 3.40 |
| Textiles | 118 | 1.81 | 61 | 1.79 | 61 | 1.77 | 61 | 1.82 |
| Chemical | 154 | 2.36 | 133 | 3.90 | 133 | 3.87 | 133 | 3.96 |

(*Continued*)

**Table II. Corporate Disclosures (*Continued*)**

*Panel E. Industry Distribution of Disclosure Rankings (Continued)*

| Industry | *TR* | | *AR* | | *QR* | | *IR* | |
|---|---|---|---|---|---|---|---|---|
| | # of Obs. | % | # of Obs. | % | # of Obs. | % | # of Obs. | % |
| Computer & Electronics | 57 | 0.87 | 24 | 0.70 | 24 | 0.70 | 24 | 0.71 |
| Construction | 52 | 0.80 | 37 | 1.08 | 25 | 0.73 | 25 | 0.74 |
| Container & Packaging | 66 | 1.01 | 62 | 1.82 | 62 | 1.80 | 62 | 1.85 |
| Diversified Companies | 91 | 1.39 | 45 | 1.32 | 45 | 1.31 | 45 | 1.34 |
| Electrical Equipment | 179 | 2.74 | 138 | 4.04 | 138 | 4.01 | 138 | 4.11 |
| Environmental Control | 217 | 3.32 | 9 | 0.26 | 9 | 0.26 | 9 | 0.27 |
| Financial Services | 132 | 2.02 | 12 | 0.35 | 52 | 1.51 | 50 | 1.49 |
| Food | 49 | 0.75 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Beverage | 5 | 0.08 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Health Care | 313 | 4.79 | 228 | 6.68 | 228 | 6.63 | 228 | 6.79 |
| Insurance | 489 | 7.48 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Machinery | 360 | 5.51 | 245 | 7.18 | 243 | 7.06 | 243 | 7.24 |
| Motor Carrier | 165 | 2.53 | 4 | 0.12 | 4 | 0.12 | 4 | 0.12 |
| Natural Gas | 124 | 1.90 | 124 | 3.63 | 124 | 3.60 | 124 | 3.69 |
| Pipelines | 183 | 2.80 | 125 | 3.66 | 125 | 3.63 | 125 | 3.72 |
| Paper & Forest Products | 211 | 3.23 | 189 | 5.54 | 189 | 5.49 | 189 | 5.63 |
| International-Petroleum | 78 | 1.19 | 60 | 1.76 | 60 | 1.74 | 60 | 1.79 |
| Domestic-Petroleum | 170 | 2.60 | 101 | 2.96 | 101 | 2.94 | 101 | 3.01 |
| Independent-Petroleum | 38 | 0.58 | 44 | 1.29 | 44 | 1.28 | 44 | 1.31 |
| Petroleum Services | 121 | 1.85 | 58 | 1.70 | 66 | 1.92 | 66 | 1.97 |
| Contract Drilling-Petroleum | 60 | 0.92 | 44 | 1.29 | 59 | 1.72 | 59 | 1.76 |
| Exploration & Production | 57 | 0.87 | 23 | 0.67 | 23 | 0.67 | 23 | 0.69 |
| Refining & Marketing | 71 | 1.09 | 61 | 1.79 | 61 | 1.77 | 55 | 1.64 |
| Media | 290 | 4.44 | 223 | 6.54 | 204 | 5.93 | 223 | 6.64 |
| Railroad | 150 | 2.30 | 60 | 1.76 | 60 | 1.74 | 60 | 1.79 |
| Retail | 529 | 8.10 | 373 | 10.93 | 373 | 10.84 | 296 | 8.82 |
| Savings Institutions | 24 | 0.37 | 13 | 0.38 | 13 | 0.38 | 13 | 0.39 |
| Software/Data Services | 223 | 3.41 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Specialty Chemicals | 263 | 4.03 | 187 | 5.48 | 187 | 5.44 | 171 | 5.09 |
| Non-Ferrous Metals | 4 | 0.06 | 5 | 0.15 | 5 | 0.15 | 5 | 0.15 |
| Banking | 571 | 8.74 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Automotive & Related Products | 14 | 0.21 | 14 | 0.41 | 14 | 0.41 | 14 | 0.42 |
| Canadian Banking | 3 | 0.05 | 3 | 0.09 | 3 | 0.09 | 3 | 0.09 |
| Homebuilding | 21 | 0.32 | 20 | 0.59 | 18 | 0.52 | 18 | 0.54 |
| International Pharmaceutics | 11 | 0.17 | 7 | 0.21 | 7 | 0.20 | 7 | 0.21 |
| Telecommunications Service | 3 | 0.05 | 3 | 0.09 | 3 | 0.09 | 3 | 0.09 |
| Nonferrous Metals | 57 | 0.87 | 40 | 1.17 | 40 | 1.16 | 40 | 1.19 |
| Coal Mining | 10 | 0.15 | 17 | 0.50 | 17 | 0.49 | 17 | 0.51 |
| Precious Metals Mining | 84 | 1.29 | 83 | 2.43 | 83 | 2.41 | 82 | 2.44 |
| Food, Beverage, & Tobacco | 292 | 4.47 | 218 | 6.39 | 218 | 6.34 | 218 | 6.49 |

## Table III. Summary Statistics of Main Variables

This table reports summary statistics of the main variables used in this paper. The sample period is from 1982 to 1996. $RET_{0,+1}$ is the monthly stock return. *Tobin's Q* is the market value of assets divided by the book value of assets, where the market value of assets is the book value of assets plus the market value of common stock, less the book value of common stock and the balance sheet deferred taxes. *Profit Margin* is income divided by sales adjusted by the industry median based on two-digit SIC codes. *Sales Growth* is the one-year sales growth adjusted by the industry median based on two-digit SIC codes. *R&D* is R&D divided by sales. *Size* is the market capitalization. *Age* is the number of months since the stock first appears in CRSP. *B/M Ratio* is the book-to-market ratio. *TR* is the overall disclosure ranking. *AR* is the ranking on annual reports. *QR* is the ranking on quarterly reports. *IR* is the ranking on investor relations programs. Panel A presents the summary statistics of the variables, while Panel B displays correlations between disclosure rankings and stock characteristics.

*Panel A. Summary Statistics*

| | Mean | Median | Std. Dev | Min | Max |
|---|---|---|---|---|---|
| $RET_{0,+1}$ (%) | 1.38 | 4.29 | 11.81 | −90.91 | 380.00 |
| *Tobin's Q* | 1.80 | 1.32 | 1.71 | 0.28 | 76.21 |
| *Profit Margin*$_{t+1}$ (%) | 3.33 | 1.73 | 13.42 | −236.78 | 91.82 |
| *Sales Growth*$_{t+1}$ (%) | 2.81 | −1.06 | 31.66 | −113.44 | 799.29 |
| $R\&D_{t+1}$ (%) | 4.90 | 2.26 | 6.38 | 0.00 | 56.68 |
| *Size* ($mil) | 2,322.47 | 741.39 | 5,965.35 | 0.68 | 152,155.50 |
| *Age* (months) | 240 | 186 | 197 | 4 | 859 |
| *B/M Ratio* | 0.76 | 0.59 | 1.16 | 0.00 | 33.58 |
| *Assets* ($mil) | 7,770.32 | 1,933.76 | 19,770.55 | 0.43 | 336,099 |

*Panel B. Correlations between Disclosure Rankings and Stock Characteristics*

| | TR | AR | QR | IR | B/M ratio | Age | Size | Assets |
|---|---|---|---|---|---|---|---|---|
| *TR* | 1.00 | | | | | | | |
| *AR* | 0.68 | 1.00 | | | | | | |
| *QR* | 0.70 | 0.64 | 1.00 | | | | | |
| *IR* | 0.66 | 0.54 | 0.54 | 1.00 | | | | |
| *B/M Ratio* | −0.07 | −0.08 | −0.08 | −0.08 | 1.00 | | | |
| *Age* | 0.03 | 0.04 | 0.04 | −0.05 | −0.13 | 1.00 | | |
| *Size* | 0.24 | 0.24 | 0.23 | 0.18 | −0.25 | 0.33 | 1.00 | |
| *Assets* | 0.07 | 0.09 | 0.08 | 0.04 | 0.03 | 0.27 | 0.58 | 1.00 |

disclosure ranking of 50.64 and the mean overall disclosure ranking is stable over time. Thus, my sample is representative for firms in the AIMR annual survey.

Panels B, C, and D of Table II present the frequency and summary statistics of the three components of the overall disclosure rankings: 1) rankings on annual reports, 2) quarterly reports, and 3) investor relations programs, respectively. These rankings exhibit similar patterns to those in the overall disclosure rankings. Panel E of Table II provides the industrial distribution of the above four disclosure rankings. Since stock returns, operating performance, and R&D intensity are all in percentages, for the remainder of the paper, I scale the disclosure rankings by 100 into percentages.

The summary statistics of the main variables used in my analyses are provided in Panel A of Table III. For the performance measures, the average firm in my sample has a monthly return of 1.38%, a Tobin's *Q* of 1.80, a net profit margin of 3.33%, a one-year sales growth of 2.81%,

and an R&D intensity of 4.90%. For the control variables, the average firm in my sample has a market capitalization of $2,322.47 million, an age of 20 years, a book-to-market ratio of 0.76, and a total asset of $7,770.32 million.[20]

In Panel B of Table III, I present the correlation coefficients between the disclosure rankings and stock characteristics described. It is worth noting that there is a positive correlation between the disclosure rankings and firm size. This correlation is consistent with the theoretical argument regarding the positive association between disclosure quality and improvements in stock liquidity (Diamond and Verrecchia, 1991). It is also consistent with the findings in the existing literature (Healy et al., 1999).

## III. Corporate Disclosure and Stock Returns

If firms' disclosures contain information about their future operating performance and high-quality disclosures facilitate the communication of such information to investors, managers with favorable private information about future performance have strong incentives to improve disclosure quality (the information transmission hypothesis). If the market fully incorporates this effect, stock prices should quickly adjust to any relevant changes in disclosures. If such a reaction occurs, the expected stock returns would be unaffected beyond the window of disclosure changes. However, if disclosures matter, but their effects are not incorporated into stock prices immediately, the realized stock returns would be systematically different for firms with different disclosure rankings. Specifically, one would expect a positive relationship between disclosure rankings and the realized stock returns.

I begin by constructing two portfolios based on firms' disclosure rankings and compare the returns to them. Specifically, for each month in my sample, I divide the firms based on the median of their overall disclosure rankings, and place firms with above median rankings in the high-disclosure portfolio and those with below or equal to median rankings in the low-disclosure portfolio. These two portfolios are rebalanced at the end of each year. An investment of $1 in the value-weighted high-disclosure portfolio at the beginning of 1982 (the date when my sample begins) would have grown into $24.42 by the end of 1996. Alternatively, an investment of $1 in the value-weighted low-disclosure portfolio at the beginning of 1982 would have grown into $8.95 by the end of 1996. These are equivalent to the annualized returns of 21.88% for the high-disclosure portfolio and 14.88% for the low-disclosure portfolio. Thus, the high-disclosure portfolio outperforms the low-disclosure portfolio by an average of 7% per year during my sample period.

Although the above high-disclosure portfolio outperforms the low-disclosure portfolio in raw returns, I cannot conclude that the performance difference between these two portfolios is driven by differences in the firms' disclosure practices. Instead, the above performance difference could also result from differences in other characteristics of stocks in these two portfolios (i.e., "the style" of these two portfolios). For example, market risk, firm size (market capitalization), book-to-market ratio, and immediate past returns (momentum) have all been known to significantly forecast future returns.[21] Therefore, if the high-disclosure portfolio differs significantly from the low-disclosure portfolio in these characteristics, these differences may explain at least part of the differences in the realized returns. To address this concern, I employ the four-factor model of

[20] I use the log transformations of these control variables in regression analyses. Summary statistics for the actual values of the control variables are presented to facilitate comparisons between firms in my sample with those in other studies.

[21] See Fama and French (1993) (size and book-to-market ratio) and Jegadeesh and Titman (1993) (momentum) for details.

Carhart (1997):

$$R_t = \alpha + \beta_1 \times RMRF_t + \beta_2 \times SMB_t + \beta_3 \times HML_t + \beta_4 \times Momentum_t + \varepsilon_t, \quad (1)$$

where $R_t$ is the excess return to some asset in month $t$, $RMRF_t$ is the month $t$ value-weighted market return minus the risk-free rate, and $SMB_t$ (small minus big), $HML_t$ (high minus low), and $Momentum_t$ are the month $t$ returns to zero investment factor-mimicking portfolios designed to capture size, book-to-market, and momentum effects, respectively.[22] Although there is a great deal of literature debating whether these factors are proxies for risk, I take no position on this issue and simply view the four-factor model as a method of performance attribution. Thus, I interpret the estimated intercept coefficient, $\alpha$, as the abnormal returns in excess of what could have been achieved by passive investments in factors.

The results of the four-factor model are presented in Table IV. I estimate Equation (1) with the dependent variable, $R_t$, being the monthly return differences between the high- and low-disclosure portfolios. Thus, the $\alpha$ in this estimation is the abnormal return to a zero-investment strategy buying stocks in the high-disclosure portfolio and shorting stocks in the low-disclosure portfolio. In Panel A of Table IV, I assign stocks of firms with above median disclosure rankings to the high-disclosure portfolio and those of firms with below or equal to median disclosure rankings to the low-disclosure portfolio. The portfolios are reset at the end of each year. The second column of Panel A indicates that when I form portfolios based on overall disclosure rankings, $\alpha$ is 3.4 basis points (bp) per month or about 4.2% per year. This point estimate is statistically significant with a $t$-statistic of 1.97. This result suggests that a significant fraction of differences in raw returns between the high and low disclosure portfolios cannot be attributed to style differences. Instead, it is driven by differences in the firms' disclosure rankings.

The remaining columns of Panel A of Table IV summarize the results of estimating Equation (1) for zero-investment strategies buying stocks of firms with above median and shorting stocks of firms with below or equal to median rankings on annual reports, quarterly reports, and investor relations programs, respectively. These columns demonstrate that the abnormal return to the strategy based on voluntary disclosures (rankings on investor relations programs) is more significant both economically and statistically than those to strategies based on mandatory disclosures (rankings on annual reports or quarterly reports).

In Panel B of Table IV, I place stocks of firms with the highest 30% disclosure rankings in the high-disclosure portfolio and those of firms with the lowest 30% disclosure rankings in the low-disclosure portfolio, and reestimate Equation (1). I find larger abnormal returns to these strategies than those in Panel A. The second column of Panel B indicates that when I form portfolios based the overall disclosure rankings, $\alpha$ is 4.2 bp per month or about 5.2% per year. This point estimate is statistically significant at the 1% level with a $t$-statistic of 2.41. When I form portfolios based on rankings on annual reports (Column 4) or quarterly reports (Column 6), $\alpha$ is 3.7 and 3.1 bp per month or about 4.5% and 3.8% per year, respectively. These point estimates are statistically significant at the 5% and 10% levels. Finally, when I form portfolios based on rankings on investor relations programs (Column 8), $\alpha$ is 4.3 bp per month or about 5.3% per year. This point estimate is statistically significant at the 1% level with a $t$-statistic of 2.60.

[22] This model extends the Fama and French (1993) three-factor model with the addition of a momentum factor. See Fama and French (1993) and Carhart (1997) for details regarding the construction of the factors. I am grateful to Kenneth French for providing the factor returns for *RMRF*, *SMB,* and *HML*. Momentum returns are calculated using the procedures of Carhart (1997). *Momentum* is measured as the equal-weighted average of stocks with the highest 30% 11-month returns lagged one month minus the equal-weighted average of stocks with the lowest 30% 11-month returns lagged one month.

**Table IV. Performance Evaluation Regressions for Disclosure Portfolio Returns**

This table presents results from regressions of value-weighted monthly returns to portfolios buying stocks of firms with high disclosure rankings and shorting stocks of firms with low disclosure rankings on the four factors of Carhart (1997). The sample period is from January 1982 to December 1996. The portfolios are reset at the end of each year. The explanatory variables are returns to portfolios capturing the market (*RMRF*), size (*SMB*), book-to-market (*HML*), and momentum effects (*Momentum*). *TR* is the overall disclosure ranking. *AR* is the ranking on annual reports. *QR* is the ranking on quarterly reports. *IR* is the ranking on investor relations programs. Panel A reports results for strategies buying stocks of firms with above median disclosure rankings and shorting stocks of firms with below or equal to median disclosure rankings. Panel B provides results for strategies buying stocks of firms in the highest 30% of disclosure rankings and shorting stocks of firms in the lowest 30% of disclosure rankings. *t*-statistics are in parentheses.

| | ***TR*** | ***AR*** | ***QR*** | ***IR*** |
|---|---|---|---|---|
| | | *Panel A. Above Median Minus Below Median* | | |
| $\alpha$ | 0.0034* | 0.0030 | 0.0023 | 0.0036** |
| | (1.97) | (1.11) | (1.31) | (2.03) |
| *RMRF* | 0.0324 | 0.0376 | 0.0026 | 0.0847*** |
| | (1.12) | (1.31) | (0.08) | (2.91) |
| *SMB* (%) | −0.0009 | 0.0010 | −0.0243 | 0.0559 |
| | (−0.02) | (0.02) | (−0.46) | (1.17) |
| *HML* | −0.1689*** | −0.1047** | −0.2127*** | −0.1042** |
| | (−3.32) | (−2.07) | (−3.78) | (−2.03) |
| *Momentum* | 0.0498 | 0.0826** | 0.1094** | 0.0424 |
| | (1.30) | (2.16) | (2.57) | (1.09) |
| | | *Panel B. Top 30% Minus Bottom 30%* | | |
| $\alpha$ | 0.0042** | 0.0037* | 0.0031* | 0.0043** |
| | (2.41) | (1.81) | (1.69) | (2.60) |
| *RMRF* | 0.0533 | 0.0719** | 0.0392 | 0.0658* |
| | (1.53) | (2.25) | (1.10) | (1.92) |
| *SMB* (%) | 0.0826 | 0.0060 | −0.0275 | 0.0562 |
| | (1.45) | (0.12) | (−0.47) | (1.00) |
| *HML* | −0.1340** | −0.1342** | −0.2162*** | −0.1373** |
| | (−2.19) | (−2.38) | (−3.45) | (−2.27) |
| *Momentum* | 0.0170 | 0.1068** | 0.0752 | −0.0009 |
| | (0.37) | (2.50) | (1.59) | (−0.02) |

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

Overall, my analyses of stock returns suggest a positive relationship between disclosure rankings and stock returns. Further, this relationship is both economically and statistically significant.

## IV. Corporate Disclosure and Firm Value

Similar to the argument made for the relationship between disclosure quality and stock returns, if disclosures affect investors' expectations, one would expect systematic differences in market valuation among firms with different disclosure rankings. In this section, I explore whether such

differences exist. Further, since I have demonstrated in Section III that firms with high disclosure rankings significantly outperform those with low disclosure rankings in stock returns, in this section, I examine whether there is relative mispricing between the beginning and the end of my sample period. In other words, I investigate whether the return differences associated with firms' disclosure rankings are actually reflected in stock prices over time.

Following the literature (Morck, Shleifer, and Vishny, 1988), I use Tobin's $Q$ to proxy for market valuation. I estimate the following equation:

$$Q = f(\text{Disclosure Rankings, Firm Characteristics}). \quad (2)$$

The dependent variable in Equation (2) is a firm's $Q$ in year $t$. The key independent variable is the disclosure rankings. Following Shin and Stulz (2000), I include the log of book value of assets, log of firm age, and industry dummies based on two-digit Standard Industrial Classification (SIC) codes as control variables. I first estimate Equation (2) cross-sectionally for each year in my sample period (1982-1996) and assess the significance levels of coefficients on disclosure rankings. I then calculate the mean and time-series standard deviation of the 15 annual estimates across all years. The regression results are reported in Table V.

Column 2 of Table V reports results regarding the association between the overall disclosure rankings and $Q$s. I report both the coefficient on the overall disclosure ranking and the associated $t$-statistics for each year of my sample. The last row presents the mean coefficient and the time-series $t$-statistics. The coefficients on overall disclosure rankings are positive in 14 of 15 sample years, and the mean coefficient is positive and significant at the 1% level. This result suggests that higher overall disclosure rankings are associated with significantly higher $Q$s. Specifically, firms ranked at the top of the overall disclosure rankings have an average $Q$ that is 35% higher than those ranked at the bottom. Finally, the magnitude of coefficients on overall disclosure rankings increases over time. The average coefficient on the overall disclosure rankings in the first half of the sample (1982-1987) is 0.1660 and it is 0.5147 in the second half (1989-1996). If I assume that the point estimates from 1982 to 1996 are independent of each other, the difference between these two mean estimates is economically and statistically significant at 0.3487. This result implies a widening value difference between firms with high and low overall disclosure rankings over time.

Columns 4-7 of Table V present my results regarding the relationship between the mandatory disclosure rankings (rankings on annual and quarterly reports) and firms' $Q$s. In Column 4, the coefficients on annual report rankings are positive in 13 of 15 sample years. In Column 6, the coefficients on quarterly report rankings are positive in 11 of 15 sample years. The mean coefficients on both annual and quarterly report rankings are positive and significant at the 1% level. In addition, the magnitude of coefficients on both annual and quarterly report rankings exhibits an increasing pattern over time. In summary, results in these four columns indicate that mandatory disclosure rankings, which account for approximately 70% to 80% of a firm's overall disclosure ranking, have positive and significant relationships with firm value. Further, the value difference between firms with high and low mandatory disclosure rankings widens significantly over time.

In Columns 8 and 9 of Table V, I present results on the correlation between firms' voluntary disclosure rankings and their $Q$s. The coefficients on investor relations rankings are positive in 14 of 15 sample years, and the mean coefficient is positive and significant at the 1% level. Specifically, during my sample period, the average $Q$ of firms ranked at the top of investor relations rankings is 45% higher than that of firms ranked at the bottom. It is worth noting that the mean coefficient on investor relations rankings is larger than those on mandatory disclosure

## Table V. Fama and MacBeth (1973) Regressions of Tobin's *Q* on Disclosure Rankings

This table reports the results from the Fama and MacBeth (1973) regressions of Tobin's *Q* on disclosure rankings and firm characteristics. The sample period is from 1982 to 1996. The dependent variable is Tobin's *Q* in year *t*. The control variables are the log book value of total assets, log firm age, and industry dummies based on two-digit SIC codes. *Tobin's Q* is the market value of assets divided by the book value of assets, where the market value of assets is the book value of assets plus the market value of common stock, less the book value of common stock and the balance sheet deferred taxes. *TR* is the overall disclosure ranking. *AR* is the ranking on annual reports. *QR* is the ranking on quarterly reports. *IR* is the ranking on investor relations programs. *Age* is the number of months since a firm's stock first appears in CRSP. The coefficients on control variables and the constant are suppressed from reporting. The coefficients on disclosure rankings and the associated *t*-statistics in annual cross-sectional regressions are reported in each row, while the time-series averages of coefficients and *t*-statistics are given in the last row.

| | Dependent Variable: *Tobin's Q* | | | |
|---|---|---|---|---|
| | ***TR*** | ***AR*** | ***QR*** | ***IR*** |
| 1982 | 0.5662*** | 0.7459*** | 0.4448 | 0.5796* |
| | (3.02) | (2.73) | (1.59) | (1.98) |
| 1983 | 0.2614 | 0.3966 | 0.3044 | 0.2831 |
| | (1.42) | (0.48) | (0.36) | (0.37) |
| 1984 | 0.0946 | −0.0301 | −0.0205 | −0.0085 |
| | (0.68) | (−0.09) | (−0.07) | (−0.03) |
| 1985 | −0.1073 | 0.0712 | 0.6279 | 0.7164* |
| | (−0.49) | (0.18) | (1.52) | (1.76) |
| 1986 | 0.1946 | −0.3133 | −0.2344 | 0.3112 |
| | (0.63) | (−0.72) | (−0.54) | (0.78) |
| 1987 | 0.0098 | 0.4690 | 0.1996 | 0.0964 |
| | (0.05) | (1.57) | (0.68) | (0.33) |
| 1988 | 0.1426 | 0.2956 | 0.1103 | 0.3155* |
| | (0.80) | (1.55) | (0.63) | (1.69) |
| 1989 | 0.4365* | 0.3492 | 0.3360 | 0.3848* |
| | (1.86) | (1.54) | (1.54) | (1.75) |
| 1990 | 0.4349* | 0.4964 | −0.0488 | 0.3621 |
| | (1.84) | (1.38) | (−0.14) | (1.05) |
| 1991 | 0.6758* | 0.7655* | 0.7819** | 0.7442* |
| | (1.71) | (1.98) | (2.04) | (1.96) |
| 1992 | 0.7519*** | 0.6902** | 0.8378*** | 1.0370*** |
| | (2.76) | (2.43) | (2.92) | (3.51) |
| 1993 | 0.5704** | 0.3005 | 0.4369 | 0.7287*** |
| | (2.34) | (1.09) | (1.41) | (2.69) |
| 1994 | 0.1560 | 0.1342 | −0.0042 | 0.2391 |
| | (1.20) | (0.71) | (−0.02) | (1.33) |
| 1995 | 0.4496* | 0.6921** | 0.5521* | 0.0069 |
| | (1.99) | (2.20) | (1.78) | (0.02) |
| 1996 | 0.6427 | 0.6324 | 0.4727 | 0.9188* |
| | (1.51) | (1.45) | (1.10) | (1.96) |
| Mean | 0.3520*** | 0.3797*** | 0.3198*** | 0.4477*** |
| | (5.00) | (4.53) | (3.78) | (5.18) |

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

rankings. That is, voluntary disclosures have a stronger association with market valuation than mandatory disclosures. In addition, the magnitude of coefficients on investor relations rankings increases over time. The average coefficient in the first half of the sample (1982-1987) is 0.3277, while it is 0.5527 in the second half (1989-1996), implying an economically and statistically significant difference of 0.2250 between these two periods. These results indicate that similar to the results on overall and mandatory disclosure rankings, significant differences in market value exist between firms with high and low investor relations rankings and such differences widen significantly over time.

My results on Tobin's $Q$ are consistent with those on the stock returns. Firms with higher disclosure rankings significantly outperform those with lower disclosure rankings in market value. Further, over the course of my sample period, value differences between firms with high and low disclosure rankings grow larger indicating that these differences have been at least partially reflected in the stock prices.

## V. Corporate Disclosure, Operating Performance, and Managerial Myopia

### A. Corporate Disclosure and Future Operating Performance

I have presented positive relationships between disclosure quality and stock returns and market value in Sections III and IV. As discussed in Section I, there are three possible explanations for these positive relationships. First, the information transmission hypothesis posits that high-quality disclosures reflect managers' efforts to communicate positive information about future earnings to investors, thereby reducing stock misvaluation and managerial myopia arising from information asymmetry and short-run market pressures. This explanation implies a positive relationship between disclosure rankings and firms' future operating performance. Additionally, the hyping hypothesis contends that high-quality disclosures result from managers' misleading yet successful efforts to hype stocks instead of disseminating real information about future earnings. This explanation implies no significant relationship between a firm's disclosure rankings and its current or future operating performance. Moreover, the rating bias hypothesis suggests that difficulties in measuring disclosure quality lead analysts to subconsciously assign high rankings to firms with strong current operating performance, although the disclosures themselves contain no information regarding future earnings. This explanation implies a positive association between disclosure rankings and current operating performance, whereas it implies no significant relationship between disclosure rankings and future operating performance. In this section, I attempt to disentangle these three explanations by investigating whether systematic differences in future operating performance exist among firms with different disclosure rankings.

I use two proxies for operating performance: 1) the net profit margin ($PM$) and 2) one-year sales growth ($SG$), and estimate the following equation:

$$\text{Operating Performance}_{t+1} = f(\text{Disclosure Rankings, Firm Characteristics}). \quad (3)$$

In Equation (3), the dependent variable is a firm's operating performance ($PM$ or $SG$) in year $t+1$. Both measures are industry-adjusted by subtracting out the median in the corresponding two-digit SIC code industry (calculated using all available Compustat firms in that year). The key independent variable is the disclosure rankings. To account for the market expectation of

cross-sectional differences in operating performance, I include either log of book-to-market ratio or both log of book-to-market ratio and log of market capitalization as control variables.[23] To reduce the influence of larger outliners, which is a common occurrence for both measures, I employ median regression methodology. I first estimate Equation (3) cross-sectionally for each year in my sample period (1982-1996) and assess the significance level of the coefficients on disclosure rankings. I then calculate the mean and time-series standard deviation of the 15 annual estimates. The regression results with the net profit margin as the dependent variable are reported in Table VI.

Columns 2 and 3 of Table VI report results on the association between the overall disclosure rankings and firms' net profit margins in the next year. I report both the coefficient on the overall disclosure ranking and its significance level for each year of my sample period. I only control for the log of book-to-market ratio in Specification 1, while in Specification 2, I control for both the log of book-to-market ratio and the log of market capitalization. The last two rows present the mean coefficients on overall disclosure rankings and the associated time-series *t*-statistics. In both columns, the mean coefficients on overall disclosure rankings are positive and significant, suggesting a positive correlation between overall disclosure rankings and one-year-ahead net profit margins. Specifically, after controlling for both the log of book-to-market ratio and the log of market capitalization, the average one-year-ahead net profit margin for firms ranked at the top of overall disclosure rankings is 1.88% (1.71% if I only control for the log of book-to-market ratio) higher than for firms ranked at the bottom.

Columns 4-7 of Table VI report results regarding the relationship between the mandatory disclosure rankings and next year's net profit margins. In these four columns, both mean coefficients on annual report rankings and those on quarterly report rankings are positive and significant at the 1% level, implying a positive and significant association between mandatory disclosure rankings (which accounts for approximately 70% to 80% of a firm's overall disclosure rankings) and future net profit margins.

In Columns 8 and 9 of Table VI, I provide the results of the relationship between voluntary disclosure rankings and next year's net profit margins. The mean coefficients on the investor relations rankings in both columns are positive and significant at the 1% level, indicating a positive correlation between the firms' investor relations rankings and future net profit margins. Specifically, after controlling for the log of book-to-market ratio and the log of market capitalization, the average one-year-ahead net profit margins for firms ranked at the top of the investor relations rankings is 5.38% (4.74% if I only control for the log of book-to-market ratio) higher than for firms ranked at the bottom.

In Table VII, I replace the net profit margin with one-year sales growth and reestimate Equation (3). The results in Table VII are very similar to those in Table VI. The overall disclosure rankings, annual report rankings, and investor relations rankings all have positive and significant relationships with next year's sales growth.

In summary, my results regarding future operating performance indicate that during my sample period of 1982-1996, firms with higher disclosure rankings have significantly better future operating performance than those with lower disclosure rankings. These findings are consistent with the information transmission hypothesis and suggest the importance of improving and expanding disclosures for managers who wish to reduce stock misvaluation and short-run market pressures by communicating favorable private information about future earnings to investors.

[23] See Gompers et al. (2003) and Core et al. (2006) for detailed rationales for using these control variables.

## Table VI. Fama and MacBeth (1973) Regressions of Next Year's Net Profit Margin on Disclosure Rankings

This table presents results from the Fama and MacBeth (1973) regressions of the one-year-ahead net profit margins on disclosure rankings and firm characteristics. The sample period is from 1982 to 1996. The dependent variable is the net profit margin in year $t+1$. *Profit Margin* is income divided by sales adjusted by the industry median in the specific year using all Compustat firms. *TR* is the overall disclosure ranking. *AR* is the ranking on annual reports. *QR* is the ranking on quarterly reports. *IR* is the ranking on investor relations programs. (1) includes the log book-to-market ratio as the control variable, while (2) contains both log book-to-market ratio and log market capitalization as control variables. All regressions are estimated with median regression. Coefficients on the control variables and the constant are suppressed from reporting. Coefficients on disclosure rankings in the annual cross-sectional regressions are reported in each row, and the time-series averages of coefficients and $t$-statistics are given in the last two rows.

| | Dependent Variable: *Profit Margin*$_{t+1}$ Coefficient of Disclosure Rankings | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | *TR* | | *AR* | | *QR* | | *IR* | |
| | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) |
| 1982 | 0.0217 | 0.0011 | −0.0123 | 0.0035 | −0.0065 | −0.0241 | 0.0178 | 0.0272 |
| 1983 | 0.0369 | 0.0542 | 0.0740* | 0.0506 | 0.0909*** | 0.0898*** | 0.0544* | 0.0723*** |
| 1984 | 0.0325 | 0.0232 | 0.0385 | 0.0417 | 0.0327 | 0.0110 | 0.0358 | 0.0476 |
| 1985 | 0.0141 | −0.0012 | −0.0074 | −0.0174 | −0.0862 | −0.0561 | 0.0118 | −0.0091 |
| 1986 | 0.0135 | −0.0006 | 0.0794 | 0.0357 | 0.0629 | 0.0695 | 0.1013*** | 0.1229*** |
| 1987 | 0.0381 | 0.0404 | 0.0239 | 0.0218 | −0.0335 | −0.0565 | 0.0240 | 0.0178 |
| 1988 | 0.0547* | 0.0548** | 0.0561 | 0.0511 | 0.0585 | 0.0517 | 0.0061 | 0.0455 |
| 1989 | 0.0075 | 0.0040 | 0.0391 | 0.0413 | 0.0379 | 0.0384 | 0.0508 | 0.0537*** |
| 1990 | 0.0804*** | 0.0728*** | 0.1187*** | 0.1201*** | 0.1075*** | 0.1159*** | 0.1242*** | 0.1136*** |
| 1991 | 0.0213 | 0.0239 | 0.0412 | 0.0391 | 0.0709 | 0.0708 | 0.1225*** | 0.1296** |
| 1992 | 0.0244 | 0.0353 | −0.0122 | −0.0053 | 0.0676 | 0.0419 | 0.0848 | 0.0839 |
| 1993 | 0.0326 | 0.0368 | 0.0346 | −0.0089 | 0.0971*** | 0.1013*** | 0.0315 | 0.0294 |
| 1994 | −0.0339 | −0.0473 | 0.0043 | 0.0027 | 0.0129 | 0.0251 | −0.0454 | 0.0092 |
| 1995 | −0.0817 | −0.0428 | −0.0327 | −0.0384 | −0.0314 | −0.0231 | −0.0330 | −0.0630 |
| 1996 | −0.0052 | 0.0273 | 0.0257 | 0.0356 | 0.1183 | 0.1331** | 0.1250 | 0.1271 |
| Mean | 0.0171* | 0.0188** | 0.0314*** | 0.0248** | 0.0399** | 0.0392** | 0.0474*** | 0.0538*** |
| $t$ | 1.72 | 2.08 | 2.91 | 2.45 | 2.54 | 2.45 | 3.26 | 3.64 |

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

## Table VII. Fama and MacBeth (1973) Regressions of Next Year's Sales Growth on Disclosure Rankings

This table presents results from the Fama and MacBeth (1973) regressions of the one-year-ahead sales growth on disclosure rankings and firm characteristics. The sample period is from 1982 to 1996. The dependent variable is the industry median adjusted one year sales growth from year $t$ to $t+1$. *TR* is the overall disclosure ranking. *AR* is the ranking on annual reports. *QR* is the ranking on quarterly reports. *IR* is the ranking on investor relations programs. (1) includes the log book-to-market ratio as the control variable, while (2) includes both the log book-to-market ratio and the log market capitalization as control variables. All regressions are estimated with median regressions. Coefficients on the control variables and the constant are suppressed from reporting. Coefficients on disclosure rankings in annual cross-sectional regressions are reported in each row, and the time-series averages of coefficients and $t$-statistics are given in the last two rows.

| | Dependent Variable: *Sales Growth*$_{t+1}$ Coefficient on Disclosure Rankings | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | *TR* | | *AR* | | *QR* | | *IR* | |
| | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) |
| 1982 | 0.0513*** | 0.0540** | −0.0017 | −0.0239 | −0.0309 | −0.0269 | −0.0228 | −0.0298 |
| 1983 | 0.0341 | 0.0118 | 0.0442** | 0.0330** | 0.0450** | 0.0424** | 0.0550*** | 0.0327** |
| 1984 | 0.0368 | 0.0326 | 0.0118 | 0.0025 | −0.0289 | −0.0386 | 0.0299 | 0.0052 |
| 1985 | −0.0006 | 0.0114 | 0.0245 | 0.0364 | −0.0180 | −0.0184 | 0.0283 | 0.0223 |
| 1986 | 0.0116 | 0.0069 | 0.0332 | 0.0207 | 0.0310 | 0.0119 | −0.0333 | −0.0334 |
| 1987 | −0.0151 | 0.0028 | −0.0134 | 0.0282 | −0.0255 | 0.0038 | −0.0413 | 0.0121 |
| 1988 | −0.0071 | 0.0032 | −0.0025 | 0.0094 | −0.0033 | −0.0060 | 0.0141 | −0.0053 |
| 1989 | −0.0179 | −0.0087 | 0.0015 | −0.0118 | −0.0260 | −0.0257 | 0.0097 | 0.0195 |
| 1990 | 0.0228 | 0.0281 | 0.0234 | 0.0189 | 0.0081 | 0.0096 | 0.0296 | 0.0170 |
| 1991 | 0.0155 | 0.0146 | 0.0178 | 0.0444** | 0.0290 | 0.0353 | 0.0307 | 0.0440*** |
| 1992 | 0.0045 | 0.0108 | 0.0121 | 0.0322 | −0.0006 | 0.0213 | −0.0005 | 0.0133 |
| 1993 | 0.0154 | 0.0102 | 0.0068 | 0.0226 | 0.0127 | 0.0042 | 0.0171 | 0.0031 |
| 1994 | 0.0240 | 0.0511 | 0.0158 | 0.0192 | 0.0216 | 0.0226 | 0.0228 | 0.0224 |
| 1995 | −0.0181 | −0.0012 | −0.0131 | 0.0480 | −0.0045 | 0.0336 | 0.0139 | 0.0243 |
| 1996 | 0.0323 | 0.0384 | 0.0233 | 0.0226 | 0.0081 | 0.0117 | 0.0849*** | 0.0638* |
| Mean | 0.0126 | 0.0177 | 0.0123 | 0.0202 | 0.0012 | 0.0054 | 0.0159 | 0.0141 |
| $t$ | 2.22** | 3.52*** | 2.80*** | 3.84*** | 0.19 | 0.83 | 1.85* | 2.12** |

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

## B. Corporate Disclosure and Future Managerial Myopia

One argument made repeatedly in the popular press is that high-quality disclosures allow firms to pursue more long-term investment opportunities by increasing transparency. In other words, high-quality disclosures can improve market participants' understanding of the nature of firms' business operation, thereby at least partially reducing the short-run pressures in the equity market. This argument is consistent with the information transmission hypothesis and implies a negative relationship between disclosure rankings and future managerial myopia. In this section, I investigate whether such a relationship exists.

Empirical analyses on managerial myopia have been scarce in the literature. One notable exception is Meulbroek et al. (1990) who test the theoretical implication of Stein (1988) that the threat of takeovers encourages managerial myopia by comparing firms' R&D intensity between periods prior to and after the adoption of shark repellents.[24] Following Meulbroek et al. (1990), I use R&D intensity to proxy for the degree of managerial myopia. Since greater R&D intensity indicates less managerial myopia, I expect a positive correlation between the disclosure rankings and next year's R&D intensity. Specifically, I estimate the following equation:

$$\text{R\&D Intensity}_{t+1} = f(\text{Disclosure Rankings, Firm Characteristics}). \quad (4)$$

In Equation (4), the dependent variable is a firm's R&D intensity in year $t+1$. The key independent variable is the disclosure rankings. Similar to regressions of future operating performance, I control for either the log of book-to-market ratio or both the log of book-to-market ratio and the log of market capitalization. To reduce the influence of larger outliners, I employ median regression methodology. I first estimate Equation (4) cross sectionally for each year in my sample period (1982-1996) and assess the significance levels of coefficients on disclosure rankings. I then calculate the mean and time-series standard deviation of the 15 annual estimates. These results are reported in Table VIII.

Columns 2 and 3 of Table VIII report results regarding the relationship between the overall disclosure rankings and next year's R&D intensity. I report both the coefficient on overall disclosure rankings and its significance level for each year in my sample period. I only control for the log of book-to-market ratio in Specification 1, while in Specification 2, I control for both the log of book-to-market ratio and the log of market capitalization. I include industry dummies based on two-digit SIC codes in all regressions to control for industry effects. The last two rows present the mean coefficients on overall disclosure rankings across all years and the associated time-series *t*-statistics. The mean coefficients on overall disclosure rankings in both specifications are positive and significant, implying a positive relationship between overall disclosure rankings and one-year-ahead R&D intensity. Specifically, after controlling for both the log of book-to-market ratio and the log of market capitalization, the average one-year-ahead R&D intensity for firms ranked at the top of the overall disclosure rankings is 0.81% (0.58% if I only control for the log of book-to-market ratio) higher than for firms ranked at the bottom.

Columns 4-7 of Table VIII report the results of the relationships between mandatory disclosure rankings and next year's R&D intensity. In these four columns, the mean coefficients on annual report rankings and those on quarterly report rankings are not statistically significant. In Columns 8 and 9, I present the results on the association between voluntary disclosure rankings (on investor

[24] Using univariate analyses, Meulbroek et al. (1990) provide evidence regarding the reduction of firms' R&D intensity after the introduction of shark repellents, suggesting a negative impact of takeover impediments on managers' incentive to engage in long-term investments. Note that Meulbroek et al. (1990) do not analyze the effects of firms' disclosure practices on managerial myopia.

## Table VIII. Fama and MacBeth (1973) Regressions of Next Year's R&D Intensity on Disclosure Rankings

This table presents results from the Fama and MacBeth (1973) regressions of the one-year-ahead R&D intensity on disclosure rankings and firm characteristics. The sample period is from 1982 to 1996. The dependent variable is R&D intensity in year $t+1$. *R&D Intensity* is R&D divided by sales. *TR* is the overall disclosure ranking. *AR* is the ranking on annual reports. *QR* is the ranking on quarterly reports. *IR* is the ranking on investor relations programs. (1) includes the log book-to-market ratio as the control variable, while (2) includes both the log book-to-market ratio and the log market capitalization as control variables. Industry dummies based on two-digit SIC codes are also included in all regressions as control variables. All regressions are estimated with median regression. Coefficients on the control variables and the constant are suppressed from reporting. Coefficients on disclosure rankings in annual cross-sectional regressions are reported in each row, and the time-series averages of coefficients and *t*-statistics are given in the last two rows.

| | Dependent Variable: *R&D Intensity*$_{t+1}$ Coefficient on Disclosure Rankings | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | *TR* | | *AR* | | *QR* | | *IR* | |
| | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) |
| 1982 | 0.0027 | 0.0098 | −0.0296*** | −0.0285 | −0.0258 | −0.0221 | −0.0243*** | −0.0246*** |
| 1983 | 0.0084 | 0.0092 | −0.0228** | −0.0172 | −0.0128 | −0.0128 | −0.0236** | −0.0188 |
| 1984 | 0.0015 | 0.0107 | −0.0136 | −0.0155 | 0.0094 | 0.0031 | −0.0008 | −0.0061 |
| 1985 | −0.0064 | 0.0031 | −0.0046 | 0.0115 | −0.0154 | −0.0016 | 0.0052 | 0.0085 |
| 1986 | 0.0020 | −0.0016 | 0.0098 | 0.0152 | −0.0215 | −0.0120 | −0.0156 | −0.0081 |
| 1987 | 0.0047 | 0.0043 | 0.0335*** | 0.0305*** | .03025** | 0.0088 | 0.0251** | 0.0253* |
| 1988 | 0.0154*** | 0.0157* | 0.0048 | 0.0043 | 0.0083 | 0.0084 | 0.0201** | 0.0152 |
| 1989 | 0.0381** | 0.0289 | 0.0209*** | 0.0219*** | .01928*** | .0194*** | 0.0152 | 0.0154 |
| 1990 | 0.0170 | 0.0147 | 0.0093 | 0.0066 | 0.0112 | 0.0083 | 0.0174*** | 0.0175*** |
| 1991 | 0.0051 | 0.0027 | −0.0061 | 0.0065 | −0.0064 | −0.0009 | 0.0053 | 0.0126 |
| 1992 | 0.0168 | 0.0061 | −0.0083 | 0.0078 | −0.0038 | 0.0037 | 0.0101 | 0.0131 |
| 1993 | −0.0068 | 0.0167 | −0.0147 | −0.0163 | −0.0089 | −0.0029 | 0.0191* | 0.0106 |
| 1994 | 0.0019 | 0.0076 | 0.0103 | 0.0059 | −0.0017 | 0.0072 | −0.0106 | −0.0058 |
| 1995 | −0.0063 | −0.0041 | −0.0068 | 0.0011 | −0.0093 | −0.0054 | −0.0021 | −0.0004 |
| 1996 | −0.0063 | −0.0022 | −0.0067 | −0.0018 | −0.0060 | −0.0017 | 0.0103 | −0.0065 |
| Mean | 0.0058 | 0.0081 | −0.0016 | 0.0021 | −0.0022 | 0.0000 | 0.0034 | 0.0032 |
| *t* | 1.83* | 3.53*** | −0.37 | 0.50 | −0.54 | 0.01 | 0.80 | 0.83 |

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

relations programs) and next year's R&D intensity. The mean coefficients on investor relations rankings in both columns are positive, but not significant.

The results in Table VIII suggest a positive correlation between the AIMR disclosure rankings and future R&D intensities. As such, higher disclosure quality is associated with less managerial myopia. In addition, this positive relationship appears to be driven by the combination of mandatory and voluntary disclosure rankings, while each individual component of the overall disclosure ranking does not have a strong impact.

### C. Corporate Disclosure and Future Earnings Surprises

Thus far, I have demonstrated that firms' disclosure rankings are positively related to future net profit margins, sales growth, and R&D intensity. One concern with these findings is the strong time-series dependence commonly existing in operating performance. In other words, these positive relationships may merely reflect the positive association between disclosure rankings and current operating performance (as the rating bias hypothesis would suggest). To address this possibility, in this section, I examine future unexpected performance (measured by future earnings surprises), where time-series dependence rarely exists.

I focus on the changes (instead of the levels) in disclosure rankings when examining the relationship between disclosure quality and unexpected performance for the following reasons. The information transmission hypothesis implies that managers are particularly motivated to improve disclosure quality when it is more difficult to convey private (and presumably favorable) information to investors. If their efforts are not fully understood by the average analyst (who is often different from the leading analysts in various industries surveyed by AIMR), one would expect the subsequent unexpected performance to be higher for firms with larger improvements in disclosure quality, while it would be less sensitive to the general quality of the firms' disclosures (the cumulative result of all past changes in disclosure quality). The levels of disclosure rankings are often considered to be better measures for general disclosure quality, while changes in disclosure rankings are better measures for improvements in disclosure quality (Healy et al., 1999). Thus, given that earnings surprises measure performance that is not expected by the market, in the remainder of this section, I analyze the relationship between changes in disclosure rankings and subsequent earnings surprises.

I sort firms into quintiles based on the changes in disclosure rankings each year and obtain the median earnings surprises in the four subsequent quarters for the top and bottom quintiles, as well as the differences between the two.[25] I then test whether these differences are significantly greater than zero or not. The results are presented in Table IX.

Panel A of Table IX provides the results for future earnings surprises when firms are sorted by the changes in overall disclosure rankings. The top quintile (firms with the largest increases in overall disclosure rankings) has higher earnings surprises than the bottom quintile (firms with the largest decreases) in the next four quarters. Specifically, the average earnings surprise for the next quarter is 0.013% for the top quintile and –0.031% for the bottom quintile. The difference is statistically significant at the 5% level. For the second subsequent quarter, the difference in earnings surprises between the top and bottom quintiles is 0.025% and statistically significant at the 10% level. The differences remain positive and significant for earnings surprises in the subsequent third and fourth quarters (at the 4% and 8% levels, respectively).

In Panels B and Panel C of Table IX, I sort firms by the changes in their rankings on annual and quarterly reports and repeat the analyses in Panel A. The results in these two panels are

[25] Observations on earnings forecasts in I/B/E/S are scarce prior to late 1984. Therefore, my sample periods in Tables VIII and IX start from the first quarter of 1985.

## Table IX. Corporate Disclosures and Future Earnings Surprises

This table presents earnings surprises in the four quarters subsequent to changes in the disclosure rankings. The sample period is from 1985Q1 to 1997Q4. The earnings surprise is the difference between the actual earnings and the consensus analyst forecast, divided by the stock price. *TR* is the overall disclosure ranking. *AR* is the ranking on annual reports. *QR* is the ranking on quarterly reports. *IR* is the ranking on investor relations programs. Stocks are sorted into quintile portfolios based on changes in disclosure rankings from last year to the current year. Portfolio Q5 contains stocks experiencing the largest increases in disclosure rankings. Portfolio Q1 contains stocks experiencing the largest decreases in disclosure rankings. The time-series mean of cross-sectional median values of earnings surprises for these portfolios are reported. Panel A provides results for portfolios formed based on changes in overall disclosure rankings. Panel B presents results for portfolios formed based on changes in rankings on annual reports. Panel C displays results for portfolios formed based on changes in rankings on quarterly reports. Panel D reports results for portfolios formed based on changes in rankings on investor relations programs. Earnings surprises are in percentages. Numbers in parentheses are *p*-values.

| | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|
| *Panel A. Overall Ranking* | | | | |
| Portfolios based on changes in *TR* | | | | |
| Q5 | 0.013 | 0.044 | 0.015 | 0.016 |
| Q1 | −0.031 | 0.018 | −0.015 | −0.003 |
| Q5-Q1 | 0.045 | 0.025 | 0.031 | 0.019 |
| | (0.05) | (0.10) | (0.04) | (0.08) |
| *Panel B. Ranking on Annual Reports* | | | | |
| Portfolios based on changes in *AR* | | | | |
| Q5 | 0.015 | 0.020 | 0.007 | −0.002 |
| Q1 | −0.038 | 0.029 | −0.003 | −0.039 |
| Q5-Q1 | 0.053 | −0.009 | 0.009 | 0.037 |
| | (0.09) | (0.69) | (0.18) | (0.04) |
| *Panel C. Ranking on Quarterly Reports* | | | | |
| Portfolios based on changes in *QR* | | | | |
| Q5 | 0.019 | 0.029 | 0.019 | 0.015 |
| Q1 | −0.022 | 0.016 | −0.006 | −0.031 |
| Q5-Q1 | 0.041 | 0.014 | 0.025 | 0.046 |
| | (0.06) | (0.20) | (0.08) | (0.02) |
| *Panel D. Ranking on Investor Relations* | | | | |
| Portfolios based on changes in *IR* | | | | |
| Q5 | −0.011 | 0.032 | 0.029 | 0.005 |
| Q1 | −0.024 | 0.007 | −0.004 | −0.036 |
| Q5-Q1 | 0.013 | 0.026 | 0.033 | 0.041 |
| | (0.06) | (0.07) | (0.01) | (0.04) |

similar to those in Panel A. When firms are sorted by the changes in annual report rankings (Panel B), the top quintile has higher average earnings surprises than the bottom quintile in the next quarter. The average earnings surprise for the next quarter is 0.015% for the top quintile and –0.038% for the bottom quintile. The difference is statistically significant at the 9% level. For the next two subsequent quarters, the differences are –0.009% and 0.009%, respectively, and are

not statistically significant. Finally, for the fourth subsequent quarter, the difference in earnings surprises between the top and bottom quintiles is 0.037% and significant at the 4% level. When firms are sorted by the changes in quarterly report rankings (Panel C), the top quintile has higher average earnings surprises than the bottom quintile in the next four quarters. The average earnings surprises for the next quarter are 0.019% for the top quintile and –0.022% for the bottom quintile. The difference is statistically significant at the 6% level. For the second subsequent quarter, the difference is positive at 0.014%, but not statistically significant. Finally, for the third and fourth subsequent quarters, the differences in earnings surprises between the top and bottom quintiles are 0.025% and 0.046%, respectively. They are significant at the 8% and 2% levels, respectively.

In Panel D of Table IX, I sort firms by the changes in their rankings on investor relations programs and find strong differences in future earnings surprises between the top and bottom quintiles. Specifically, the average earnings surprise for the next quarter is –0.011% for the top quintile and –0.024% for the bottom quintile. The difference is statistically significant at the 6% level. For the next two quarters, the differences are 0.026% and 0.033%, respectively, and are statistically significant at the 7% and 1% levels. Finally, for the fourth subsequent quarter, the difference in earnings surprises between the top and bottom quintiles is 0.041%. It is statistically significant at the 4% level.

Overall, the results regarding future earnings surprises suggest a positive relationship between improvements in disclosure rankings and future unexpected performance. As earnings surprises are rarely subject to the time-series dependence issue that may confound my results in Section V.A, the findings in this section provide evidence on the robustness of the positive correlation between disclosure quality and future operating performance.

## VI. Robustness Check

### A. Corporate Disclosure and Current Earnings Surprises

In my previous analyses, I have illustrated positive and significant relationships between disclosure quality and stock returns, market valuation, future operating performance, and future R&D intensity. I have also demonstrated positive associations between improvements in disclosure quality and future unexpected operating performance. These findings are consistent with the implications of the information transmission hypothesis. To further distinguish the information transmission hypothesis from the rating bias hypothesis, in this section, I examine the relationship between the changes in disclosure rankings and the unexpected operating performance in the current year. Specifically, I examine the differences in the current year's four quarterly earnings surprises between firms with the largest increases and the largest decreases in disclosure rankings.

I sort firms by the changes in disclosure rankings each year and obtain the median earnings surprises for the top and bottom quintiles for each of the four quarters of the year, as well as the differences between the two. I then test whether these differences are significantly greater than zero. The results are presented in Table X.

Panel A of Table X reports the results for the current year's earnings surprises when firms are sorted by the changes in overall disclosure rankings. The differences in earnings surprises between the top quintile (firms with the largest increases in overall disclosure rankings) and the bottom quintile (firms with the largest decreases) in the four quarters of the current year are not significantly greater than zero (except for the first quarter). Panels B, C, and D present the results for the four quarterly earnings surprises in the current year when firms are sorted by the changes in annual report rankings, quarterly report rankings, and investor relations rankings,

## Table X. Corporate Disclosures and Current Earnings Surprises

This table presents earnings surprises in the four quarters of the year where changes in disclosure rankings occur. The sample period is from 1985Q1 to 1996Q4. The earnings surprise is the difference between the actual earnings and the consensus analyst forecast, divided by stock price. *TR* is the overall disclosure ranking. *AR* is the ranking on annual reports. *QR* is the ranking on quarterly reports. *IR* is the ranking on investor relations programs. Stocks are sorted into quintile portfolios based on changes in disclosure rankings from last year to the current year. Portfolio Q5 contains stocks experiencing the largest increases in disclosure rankings. Portfolio Q1 presents stocks experiencing the largest decreases in disclosure rankings. The time-series mean of cross-sectional median values of earnings surprises for these portfolios are reported. Panel A provides results for portfolios formed based on changes in overall disclosure rankings. Panel B reports results for portfolios formed based on changes in rankings on annual reports. Panel C displays results for portfolios formed based on changes in rankings on quarterly reports. Panel D reports results for portfolios formed based on changes in rankings on investor relations programs. Earnings surprises are in percentages. Numbers in parentheses are *p*-values.

| | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|
| *Panel A. Overall Ranking* | | | | |
| Portfolios based on changes in *TR* | | | | |
| Q5 | 0.054 | 0.039 | 0.036 | 0.013 |
| Q1 | −0.003 | 0.037 | 0.008 | 0.014 |
| Q5-Q1 | 0.057 | 0.002 | 0.028 | −0.001 |
| | (0.01) | (0.45) | (0.15) | (0.53) |
| *Panel B. Ranking on Annual Reports* | | | | |
| Portfolios based on changes in *AR* | | | | |
| Q5 | 0.013 | 0.038 | 0.026 | 0.016 |
| Q1 | 0.012 | 0.037 | 0.028 | 0.009 |
| Q5-Q1 | 0.001 | 0.001 | −0.002 | 0.007 |
| | (0.50) | (0.47) | (0.55) | (0.25) |
| *Panel C. Ranking on Quarterly Reports* | | | | |
| Portfolios based on changes in *QR* | | | | |
| Q5 | 0.056 | 0.044 | 0.027 | 0.015 |
| Q1 | −0.008 | 0.029 | 0.012 | 0.012 |
| Q5-Q1 | 0.065 | 0.015 | 0.015 | 0.003 |
| | (0.01) | (0.14) | (0.23) | (0.37) |
| *Panel D. Ranking on Investor Relations* | | | | |
| Portfolios based on changes in *IR* | | | | |
| Q5 | 0.040 | 0.037 | 0.027 | 0.021 |
| Q1 | 0.011 | 0.029 | 0.019 | −0.002 |
| Q5-Q1 | 0.028 | 0.009 | 0.008 | 0.022 |
| | (0.12) | (0.34) | (0.37) | (0.06) |

respectively. The results in these three panels are similar to those in Panel A. There are no significant differences in the current year's earnings surprises between firms with the largest increases and those with the largest decreases in disclosure rankings (except for the first quarter in Panel C and the last quarter in Panel D).

In summary, the results in Table X indicate no significant relationship between changes in disclosure rankings and the current year's unexpected performance. Combined with my findings in Section V, I conclude that my results regarding future operating performance are in support of the information transmission hypothesis. In other words, high-quality disclosures reflect managers' efforts to communicate private information about future earnings to investors.

### B. Standard Errors Clustered by Both Firm and Year (Petersen, 2009)

In Sections IV and V, I conduct multivariate regressions using the Fama and MacBeth (1973) methodology to analyze the relationship between disclosure rankings and market value, future operating performance and future managerial myopia. There are two reasons for employing the Fama and MacBeth (1973) methodology. First, it involves a cross-sectional regression for each year of my sample, thereby allowing me to compare relative mispricing and performance over time. Second, the Fama and MacBeth (1973) methodology is employed by other studies relating various corporate performance measures to firm characteristics (Gompers et al., 2003) and using it allows me to stay consistent with the existing literature. However, Petersen (2009) illustrates that standard errors in the Fama and MacBeth (1973) methodology may be biased and suggests using standard errors clustered by both firm and time to correct firm and time effects in pooled panel regressions. Thus, in this section, I reconduct my main analyses in Sections IV and V using this methodology to gauge the robustness of my results. The coefficients on disclosure rankings and the associated *t*-statistics based on standard errors clustered by both firm and year (Petersen, 2009) in these analyses are presented in Table XI.

I use median regressions for the analyses in Section V to control for the effects of large outliners, which is a common occurrence for operating performance measures and R&D intensity. For analyses in this section, I run pooled ordinary least squares (OLS) regressions and large outliners are controlled by winsorizing the operating performance and managerial myopia measures at the 1% level as the robust standard errors in Petersen (2009) cannot be calculated in median regressions. Following Petersen (2009), I include year dummies in all regressions to control for year fixed effects. The results in Table XI are qualitatively similar to those in Tables IV, V, VII, and VIII, suggesting positive correlations between disclosure rankings and Tobin's *Q*, one-year-ahead net profit margins and sales growth, and one-year-ahead R&D intensity. Overall, this table indicates that my results are robust to alternative estimation methods.

## VII. Conclusion

This paper documents positive and significant relationships between the AIMR rankings on firms' mandatory and voluntary disclosures and stock returns, market valuation, future operating performance, and future R&D intensity. I also find a positive association between changes in disclosure rankings and future unexpected operating performance. Overall, my findings suggest that corporate disclosures reflect managers' genuine efforts to communicate favorable private information about future earnings to investors. Managers can significantly reduce stock misvaluation and short-run market pressures by improving disclosure quality.

My results underscore the value of precise measurement of disclosure quality for firms and the equity market. They also highlight the importance of accounting for stock performance benefits by corporate managers, regulators, and academicians when evaluating disclosure policies and the necessity of examining the relationship between disclosure quality and corporate performance in the post-SOX period.

## Table XI. Standard Errors Clustered by Firm and Year

This table presents results from panel regressions of various corporate performance measures on disclosure rankings and firm characteristics. The sample period is from 1982 to 1996. *Tobin's Q* is the market value of assets divided by the book value of assets, where the market value of assets is the book value of assets plus the market value of common stock, less the book value of common stock and the balance sheet deferred taxes. *Profit Margin* is income divided by sales adjusted by industry median in the specific year using all Compustat firms. *Sales Growth* is the industry median adjusted one-year sales growth. *R&D Intensity* is R&D divided by sales. *TR* is the overall disclosure ranking. *AR* is the ranking on annual reports. *QR* is the ranking on quarterly reports. *IR* is the ranking on investor relations programs. Control variables for regressions of Tobin's *Q* include the log book value of total assets, the log firm age, and industry dummies based on two-digit SIC codes. For regressions of *Profit Margin*$_{t+1}$, *Sales Growth*$_{t+1}$, and *R&D Intensity*$_{t+1}$, (1) includes the log book-to-market ratio as the control variable and (2) includes both log book-to-market ratio and log market capitalization as control variables. Industry dummies based on two-digit SIC codes are also included in regressions of *R&D Intensity*$_{t+1}$. Year dummies are included in all regressions. All regressions are estimated with panel OLS regressions and coefficients on disclosure rankings. The associated *t*-statistics (in parentheses) based on standard errors clustered by both firm and year (Petersen, 2009) are reported. Coefficients on control variables and the constant are suppressed from reporting.

| **Dependent Variable** | **Coefficient on Disclosure Rankings** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ***TR*** | | ***AR*** | | ***QR*** | | ***IR*** | |
| | **(1)** | **(2)** | **(1)** | **(2)** | **(1)** | **(2)** | **(1)** | **(2)** |
| *Tobin's Q* | | 0.3555*** | | 0.4069*** | | 0.3481** | | 0.4945*** |
| | | (3.13) | | (2.69) | | (2.02) | | (2.96) |
| *Profit Margin*$_{t+1}$ | 0.0220 | 0.0186* | 0.0371** | 0.0317** | 0.0414** | 0.0382*** | 0.0573*** | 0.0519** |
| | (1.65) | (1.93) | (2.15) | (2.08) | (2.05) | (2.85) | (3.16) | (3.16)* |
| *Sales Growth*$_{t+1}$ | 0.0178* | 0.2982*** | 0.0177* | 0.0322** | 0.0019 | 0.0134 | 0.0291** | 0.0360** |
| | (1.70) | (3.20) | (1.73) | (2.64) | (0.21) | (1.28) | (2.05) | (2.61) |
| *R&D Intensity*$_{t+1}$ | 0.0067 | 0.0153** | 0.0094 | 0.0071 | 0.0080 | 0.0059 | 0.0064 | 0.0051 |
| | (1.67) | (2.77) | (1.10) | (0.87) | (0.84) | (0.63) | (0.65) | (0.52) |

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

One limitation of my study is the usage of the AIMR disclosure ratings as the proxy for corporate disclosure. Therefore, how the usage of other types of disclosure ratings or corporate governance ratings issued by other rating agencies may impact the results represents an interesting area for future study. Finally, although I provide evidence regarding the stock performance and market valuation benefits of high-quality disclosures, data constraints make it impossible to directly measure their costs, especially the nonpecuniary costs for managers. Therefore, my paper offers no direct evidence as to whether corporate managers over- or underinvest in corporate disclosures (i.e., whether the benefits of high-quality disclosures out weigh their costs for managers). From this perspective, my results should not be interpreted as though some managers are making suboptimal choices regarding disclosure quality when maximizing their personal utility. ■

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