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Abstract

We examine the relation between disclosure frequency and earnings management, and the impact of this relation on post-issue performance, for a sample of seasoned equity offerings (SEOs). We contend that firms with extensive disclosure are less likely to face information problems, leading to less earnings management and better post-issue performance. Our results confirm that disclosure frequency is inversely related to earnings management and positively associated with post-issue performance. We also find that transparency-reducing disclosure is concentrated in firms that substantially, but temporarily, increase disclosure prior to the offering. Such firms exhibit more earnings management and poorer post-SEO stock performance, on average.

JEL Classifications: G14; G24; G32; M41
Keywords: Seasoned equity offerings; Earnings management; Disclosure frequency; Post-issue performance

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Disclosure frequency and earnings management

1. Introduction

Recent research suggests that firms issuing equity can inflate their stock price temporarily via earnings management prior to the offering. Teoh, Welch, and Wong (1998a) find that firms report income-increasing discretionary accruals before seasoned equity offerings (SEOs) and that long-run, post-issue operating and return performance is negatively related to earnings management. DuCharme, Malatesta, and Sefcik (2004) support the view that some firms opportunistically manipulate earnings upward before stock offerings, rendering themselves vulnerable to litigation. These studies conclude that market participants fail to adequately adjust for earnings management, leading to post-offering stock underperformance.

Equity-issuing firms can also increase their stock price by reducing their cost of capital through voluntary disclosure. Botosan (1997) finds that the cost of capital is negatively associated with the level of voluntary disclosure. Most previous studies of disclosure strategies focus on either the reduction of the cost of capital (Diamond and Verrecchia, 1991; Botosan, 1997; Botosan and Plumlee, 2002) or the reduction of information asymmetry (Coller and Yohn, 1997; Healy and Palepu, 1993, 2001; Schrand and Verrecchia, 2004). Despite the pivotal role that disclosure strategies play in the SEO market, the causes and ramifications of SEO firms' disclosure strategies have not received sufficient attention in the literature.

In this paper, we examine the relation between a firm's disclosure frequency and earnings management, and the impact of this relation on post-issue SEO performance. Casual observation suggests that there is wide variation in disclosure strategies. Some firms communicate continuously with investors through voluntary disclosure, while others provide very little information. Existing research does not explore the possible relation between disclosure frequency and earnings management.

There is growing evidence that disclosure generally improves transparency and thus reduces information problems (Healy and Palepu, 2001; Schrand and Verrecchia, 2004). However, it is also possible that managers use particular disclosure strategies to reduce transparency and hype their firms' stocks (Lang and Lundholm, 2000). If information intermediaries (such as financial analysts, underwriters, auditors, etc.) are effective, disclosure is more likely to increase transparency. As recent accounting scandals indicate, however, these intermediaries face their own conflicts of interest, raising questions about their effectiveness. In particular, Lin and McNichols (1998) and Dechow, Hutton, and Sloan (2000) suggest that analysts affiliated with investment banks that underwrite equity issues tend to make higher growth forecasts than unaffiliated analysts do, and subsequently have larger forecast errors.

We argue that, in general, disclosure increases transparency and therefore reduces incentives to manage earnings because increased transparency helps investors detect earnings management. Greater disclosure frequency exposes earnings management, and accordingly, disclosure frequency and earnings management are negatively associated. Similar to Schrand and Verrecchia's (2004) IPO study, we claim that greater disclosure frequency around the SEO period helps reduce information asymmetry between managers and investors. This reduction of information asymmetry limits any temporary overvaluation of the SEO, reducing post-issue SEO underperformance.

Consistent with our predictions, our earnings management proxy, performance-adjusted discretionary total accruals, is inversely associated with disclosure frequency. Our findings are robust to excluding income-decreasing accruals and controlling for investment opportunities and reportable events. We also find that post-issue SEO performance is positively associated with disclosure frequency after controlling for confounding effects, implying that disclosure reduces post-SEO underperformance. The results remain qualitatively unchanged using other proxies of earnings management, such as the discretionary current accruals that Teoh, Welch, and Wong

(1998a, 1998b), Rangan (1998), and DuCharme, Malatesta, and Sefcik (2004) use, and the discretionary total accruals that Hribar and Collins (2002) suggest. Different measurement windows of accruals and disclosure do not change the result.

Lang and Lundholm (2000) note that firms wishing to hype their stocks have an incentive to increase disclosure immediately before the offer. Such firms also may have an incentive to manage their earnings. For a subset of firms, we find evidence consistent with this conjecture. In particular, we find that firms with non-persistent increases in disclosure aggressively manage their earnings around the time of the offering. The post-issue performance of these firms is particularly poor. This subsample supports the hypothesis that firms use transparency-reducing hype to boost their SEO price.

The paper is organized as follows. Section 2 describes our predictions regarding the interrelation among disclosure frequency, earnings management, and post-issue performance. Section 3 describes the data and measurement. Section 4 presents the empirical results, and Section 5 concludes.

2. Disclosure frequency, earnings management, and post-issue performance

A primary incentive for earnings management before stock issues is to increase recently reported earnings and cause investors to form overly optimistic expectations regarding the value of the firms issuing equity. If buyers accept inflated reported earnings, they could end up paying too much for shares. Issuers thus obtain more issue proceeds and lower the cost of capital. Most of the prior work on earnings management around equity offers (Teoh, Welch, and Wong, 1998a, 1998b; DuCharme, Malatesta, and Sefcik, 2004; Kim and Park, 2005) uses this incentive to motivate the research.

However, Rangan (1998) argues that managers also have incentives to manage earnings in the quarters following the offering announcement due to legal liabilities and lock-up

agreements. First, an immediate earnings reversal after the offering announcement and the associated price drop could precipitate lawsuits against the firm and its managers (Skinner, 1994, 1997). DuCharme, Malatesta, and Sefcik (2004) show that the decline in abnormal working capital accruals is more pronounced for firms that are later sued regarding their offers than for those that are not sued. Second, firms enter into lock-up agreements with their underwriters that prevent insiders at issuing firms from selling their holdings during the 90 to 180 days after the offering date (Field and Hanka, 2001). Insiders who wish to sell shares at the end of this lock-up period clearly have an incentive to support the firm's stock price. Therefore, they are likely to manage earnings until the end of the lock-up period. Rangan (1998) finds that earnings management peaks in the quarters immediately following the offering announcements. Teoh, Welch, and Wong (1998b, p. 1939) also argue that incentives to manage earnings are likely to persist in the months immediately after an offering. They propose that the lock-up agreements, as well as increased legal and reputational scrutiny, help explain why the earnings management period extends beyond an offer.

Recognizing the incentives to manage earnings following offering announcements, we measure earnings management over a period that includes the quarters both before and after the offering announcement. Results reported in Section 3.4 show that discretionary accruals are largest in the quarters after the offering announcement, justifying the use of this measure in the cross-sectional tests. We use various accrual measurement windows to examine whether our results are sensitive to different measurement windows and to assess when earnings management occurs.

2.1. Transparency-increasing disclosure and earnings management

Schipper (1989) argues that the absence of full communication (or the existence of blocked communication), together with asymmetric information, makes it possible for managers to manage

earnings. This implies that earnings management is less likely for firms that disclose more information on a persistent basis because the increased transparency lowers information asymmetry and helps investors recognize earnings management. Conversely, incentives for earnings management are likely to be high for firms with limited disclosure when information asymmetry is high.

Prediction 1. Earnings management is a decreasing function of the persistent level of disclosure.

2.2. Transparency-increasing disclosure and post-issue SEO performance

Prior literature reports long-run, post-issue operating and stock market SEO underperformance (Loughran and Ritter, 1995, 1997; Spiess and Affleck-Graves, 1995). While the effect of information disclosure in reducing information asymmetry in a general setting receives significant attention in the literature,[1] the impact of information disclosure on the post-issue performance of SEOs has been relatively ignored.

We argue that disclosure activities affect post-SEO performance for at least two reasons. First, disclosure reduces the information gap between issuers and investors, thereby reducing any SEO overvaluation and the subsequent price correction. Second, for firms that manage earnings and have limited disclosure in periods leading up to an SEO, there is likely to be an information problem that will be accompanied by pre-SEO overvaluation and a corresponding price correction when true earnings are revealed in the post-issue period. If earnings are managed but firm disclosure is high, then investors are likely to see through the earnings management, leading to little overvaluation or post-issue underperformance. In short, transparency-increasing disclosure

[1] Healy and Palepu (1993) argue that disclosure reduces information asymmetry between managers and investors regarding economic earnings. Lang and Lundholm (1996) suggest that firms with more informative disclosure policies have a larger analyst following, more accurate analyst earnings forecasts, less dispersion among individual analyst forecasts, and less volatility in forecast revisions.

plays a role in reducing SEO overvaluation and post-issue underperformance by reducing information problems.

However, not all disclosure is credible. If disclosure activities decrease immediately following the offer, disclosure prior to an SEO could have been used to hype the stock. In addition, maintaining a high level of disclosure over an extended period (even after the offering date) would be important to holding investor attention. Consequently, we contend that a firm's post-issue SEO performance is related to the disclosure level maintained persistently over the periods both prior to and subsequent to the offer.

Prediction 2. Post-issue SEO performance is less negative for firms that maintain a persistently high level of disclosure around the offering.

2.3. Opaque disclosure and earnings management

While a sustained level of disclosure is associated with the existing level of information asymmetry, changes in disclosure could more clearly represent intentions to affect the information environment. Lang and Lundholm (2000) hypothesize that firms might increase disclosure prior to the offer to "hype" the stock, thereby increasing offer proceeds.[2] In this environment, managers also might aggressively manipulate accruals to influence market perceptions. If firms intend to provide disclosure that reduces transparency in an attempt to hype their stocks, we expect that they are likely to increase disclosure activity substantially prior to the offer, but subsequently revert back to low disclosure levels after the offer.

Prediction 3. Earnings management is positively associated with a non-persistent disclosure increase.

2.4. Opaque disclosure and post-issue SEO performance

[2] Lang and Lundholm (2000) speculate that a third potential reason to anticipate disclosure increases for the issuing firms might be an increase in performance. Consequently, we explicitly control for the performance variable in both the earnings management and post-issue returns analyses.

Lang and Lundholm (2000) argue that issuers might use their disclosure policies to influence market perceptions. Based on a sample of 41 small SEO firms with detailed disclosure information, they find firms that substantially increase disclosure activity in the six months before the offering suffer large price declines subsequent to the offering announcement. Firms that maintain a consistent level of disclosure have no unusual return behavior. These authors argue that the increased disclosure activity is "hype." In this "hype" environment, firms have an incentive to manage earnings upward to increase their offering proceeds. If issuers hype their stock by increasing disclosure frequency just prior to the offering, these firms will suffer greater post-issue underperformance.

Prediction 4. Post-issue SEO performance is more negative for firms with a non-persistent disclosure increase.

3. Data and measurement

3.1. Data selection

From the Securities Data Corporation (SDC) database, we obtain an initial sample of 1,950 common stock SEOs that occurred between January 1990 and December 1997. We examine post-offering returns over the one-year period after the active earnings management period.[3] We limit the sample to U.S. firms on the COMPUSTAT and Center for Research in Security Prices (CRSP) databases. Offerings by financial institutions are excluded because the nature of these firms' accruals differs from that of industrial firms. We also exclude offerings filed within two years of the initial public offering to avoid the confounding effect of IPO performance.

[3] We also examine post-offering returns up to five years after the offering, i.e., up to 2002. Unreported results indicate that greater disclosure frequency substantially reduces post-issue underperformance over the long run.

Of the 1,950 offerings, we search for press releases (our proxy of disclosure activity) for 1,539 offerings (about 80%) from the press-release wires in the Dow Jones Interactive (DJI) database system. To keep the data collection manageable, we randomly choose offerings from each year in the sample period in 20% increments. We stop at 80% of the initial sample after confirming that annual and industry distributions are comparable to those of the initial sample. We exclude 50 offerings due to a lack of information. We drop an additional 58 offerings that were announced within two years of a spinoff or a merger that created the firm. It is not possible to obtain press releases before such spinoffs and mergers. Our final sample consists of 1,431 offerings. Actual samples used in the analyses are slightly different, since the data availability varies for each regression analysis. We obtain the ownership data (institutional ownership, block ownership, and insider ownership) from the Spectrum of Compact Disclosure. We use the latest data available prior to the offering announcement.

Table 1 reports the sample statistics and data characteristics for these 1,431 offerings. Panel A of Table 1 provides a summary of the size and offering characteristics. The mean and median of the book value of assets are $988 million and $146 million, respectively. The mean and median of equity market capitalization are $780 million and $200 million, respectively. The mean and median offering proceeds are $81 million and $43 million, respectively. The mean increase in shares due to the offering is 26%. Due to the large standard deviation in issuers' market values, the average increase in new shares (26%) is much greater than the ratio of the average offer amount to the average market value of issuing firms (10.4%). (The medians do not show much discrepancy: 19% vs. 21.4%.) Seasoned equity issues are not clustered by time periods, except that 1990 carries only 5.8% of the issues. We find that chemical products and computer industries account for a large fraction of the issues, constituting more than 25% of the sample.

3.2. Measurement of disclosure frequency

We use the number of distinct press releases as our measure of disclosure frequency. We recognize that disclosure frequency is not necessarily a measure of disclosure quality; in fact, frequent disclosure with low information content can cumulatively provide less information than a single, highly informative disclosure. In addition, not all disclosure is the same (e.g., repeat disclosure, hype disclosure, and informative disclosure). Despite these problems, however, disclosure frequency serves as a proxy for an informative disclosure environment in previous studies (Francis, Philbrick, and Schipper, 1994; Clarkson, Kao, and Richardson, 1999; Lang and Lundholm, 2000; Schrand and Verrecchia, 2004), and we use it as well.

We focus on the relation between disclosure frequency and earnings management. To capture a genuine relation between the two key variables, it is important to obtain a sufficient number of cross-sectional observations to ensure enough variation in earnings management in the sample. For this task, we scan through roughly 103,032 press releases (nine press releases per six-month period on average multiplied by eight six-month periods within a four-year span around the SEO announcement multiplied by 1,431 SEOs). Prior studies include, at most, 3,000 to 5,000 disclosure documents (Francis, Philbrick, and Schipper, 1994; Lang and Lundholm, 2000; Schrand and Verrecchia, 2004) for 82 (including matching firm sample) to 190 sample firms.

Clearly, there is a tradeoff between using a small sample with content and using a large sample without content. Lang and Lundholm (2000) provide small-sample (41 firms) results on disclosure content for SEO firms. While they gain additional information by examining the content of disclosure, such content analysis restricts sample size. In addition, because media disclosure is typically biased towards large firms, and accruals predictability for returns is found to be stronger for smaller firms, we control for firm size in our estimation of earnings management. The number of press releases can also be interpreted as a proxy for other firm characteristics, such as firm performance (Lang and Lundholm, 1993, 1996). Thus, we control for firm performance in the estimation.

The number of press releases is driven by at least two factors: the management disclosure strategy (transparent vs. opaque) and reportable events. Firms with many reportable events (e.g., acquisitions, dividend changes, etc.) typically have more press releases. If reportable events have an impact on discretionary accruals, they will affect the interpretation of the results. Controls in the analyses for size and changes in performance, use of performance-matched discretionary accruals, and elimination of firms close to IPOs or spinoffs help control this effect. These attempts, however, do not fully disentangle the effect of reportable events from management disclosure strategies. To isolate somewhat the effect of management strategies on disclosure, we explicitly control for several reportable events that can affect discretionary accruals. For instance, firms with persistent poor performance that are involved in a restructuring are likely to have many reportable events and asset writedowns. Rees, Gill, and Gore (1996) find that abnormal accruals in the writedown year are significantly negative. Similarly, firms that undertake acquisitions are likely to have many reportable events and more negative accruals (e.g., goodwill amortization). In addition, firms with large dividend payouts or dividend increases, which increase the frequency of press releases, have higher-quality earnings (Skinner, 2004) and thus less motivation for earnings management. Hence, we control for these three types of reportable events in our analysis.

3.3. Count of press releases

We identify the number of press releases by searching press-release wires in the DJI database system. We search firm-initiated press releases by using both the company name and the company ticker symbol and count the number of press releases in the eight six-month periods starting from two years prior to and ending two years after the SEO announcement.

SEO announcement dates are obtained from the DJI database. We search for SEO announcements (including intention to file, approval by the company's board, and stockholders' approval) within the two years preceding the SEO filing date reported in the SDC database. When

we cannot find the SEO announcement before the SEO filing date, we treat the SEO filing date as the SEO announcement date.

We count only distinct press releases. We exclude press releases authored by non-company sources, since only firms' voluntary choice to disclose is important in this study. We also exclude press releases related to offerings because these artificially inflate the number of press releases shortly before and after an offering announcement. However, if other information is included in the press release, we count the release. We adapt the above search for firms that change their ticker symbols or names during the period.

Panels A and B of Table 2 present summary statistics of the number of press releases and changes in the number of press releases from the six-month periods before and after SEO announcements. M(-6, 0) is the last six-month period prior to the SEO announcement, and M(0, +6) is the first six-month period after the SEO announcement. All other six-month periods are similarly indexed relative to the offering announcement and are exhibited in Panels A and C. A more detailed time line is shown in Fig. 1. Press releases steadily increase over time until M(+6, +12), but changes after M(+6, +12) are statistically insignificant. Increases before offering announcements are significant at the 1% level, and offering firms have the largest increase in the number of press releases during the six-month period just prior to the offering announcement.

If there is a positive trend in the frequency of press releases over time, a change in the number of press releases will not correctly represent managers' true intentions to increase or decrease voluntary disclosure. Moreover, one cannot directly compare disclosure frequency in different years. To obtain a measure of disclosure frequency comparable across time periods, we rank the number of press releases within each year and convert the ranks to percentiles:

$$\textit{Annual percentile rank} = (\textit{annual rank} - 1) / (\textit{number of samples each year} - 1) \qquad (1)$$

We rank firms by the number of press releases within the sample. Since we count the number of press releases in the six-month periods relative to the SEO announcement dates, and the calendar dates of SEO announcements differ across the sample, the calendar time of the six-month periods are all different across the sample. To define the year of a six-month period and to compare the six-month periods across the sample to rank the number of press releases, we apply the following conventions. If the SEO is announced in calendar year t, M(-6, 0) and M(0, +6) are classified as year t periods, M(-12, -6) and M(-18, -12) as year t-1 periods, M(-24, -18) as a year t-2 period, M(+6, +12) and M(+12, +18) as year t+1 periods, and M(+18, +24) as a year t+2 period. We report the percentile ranking of the number of press releases and changes in the percentile rank based on years in Panels C and D. We provide an example of how we convert the number of press releases to the annual percentile rank in the Appendix. The percentile rank increases over the one-year period before the offering announcement and continues to increase until the one-year period after the announcement. The trend is reversed in the second year after the offering announcement.

3.4. Measurement of earnings management

We estimate earnings management with performance-adjusted discretionary total accruals (ADTA), as suggested by Kothari, Leone, and Wasley (2005), who show that existing methods for estimating discretionary accruals are biased toward rejecting the null hypothesis of no earnings management when the event related to the incentive is associated with performance. Kothari et al. recommend adjusting discretionary accruals by subtracting discretionary accruals of control firms matched on prior-year return-on-assets (ROA) and industry. We thus match each SEO firm with a non-SEO firm from the same industry (using the two-digit SIC code), with the closest ROA (net income divided by lagged total assets) in the quarter before the SEO announcement. If any of the data are not available for the firm with the closest ROA, we move to

the firm with the next closest ROA. The ADTA for an SEO firm is the discretionary total accruals of the SEO firm minus the discretionary total accruals of the matched, non-SEO firm.

Based on Hribar and Collins' (2002) argument that studies using balance sheet data to calculate accruals are potentially contaminated when testing for earnings management, we calculate discretionary total accruals using data obtained directly from cash flow and income statements. Total accruals (*TACC*) of firm i at time t are defined as

$$TACC_{it} = [EBXI_{it} - CFO_{it}]/(A_{it-1}) \tag{2}$$

where EBXI is earnings before extraordinary items and discontinued operations (COMPUSTAT item 76), CFO is operating cash flow (from continuing operations) taken directly from the cash flow statement (COMPUSTAT item 108 – COMPUSTAT item 78), and A is total assets (COMPUSTAT item 44). Discretionary total accruals are estimated by the cross-sectional modified Jones (1991) model using two-digit SIC codes.

Table 3 presents the median quarterly ADTA, discretionary total accruals (DTA) suggested by Hribar and Collins (2002), and the discretionary current accruals (DCA) (see Rangan, 1998), scaled by beginning assets, around SEO announcements. DTAs and DCAs are reported for comparison purposes. The quarter of the last earnings announcement before the offering announcement is labeled Q(-1). Q(0) is the quarter of the first earnings announcement after the offering announcement. All other quarters are similarly indexed relative to the offering announcement. We report medians because they are less likely to be influenced by extreme observations. Observation numbers vary, since the available data for the calculation of discretionary accruals vary across quarters. ADTA is positive at the 5% level in the Q(+1) to Q(+2) period only. Discretionary total accruals are significantly positive at the 5% level in the Q(0) to Q(+2) period and marginally significant in the Q(-3) and Q(-1) periods. Discretionary

current accruals are significantly positive at the 1% level in all quarters Q(-5) through Q(+4) based on the Wilcoxon signed rank test.

This evidence suggests that ADTA is the most conservative of the three accruals-based measures of earnings management. We also discern that managers typically manage earnings more after the SEO than before the offering. These findings are quite different from those of Teoh, Welch, and Wong (1998a) and DuCharme, Malatesta, and Sefcik (2004), who suggest that firms manage earnings prior to the SEO, presumably in anticipation that investors will overvalue the stock and increase the offer proceeds. We document little earnings management in the quarters leading up to the SEO. Instead, most of the earnings management occurs in the two quarters after the issue. This difference in findings appears to be at least partially explained by the more sophisticated measurement of earnings management and is consistent with Rangan's (1998) view that managers have incentives to manage earnings in the later quarters following an offering announcement because of concerns about lawsuits and lock-up agreements with underwriters. Because of the timing issue of earnings management, we use different accrual periods for the multivariate tests.

Consistent with Rangan (1998), we calculate annualized discretionary accruals for the one-year period, Q(-1) through Q(+2), around the offering announcement. The median of performance-adjusted discretionary total accruals is 0.78% of total assets and is significantly positive at the 5% level. The medians of discretionary total accruals and discretionary current accruals are 1.47% and 4.31% of total assets, respectively, and both are significantly positive at the 1% level. We also conduct regression analyses with discretionary total accruals and discretionary current accruals and obtain qualitatively the same results, as reported in Section 4.

3.5. Windows of variable measurement

In this section, we briefly discuss the measurement windows of our key variables: ADTA, disclosure frequency, disclosure change, and post-issue returns. We use annualized discretionary accruals for the one-year period, Q(-1) through Q(+2), around the offering announcement, consistent with Rangan (1998). In particular, Table 3 suggests that performance-adjusted discretionary total accruals are greatest in this one-year period, even though they are significant in the Q(+1) and Q(+2) period only. DTA and DCA are also greatest in the Q(-1) through Q(+2) period. To examine whether using different accrual measurement windows affects our results, we use two additional proxies for earnings management. ADTA(-4, -1) is annualized, performance-adjusted discretionary accruals over Q(-4) through Q(-1). It includes only the quarters for which earnings are announced prior to the offering announcement. Kim and Park (2005) use discretionary accruals over two quarters, Q(-1) and Q(0), to test whether equity issuers employing aggressive accounting decisions also more aggressively push up their offer prices, thereby leading to a decrease in underpricing.[4] In Kim and Park (2005), Q(-1) is defined as the last quarter for which a financial statement is available at the time of the offer, and we define Q(-1) as the last quarter for which earnings are announced prior to the offering announcement. Though time references are not matched perfectly, the closest accrual measurement window is Q(-1) and Q(0) in our study. Therefore, we use ADTA(-1, 0) as our third proxy for earnings management.

With regards to the measurement window of the disclosure metric, we have two choices. The first is to take the variable window over the M(-24, -18) through M(+18, +24) period because maintaining a high level of disclosure over an extended period (even after the offering date) is important to make corporate information more transparent and hold investor attention. The

[4] When issuers manage earnings, they try to take full advantage of favorable market valuation from earnings management. As a result, the increase in the offer price will exceed the increase in the closing price, leading to a decrease in underpricing where underpricing is defined as the closing market price on the offer day minus the offer price, divided by the offer price (Kim and Park, 2005).

second is to measure the disclosure frequency over the M(-24, -18) through M(0, +6) period, for which the end date approximately corresponds to the end date of the annual discretionary accruals measurement window, i.e., Q(+2).[5] We choose the first because the effect of disclosure on returns is both concurrent and lasting, unlike the effect of earnings management. In this case, the end date of our disclosure measurement window corresponds approximately to the end of the return measurement window. We also use disclosure metrics measured over the M(-24, +18) through M(0, +6) period for a robustness check.

Regarding disclosure change, we measure the change in the percentile rank of the number of press releases from M(-12, -6) to M(-6, 0). Lang and Lundholm (2000) measure information disclosure in six-month periods relative to the offer date, while we use six-month periods relative to the SEO announcement date. Therefore, it is not possible to directly compare the six-month periods between the two studies. Since the median of the "waiting period," the period between the date of filing and the offer date, is 35 days in our sample, and often the announcement date and the file date are the same, the six-month period just prior to the offer date in Lang and Lundholm (2000) is closest to M(-6, 0) in our sample. To make our results comparable to those in Lang and Lundholm (2000), we use the change in the percentile rank of the number of press releases from M(-12, -6) to M(-6, 0).

To capture the effect of subsequent disappointment by predictable declines in earnings caused by earnings management on post-issue returns, we start the post-issue return measurement period after the earnings management quarters. We measure the post-issue return performance of SEO firms by market-adjusted returns using the returns on the CRSP value-weighted market

[5]As we do not know the exact timing of earnings management, we examine various combinations of these six-month periods for the window in which we measure disclosure frequency and changes of the frequency. Regardless of the various windows used, we observe a negative correlation between disclosure frequency and earnings management and a positive correlation between disclosure frequency and post-issue performance.

index as market returns. Returns are compounded daily over the one-year period beginning after the Q(+2) earnings announcement.

4. Empirical results

4.1. Bivariate relations

We first consider the bivariate relation between disclosure frequency and earnings management. The bivariate correlation coefficients between disclosure frequency and the earnings management variables reported in Table 4 are generally significant and negative. The negative relation between disclosure frequency and earnings management does not change with disclosure frequency measured across various time spans or with different proxies of earnings management. These findings are consistent with our first prediction that earnings management is a decreasing function of persistent disclosure.

The relation between disclosure changes and earnings management reported in Table 4 suggests that the relation between ADTA and disclosure change, i.e., PTDC1 (changes in the percentile rank of the number of press releases from M(-12, -6) to M(-6, 0)) or PTDC2 (changes in the percentile rank of the number of press releases from M(-18, -12) to M(-12, -6), is insignificant.

4.2. The relation between disclosure frequency and earnings management

In examining the effect of disclosure on earnings management, we control for other determinants of earnings management to reduce a possible misspecification problem due to correlated, omitted variables. Numerous studies document that earnings management is negatively associated with operating cash flow, change in performance, auditor quality, and the absolute value of total accruals (Dechow, 1994; Burgstahler and Dichev, 1997; Becker, DeFond, Jiambalvo, and Subramanyam, 1998). Thus, we include operating cash flow, change in ROA,

auditor quality, and the absolute value of total accruals as explanatory variables. In addition, previous research suggests that the incentive to manipulate earnings upward is smaller for larger firms because they are more politically sensitive and thus any earnings management is more likely to be detected (Watts and Zimmerman, 1978; Zmijewski and Hagerman, 1981). Earnings management might increase when firms are close to violating debt covenants. The debt-to-equity ratio is used as a proxy for the closeness to debt covenant violations. Ownership structure also might affect earnings management. For instance, Igan and Pinheiro (2004) show how insider ownership affects the decision to manage earnings. Shang (2003) discusses the relation between earnings management and institutional ownership.

Firms that undertake SEOs are not a random sample. Thus, an increase in disclosure frequency could be observed due to an increase in information related to the offering. It is possible that SEO firms experience events that require additional disclosure, such as new investment opportunities. Therefore, it is difficult to assess whether the relation between high levels of disclosure and earnings management is attributable to a firm's disclosure strategy or to changes in investment opportunities. Thus, we incorporate several control variables for investment opportunities into the regression equations, including Chung and Pruitt's (1994) measure of Tobin's q. This measure of Tobin's q is consistent with those of Gompers, Ishii, and Metrick (2003) and Oxelheim and Randøy (2003). Skinner (1993) shows that several proxies of the investment opportunity set are associated with a firm's accounting procedure choice in the presence of debt and compensation contracts. Following Skinner (1993), our regressions include gross property, plant, and equipment divided by the market value of assets in the last fiscal year ending before the SEO announcement (PPE_V), as well as research and development expense divided by net sales in the last fiscal year ending before the SEO announcement (RDint).

Finally, to control for reportable events that affect both discretionary accruals and disclosure frequency, we include in the regression analyses the number of asset writedown

disclosures, the number of dividend change disclosures, and the number of acquisition events. The number of acquisition events is obtained from the SDC Mergers and Acquisitions database. We estimate the earnings management regressions as follows:

$$\begin{aligned} ADTA = {} & a + b_1\, DL + b_2\, DC + b_3\, OCF + b_4\, CROA + b_5\, SIZE + b_6\, LEV \\ & + b_7\, NONB6 + b_8\, ABSTACC + b_9\, Tobin's\ q + b_{10}\, PPE\_V \\ & + b_{11}\, RDint + b_{12}\, INSTI + b_{13}\, BLOCK + b_{14}\, INSIDER \\ & + b_{15}\, A\_WD + b_{16}\, DIV + b_{17}\, ACQ \end{aligned} \tag{3}$$

where ADTA is annualized, performance-adjusted discretionary total accruals over the period Q(-1) through Q(+2) for ADTA(-1, +2), Q(-4) through Q(-1) for ADTA(-4, -1), or Q(-1) and Q(0) for ADTA(-1, 0), scaled by lagged total assets; DL is an average percentile rank of the number of press releases per six-month period over M(-24, -18) through M(+18, +24); DC is changes in the percentile rank of the number of press releases in M(-6, 0) from M(-12, -6); OCF is operating cash flows over the period Q(-1) through Q(+2) for a dependent variable ADTA(-1, +2), Q(-4) through Q(-1) for ADTA(-4, -1), or Q(-1) and Q(0) for ADTA (-1, 0), scaled by lagged total assets; CROA is the change in annualized ROA, measured as income before extraordinary items summed over Q(+3) to Q(+6) and scaled by assets at the beginning of Q(+3) minus income before extraordinary items summed over Q(-1) to Q(+2) scaled by assets at the beginning of Q(-1); SIZE is the log of the market value of equity at Q(-1); LEV is the debt-to-equity ratio, our proxy for the closeness to violations of lending contracts; NONB6 is an indicator variable that equals one if the firm's auditor is not one of the big six accounting firms, and zero otherwise; ABSTACC is the absolute value of total accruals over the period Q(-1) through Q(+2) for a dependent variable ADTA(-1, +2), Q(-4) through Q(-1) for ADTA(-4, -1), or Q(-1) and Q(0) for ADTA (-1, 0), scaled by lagged total assets; Tobin's q is Chung and Pruitt's (1994) measure of Tobin's q and calculated as {[Market value of common stock + Book value of preferred stock + Book value of long-term debt + Book value of current liabilities – (Book value of current assets –

Book value of inventories)] / Book value of total assets} in the last fiscal year ending before the SEO announcement; PPE_V is gross property, plant, and equipment divided by the market value of equity plus the book value of debt in the last fiscal year ending before the SEO announcement; RDint is research and development expense divided by net sales in the last fiscal year ending before the SEO announcement; INSTI (institutional ownership) is the percent of equity held by institutional investment managers having equity assets under management of $100 million or more; BLOCK (block ownership) is the percent of equity held by those owning more than 5% of a class of the company's equity securities; INSIDER (insider ownership) is the percent of equity held by company officers, directors, and any beneficial owners that represents more than 10% of a class of the company's equity securities; A_WD is the number of asset writedown disclosures over M(-24, -18) through M(+18, +24); DIV is the number of dividend change disclosures over M(-24, -18) through M(+18, +24); and ACQ is the number of acquisition events over M(-24, -18) through M(+18, +24). The results are qualitatively the same if we use dummy variables that take a value of one if the issuer experiences reportable events over the four-year window and zero otherwise.

Table 5 presents the results of various OLS regressions based on different accrual periods. The results show that DL exerts a significant, negative influence on ADTA under all models. The negative relation holds even after we control for investment opportunities and reportable events. The results provide empirical support for our first prediction of a negative relation between disclosure frequency and earnings management. When we use ADTA(-4, -1), a variable measured during the period strictly before the offering announcement, the coefficient on DL is smaller but still statistically significant at the 5% level. This result implies a relatively weaker relation between DL and earnings management during this period, at least partially reflecting statistically insignificant discretionary accruals during this period, as reported in Table 3. Disclosure change (DC) does not have a significant impact on ADTA. We find that ADTA is

negatively associated with operating cash flow (OCF) and changes in performance (CROA). These results support Dechow's (1994) finding that discretionary accruals are negatively correlated with operating cash flows. The negative relation between ADTA and CROA supports the finding of Burgstahler and Dichev (1997) that earnings are managed to avoid losses and negative changes in earnings. We also find that ADTA is positively associated with insider ownership (INSIDER), supporting Igan and Pinheiro's (2004) finding that insider ownership increases incentives to manage earnings. Additionally, as we anticipated, we find a negative association between ADTA and the number of acquisition events (ACQ). A negative relation between ADTA and R&D intensity (RDint) is consistent with Skinner's (1993) results based on the goodwill and depreciation choice, while it is inconsistent with his results based on the inventory method choice. Our results are also generally consistent with Jo and Kim's (2005) finding that managers of SEO firms with R&D tend to choose voluntary disclosure over earnings management, and with Eberhart, Maxwell, and Siddique's (2004) finding that R&D increases are beneficial investments that lead to positive, long-term operating performance.

The results in Table 5 show that there is a positive relation between disclosure levels and performance-adjusted abnormal accruals over the period Q(-1) through Q(+2). This relation seems to also exist, though it is weaker, for performance-adjusted abnormal accruals over the period Q(-4) through Q(-1). The second finding is somewhat difficult to interpret because of statistically insignificant discretionary accruals during this period. To examine if there is a more general relation between performance-adjusted abnormal accruals and disclosure even without SEOs, we run the regression using disclosure measured in M(-24, -18) and performance-adjusted abnormal accruals for the same period. The period M(-24, -18) is selected since it is the period farthest from the SEO for which we have data on the number of press releases. Since M(-24, -18) spans three quarters, Q(-8), Q(-7), and Q(-6), we measure performance-adjusted abnormal accruals over the period Q(-8) thorough Q(-6). The unreported results show a statistically

insignificant relation between performance-adjusted abnormal accruals and disclosure for this period, lending more weight to the argument that the findings observed around the SEO are caused by the SEO, and not by some more general relation.

We also conduct a couple of sensitivity analyses. First, to further control for issuers' investment opportunities, we examine whether pre-issue disclosure levels are related to ADTA. These pre-issue disclosure levels are more likely to reflect management's disclosure strategies than new content related to their decisions to make SEOs. We measure the pre-issue disclosure level (PreDL) as the average percentile rank of the number of press releases per six-month period over M(-24, -18) through M(-12, -6). The unreported results based upon PreDL suggest a strong negative relation between ADTA and PreDL, supporting transparency-increasing disclosure. Second, we examine the relation between ADTA and DL with the positive ADTA sample only. Managers of firms with unusual income-decreasing accruals have a strong incentive to provide extensive disclosure at the time of an equity offering to prevent possible lawsuits from investors and to make sure that investors do not misinterpret their poor reported performance (Skinner, 1994, 1997). To rule out this alternative explanation for a negative relation between earnings management and disclosure frequency, we conduct the regression using income-increasing accruals, i.e., positive ADTA only, and find a strong negative relation between ADTA and DL. When we conduct the same tests with samples of only income-decreasing discretionary accruals, however, the empirical relation is statistically insignificant. These unreported results provide additional evidence that firms with high disclosure are less likely to manage earnings.

4.3. Regression results of post-issue return performance

We measure the post-issue return performance of SEO firms by market-adjusted returns, using the returns on the CRSP value-weighted market index as our market returns. Returns are compounded daily over the one-year period after the Q(+2) earnings announcement. The mean

and median of post-issue returns are –12.75% and –21.95%, respectively and are statistically significant at the 1% level. We regress the post-issue return performance on ADTA and disclosure frequency. The log of the market value of equity, the book-to-market ratio, and operating performance variables are included as control variables:

$$\begin{aligned} AR1Y = {} & a + b_1*ADTA + b_2*DL + b_3*DC + b_4*ADTA*DL + b_5*ADTA*DC \\ & + b_6*ADTA*SIZE + b_7*ADTA*ROA + b_8*ADTA*CROA + b_9*SIZE \\ & + b_{10}*ROA + b_{11}*CROA + b_{12}*BM + e \end{aligned} \quad (4)$$

where AR1Y is the market-adjusted return over the one-year period after the Q(+2) earnings announcement; ROA is the annualized return on assets (ROA) measured as income before extraordinary items summed over Q(-1) to Q(+2) and scaled by assets at the beginning of Q(-1); and BM is the book-to-market ratio at Q(-1). The other variables are defined as before.

Table 6 reports the results from the regressions of post-issue returns (regression model (4)) on disclosure frequency, disclosure change, performance-adjusted discretionary total accruals, and other control variables. We exclude observations with values at the top and bottom 1% of abnormal returns and discretionary accruals. As expected, we find that post-issue performance is positively related to disclosure frequency (DL) both with and without ADTA in the regressions over the various accrual periods. This result provides empirical support for our second prediction that post-SEO performance is less negative for firms with more disclosure. These results remain qualitatively the same when we estimate earnings management using DTA or DCA. [6]

[6] Shivakumar (2000) argues that measures of abnormal returns used in prior research are misspecified due to skewness in the long-horizon returns data. Using long-run measures of abnormal returns suggested by Barber and Lyon (1997) and Cowan and Sergeant (2001), he finds the coefficient estimate in the regression of post-issue abnormal returns on *pre-issue* abnormal accruals to be insignificant and often to have the wrong sign. Instead, he finds a negative relation between pre-issue abnormal accruals and a price reaction at offering announcements. However, this misspecification issue is irrelevant to our study because our return window is one year. In Barber and Lyon (1997) and Cowan and Sergeant (2001), problems associated with long-run return specifications appear in the three- to five-year return horizons. Dichev and Piotroski (2001) also do not make any explicit adjustment for long-run return specification problems when they examine long-run stock returns following bond-rating changes because none of their return windows is

We find that post-issue return performance is positively related to the operating performance measures of ROA and CROA. The results also show that the coefficients on ADTA are negative and significant. The negative effect of earnings management on post-issue performance is in line with the findings of Teoh, Welch, and Wong (1998a) and Rangan (1998). If a disclosure increase reduces information asymmetry, we should observe a positive coefficient on DC. However, we find that the effect on DC is insignificant. This could be due to the inclusion of hyping firms in the sample because the relation between post-issue returns and disclosure change would be negative for issuers that hype stock. We also include interactive variables that tie ADTA to DL (and DC) to test the argument of Healy and Wahlen (1999) that disclosure might help investors make more informed estimates of the likelihood of earnings management. If this were true, then we should observe a positive coefficient on the interaction of ADTA and DL (and DC). Our results reveal, however, that the estimated coefficient on the interaction of ADTA and DL (and DC) is insignificant (positive and marginally significant). The empirical associations among the post-issue return, firm size, and book-to-market are also insignificant.

We further examine whether our results are sensitive to the time period over which disclosure frequency is measured. In particular, we measure disclosure frequency over the M(-24, -18) through M(0, +6) period to match the end date of the period with that of the accruals window over which ADTA(-1, +2) is measured. Though not reported, the results are qualitatively the same as those reported in Table 6, suggesting that the relation between disclosure frequency and post-issue returns is quite robust and not sensitive to the different periods over which disclosure frequency is measured. We also estimate the earnings management regression, Eq. (3), with disclosure frequency measured over the M(-24, -18) through M(0, +6) period; unreported results are qualitatively the same as those reported in Table 5.

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longer than one year. For the same reason, we do not adjust for long-run return specification problems in this study.

4.4. Disclosure strategies, earnings management, and post-issue returns

As previously noted, firms have different disclosure strategies. The types of firms include (i) high-disclosure firms that have consistently high disclosure both before and after the issue; (ii) hyping firms that have low disclosure prior to the offer, but temporarily boost disclosure in the months prior to the offer completion; and (iii) low-disclosure firms that have consistently low disclosure levels throughout the offer period. We can test all of our hypotheses by examining how these strategy differences are associated with SEO earnings management and post-SEO return performance.

We develop the following algorithm to identify firms' disclosure strategies and use indicator variables to represent these strategies in our tests. D1 is a dummy variable that is set to one if the average percentile rank of the number of press releases per six-month period over M(-24, -18) through M(-6, 0) is in the top third and the average percentile rank of the number of press releases per six-month period over M(+6, +12) through M(+18, +24) is in the top third as well, and zero otherwise. D2 is a dummy variable that is set to one if the percentile rank of the number of press releases of M(-6, 0) is greater than the average percentile rank of the number of press releases per six-month period over M(-24, -18) through M(-12, -6) and greater than the average percentile rank of the number of press releases per six-month period over M(+12, +18) and M(+18, +24), and zero otherwise. We impose this restriction to select the group of issuers with a non-persistent increase in disclosure. D3 is a dummy variable that is set to one if the average percentile rank of the number of press releases per six-month period over M(-24, -18) through M(-6, 0) is in the bottom third and the average percentile rank of the number of press releases per six-month period over M(+6, +12) through M(+18, +24) is in the bottom third as well, and zero otherwise.

Panel A of Table 7 reports the results of the associations between earnings management and different disclosure strategies, and Panel B presents the effects of different disclosure strategies on post-issue returns. As anticipated, we find that ADTA is negatively related to D1 (high-disclosure firms) for all of the different accrual periods and positively related to D2 (hyping disclosure) for all periods except ADTA(-4,-1), supporting our predictions 1 and 3 about earnings management and disclosure. The positive relation between ADTA (-1, +2) or ADTA(-1, 0) and D2 combined with an insignificant relation between ADTA(-4, -1) and D2 suggests a possibility that earnings management in hyping firms occurs through the lock-up period, not just in the period before the offering. The coefficients on D3 (low-disclosure firms) are positive and significant with ADTA(-1, +2). The results of significant relations between ADTA(-1, +2) and D2, as well as D3, are also in line with the earlier finding reported in Table 3 that firms manage earnings more after the SEO than before the offering. These results are supportive of Rangan (1998). In addition, the negative relations between OCF and ADTA and between CROA and ADTA do not change.

In Panel B of Table 7, we find that post-issue returns are positively related to D1 and negatively related to D2 for all of the different accrual periods, supporting predictions 2 and 4 about post-SEO performance and disclosure. The negative association between ADTA and post-issue returns, and the positive relations between ROA and post-issue returns and between CROA and post-issue returns, are preserved. The coefficients on D3 in the return regressions are positive but insignificant.

We also examine the combined effect of high temporary disclosure and earnings management on post-issue stock returns. We create a dummy variable, DADTA, set to one if ADTA is larger than or equal to its median value, and zero otherwise. We include the interaction variable of D2 and DADTA in the regression. If the post-issue stock price decline is even greater for firms that have both high temporary disclosure and high performance-adjusted abnormal

accruals, we will observe a significantly negative coefficient on this interaction variable. The unreported result shows a statistically insignificant coefficient. In addition, we run the regression including the interaction of D2 and ADTA; the coefficient on this interaction variable is also statistically insignificant. Therefore, we do not find evidence of a combined effect of opaque disclosure and earnings management on post-issue stock returns.

As an alternative convention to categorize the hyping sample, we classify issuers as hyping firms when the issuer's market capitalization is less than $150 million, following Lang and Lundholm (2000), and the percentile rank of the number of press releases of M(-6, 0) is greater than both the average percentile rank of the number of press releases per six-month period over M(-24, -18) through M(-12, -6) and the average percentile rank of the number of press releases per six-month period over M(+12, +18) and M(+18, +24). In unreported results, we find a significantly positive (negative) relation between a sudden increase in disclosure prior to the offering and ADTA (post-issue returns). Overall, we interpret these results to indicate that transparency-increasing disclosure strategies reduce managers' incentives to manage earnings around the offerings and reduce post-SEO stock underperformance, while transparency-reducing (opaque) disclosure strategies increase earnings management and post-SEO stock underperformance.

5. Conclusions

While both disclosure and earnings management receive high attention in the study of corporate finance and accounting, direct evidence of the empirical relations between the two and between disclosure and corporate performance is scarce. We first examine the relation between information disclosure and earnings management around SEOs. Our findings suggest that disclosure frequency in general is negatively associated with various proxies for earnings management. We also find evidence that greater disclosure frequency reduces information asymmetry, exposes earnings management, and therefore reduces SEO firms' incentive to

manage earnings. However, firms that substantially, but temporarily, increase disclosure prior to the offering also manage their earnings aggressively. We surmise that these firms intend to reduce transparency and to hype their firms' stock.

In addition, we find that disclosure frequency around the announcement of a seasoned equity offering is positively related to the SEO firm's post-issue performance. This evidence supports the notion that greater disclosure frequency helps reduce information asymmetry, enhances the transparency of earnings, improves SEO pricing, and reduces post-issue SEO underperformance. The direction of this relation is consistent with the common intuition that enhancing the transparency of economic earnings will eventually improve firm performance. The results of this study also suggest that the supply of corporate information is determined, in part, by the SEO firm's post-issue performance considerations. As anticipated, however, hyping firms experience greater post-issue underperformance.

There are several issues for future research. First, developing the theoretical framework that explains the relation between information disclosure and earnings management will enhance our understanding of why firms disclose in general. Second, the motives behind information disclosure in seasoned equity offerings should be examined more closely. Skinner (1994, 1997) and Goel and Thakor (2003) hypothesize that efforts to avoid lawsuits and to smooth income could partially explain why firms disclose. To structure different motivations and investor reactions, a convincing theory of information disclosure in an SEO setting would be useful. Finally, it would be interesting, though challenging, to examine the detailed content of information disclosure with a sufficient number of observations in an equity offering market.

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Appendix. An example of conversion from the number of press releases (PRs) to annual percentile rank

Observation #1 — SEO 4/18/1995

6-month periods	M(-24, -18)	M(-18, -12)	M(-12, -6)	M(-6, 0)	M(0, +6)	M(+6, +12)	M(+12, +18)	M(+18, +24)
Calendar year assigned for the annual ranking	1993	1994	1994	1995	1995	1996	1996	1997
Number of PRs	8	6	9	10	9	11	12	11

Observation #2 — SEO 9/7/1995

6-month periods	M(-24, -18)	M(-18, -12)	M(-12, -6)	M(-6, 0)	M(0, +6)	M(+6, +12)	M(+12, +18)	M(+18, +24)
Calendar year assigned for the annual ranking	1993	1994	1994	1995	1995	1996	1996	1997
Number of PRs	22	21	24	30	28	32	33	33

Observation #3 — SEO 7/20/1996

6-month periods	M(-24, -18)	M(-18, -12)	M(-12, -6)	M(-6, 0)	M(0, +6)	M(+6, +12)	M(+12, +18)	M(+18, +24)
Calendar year assigned for the annual ranking	1994	1995	1995	1996	1996	1997	1997	1998
Number of PRs	6	6	6	9	8	9	9	8

Observation #4 — SEO 11/3/1997

6-month periods	M(-24, -18)	M(-18, -12)	M(-12, -6)	M(-6, 0)	M(0, +6)	M(+6, +12)	M(+12, +18)	M(+18, +24)
calendar year assigned for the annual ranking	1995	1996	1996	1997	1997	1998	1998	1999
Number of PRs	13	13	14	17	15	18	18	19

		Number of PRs	annual rank	annual percentile rank*
1996 PRs	from Observation #1 M(+6, +12)	11	3	0.2857
	from Observation #1 M(+12, +18)	12	4	0.4286
	from Observation #2 M(+6, +12)	32	7	0.8571
	from Observation #2 M(+12, +18)	33	8	1
	from Observation #3 M(-6, 0)	9	2	0.1486
	from Observation #3 M(0, +6)	8	1	0
	from Observation #4 M(-18, -12)	13	5	0.5714
	from Observation #4 M(-12, -6)	14	6	0.7143

Number of samples in 1996: 8

* (*annual rank – 1) / (number of samples each year – 1)*

Table 1
Sample characteristics of seasoned equity offerings

This table summarizes our sample of 1,431 seasoned equity offerings of common stock by U.S. industrial firms over the period 1990 through 1997. Total assets, market value of equity, and book value of equity are measured at the end of the quarter before the offering announcement. Offer size is computed as the number of shares offered divided by the number of shares outstanding before the offering.

Panel A: Size Characteristics

	Total assets ($ millions)	Market value ($ millions)	Book value ($ millions)	Offer amount ($ millions)	Offer size (%)
Mean	987.59	780.30	291.89	81.20	26
Median	146.30	199.81	62.15	42.79	19
Std. dev.	3,641.10	2,907.04	918.63	131.92	32

Panel B: Time Distribution

Year	SEO frequency	% of total
1990	83	5.80
1991	190	13.28
1992	173	12.09
1993	200	13.98
1994	149	10.41
1995	189	13.21
1996	231	16.14
1997	216	15.09

Panel C: Industry distribution

Industry	SIC codes	SEO frequency	% of total
Oil and gas	13	104	7.75
Food products	20	17	1.27
Paper and paper products	24,25,26,27	41	3.06
Chemical products	28	160	11.93
Manufacturing	30-34	58	4.33
Computer equipment and services	35,73	184	13.72
Electronic equipment	36	101	7.53
Transportation	37,39,40-42,44,45	86	6.41
Scientific instruments	38	84	6.26
Communications	48	46	3.43
Electricity, gas, and sanitary services	49	118	8.80
Durable goods	50	60	4.47
Non-durable goods	51	26	1.94
Retail	53,54,56,57,59	105	7.83
Eating and drinking establishments	58	23	1.72
Entertainment services	70,78,79	40	2.98
Health	80	45	3.36
All others		43	3.21

Table 2
Level of and changes in the frequency of disclosure proxied by press releases

This table shows the number of distinct press releases authored by the company for the four-year span starting from two years prior to and ending two years after the seasoned equity offering announcement. This four-year period is divided into eight six-month periods, and the number of press releases by each SEO firm is counted for each six-month period. M(-6, 0) is the last six-month period prior to the SEO announcement, and M(0, +6) is the first six-month period after the SEO announcement. For example, six months to one day before the SEO announcement is M(-6, 0) and one day after the SEO to six months after the SEO announcement is M(0, +6). All other six-month periods are similarly indexed relative to the offering announcement. Since the average number of press releases is about nine per six-month period for our final 1,431 SEOs, we read roughly 103,032 press releases (nine press releases per six-month period multiplied by eight six-month periods within a four-year span around the SEO announcement multiplied by 1,431 SEOs), not including duplicates and non-company sources. Changes are measured as the changes in the number of press releases from the previous six-month period. To obtain a time-consistent measure of disclosure frequency, we rank the number of press releases within each year. Because there are different numbers of samples each year, we convert the ranks to percentiles: (annual rank – 1)/(number of samples per year – 1).

Panel A: Number of press releases

		Mean	Median	First quartile	Third quartile
Months -24 to -18	M(-24, -18)	7.06	4	1	8
Months -18 to -12	M(-18, -12)	7.83	5	2	8
Months -12 to -6	M(-12, -6)	8.33	5	3	9
Months -6 to 0	M(-6, 0)	9.46	6	3	10
Months 0 to +6	M(0, +6)	9.66	6	3	10
Months +6 to +12	M(+6, +12)	10.43	7	4	11
Months +12 to +18	M(+12, +18)	10.42	7	4	12
Months +18 to +24	M(+18, +24)	10.58	7	4	12

Panel B: Changes in the number of press releases

	Mean	Median	t-test p-value	Wilcoxon p-value
From M(-24, -18) to M(-18, -12)	0.77	0	0.0001	0.0001
From M(-18, -12) to M(-12, -6)	0.50	0	0.0013	0.0001
From M(-12, -6) to M(-6, 0)	1.13	0	0.0001	0.0001
From M(-6, 0) to M(0, +6)	0.20	0	0.2965	0.0765
From M(0, +6) to M(+6, +12)	0.77	0	0.0001	0.0001
From M(+6, +12) to M(+12, +18)	-0.01	0	0.9382	0.6411
From M(+12, +18) to M(+18, +24)	0.17	0	0.3085	0.4214

Table 2: continued

Panel C: Percentile rank of the number of press releases

		Mean	Median	First quartile	Third quartile
Months -24 to -18	M(-24, -18)	0.4674	0.4186	0.2320	0.7051
Months -18 to -12	M(-18, -12)	0.4563	0.4375	0.2136	0.7004
Months -12 to -6	M(-12, -6)	0.4886	0.4898	0.2352	0.7407
Months -6 to 0	M(-6, 0)	0.5065	0.5040	0.2414	0.7547
Months 0 to +6	M(0, +6)	0.5089	0.5028	0.2414	0.7520
Months +6 to +12	M(+6, +12)	0.5288	0.5286	0.3018	0.7698
Months +12 to +18	M(+12, +18)	0.5311	0.5430	0.2944	0.7878
Months +18 to +24	M(+18, +24)	0.5134	0.5028	0.2449	0.7859

Panel D: Changes in the percentile rank of the number of press releases

	Mean	Median	t-test p-value	Wilcoxon p-value
From M(-24, -18) to M(-18, -12)	-0.0110	-0.0092	0.0317	0.0002
From M(-18, -12) to M(-12, -6)	0.0319	0.0000	0.0001	0.0001
From M(-12, -6) to M(-6, 0)	0.0179	0.0006	0.0005	0.0070
From M(-6, 0) to M(0, +6)	0.0028	0.0000	0.5846	0.5980
From M(0, +6) to M(+6, +12)	0.0205	0.0030	0.0001	0.0003
From M(+6, +12) to M(+12, +18)	0.0024	0.0000	0.6396	0.6393
From M(+12, +18) to M(+18, +24)	-0.0177	-0.0092	0.0012	0.0015

Table 3
Median discretionary accruals around seasoned equity offerings

This table shows discretionary accruals as the difference between realized accruals and predicted (normal) accruals (scaled by assets at the beginning of the quarter). We estimate discretionary total accruals as suggested by Hribar and Collins (2002) and discretionary current accruals following Rangan (1998). When estimating normal accruals, cross-sectional estimation is used by estimating parameters across all firms in the same two-digit SIC as the sample firm. Performance-adjusted discretionary total accruals are calculated following Kothari, Leone, and Wasley (2005). We create a control sample based on ROA in the quarter before the SEO announcement and on industry (using the two-digit SIC code) for each offering. The performance-adjusted discretionary accruals for an SEO firm are the discretionary total accruals for that firm minus the discretionary total accruals of the matched, non-SEO firm. The quarter of the last earnings announcement before the offering announcement is labeled Q(-1). Q(0) is the quarter of the first earnings announcement after the offering announcement. All other quarters are similarly indexed relative to the offering announcement. Observation numbers vary, since the available data for the calculation of discretionary accruals vary across quarters.

	Performance-adjusted discretionary accruals (ADTA)			Discretionary total accruals (DTA)			Discretionary current accruals (DCA)		
Quarters	N	Median	Wilcoxon p-values	N	Median	Wilcoxon p-values	N	Median	Wilcoxon p-values
Q(-5)	496	0.07%	0.9319	735	0.04%	0.3351	968	0.53%	0.0001
Q(-4)	514	-0.29%	0.9432	779	0.00%	0.9770	978	0.41%	0.0074
Q(-3)	557	0.06%	0.9089	787	0.36%	0.0502	986	0.44%	0.0002
Q(-2)	619	0.00%	0.6823	843	0.22%	0.1514	993	0.51%	0.0001
Q(-1)	671	-0.06%	0.6115	822	0.17%	0.0611	978	0.77%	0.0001
Q(0)	677	0.25%	0.4990	856	0.32%	0.0066	964	0.76%	0.0001
Q(+1)	677	0.50%	0.0105	865	0.68%	0.0001	968	1.25%	0.0001
Q(+2)	675	0.63%	0.0458	892	0.49%	0.0001	973	1.04%	0.0001
Q(+3)	644	-0.19%	0.6922	874	0.17%	0.1454	957	0.78%	0.0001
Q(+4)	610	-0.75%	0.1169	883	0.01%	0.7033	944	0.68%	0.0001

Table 4
Correlation between disclosure frequency and discretionary accruals

This table presents Spearman rank correlations between annualized discretionary accruals and several disclosure measure metrics (using the number of press releases and percentile rank of the number based on the year) averaged over different time periods. The followings are the disclosure metrics used. DLs are average number of press releases per six-month period over the following time periods. DL1: over M(-24, -18) through M(+18, +24); DL2: over M(-24, -18) through M(0, +6); DL3: over M(-24, -18) through M(+6, +12); DL4: over M(-24, -18) through M(-6, 0); DL5: over M(-24, -18) through M(-12, -6); DL6: over M(-12, -6) through M(-6, 0); DL7: over M(0, +6) through M(+12, +18); DL8: over M(+6, +12) through M(+18, +24); DC1: changes in the number of press releases from M(-12, -6) to M(-6, 0); DC2: changes in the number of press releases from M(-18, -12) to M(-12, -6). PTDLs are average percentile rank of the number of press releases per six-month period over the following time periods. PTDL1: over M(-24, -18) through M(+18, +24); PTDL2: over M(-24, -18) through M(0, +6); PTDL3: over M(-24, -18) through M(+6, +12); PTDL4: over M(-24, -18) through M(-6, 0); PTDL5: over M(-24, -18) through M(-12, -6); PTDL6: over M(-12, -6) through M(-6, 0); PTDL7: over M(0, +6) through M(+12, +18); PTDL8: over M(+6, +12) through M(+18, +24); PTDC1: changes in the percentile rank of the number of press releases from M(-12, -6) to M(-6, 0); PTDC2: changes in the percentile rank of the number of press releases from M(-18, -12) to M(-12, -6). ADTA(-1. +2) is annualized, performance-adjusted discretionary total accruals over the period Q(-1) through Q(+2) scaled by lagged total assets. DTA(-1, +2) is annualized discretionary total accruals over the period Q(-1) through Q(+2) scaled by lagged total assets. ***, **, * significance at the 1%, 5%, and 10% levels in two-sided significance tests, respectively.

	ADTA(-1, +2)	DTA(-1, +2)
DL1	-0.0897**	-0.1099***
DL2	-0.0880**	-0.0973**
DL3	-0.0810**	-0.1061***
DL4	-0.0877**	-0.1235***
DL5	-0.0778**	-0.0922**
DL6	-0.0845**	-0.0973**
DL7	-0.0744*	-0.1284***
DL8	-0.0786**	-0.1259***
DC1	-0.0356	-0.0287
DC2	0.0304	-0.0182

	ADTA(-1, +2)	DTA(-1, +2)
PTDL1	-0.0957**	-0.1112***
PTDL2	-0.0900**	-0.0994***
PTDL3	-0.0852**	-0.1037***
PTDL4	-0.0885**	-0.1213***
PTDL5	-0.0799**	-0.0868**
PTDL6	-0.0813**	-0.0994***
PTDL7	-0.0838**	-0.1230***
PTDL8	-0.0876**	-0.1232***
PTDC1	-0.0462	-0.0295
PTDC2	0.0206	-0.0294

Table 5
Regression analysis: association between disclosure frequency and earnings management

This table reports the results of association tests between disclosure and discretionary accruals of SEO firms. The following equation is estimated:

$$ADTA = a + b_1\,DL + b_2\,DC + b_3\,OCF + b_4\,CROA + b_5\,SIZE + b_6\,LEV + b_7\,NONB6 + b_8\,ABSTACC + b_9\,\text{Tobin's q} + b_{10}\,PPE\_V + b_{11}\,RDint + b_{12}\,INSTI + b_{13}\,BLOCK + b_{14}\,INSIDER + b_{15}\,A\_WD + b_{16}\,DIV + b_{17}\,ACQ$$

where ADTA = performance-adjusted discretionary total accruals over the period Q(-1) through Q(+2) for ADTA(-1, +2), Q(-4) through Q(-1) for ADTA(-4, -1), or Q(-1) and Q(0) for ADTA(-1, 0), scaled by lagged total assets; DL = average percentile rank of the number of press releases per six-month period over M(-24, -18) through M(+18, +24); DC = changes in the percentile rank of the number of press releases in M(-6, 0) from M(-12, -6); OCF = operating cash flows over the period Q(-1) through Q(+2) for a dependent variable ADTA(-1, +2), Q(-4) through Q(-1) for ADTA(-4, -1), or Q(-1) and Q(0) for ADTA (-1, 0), scaled by lagged total assets; CROA = changes in annualized ROA, measured as income before extraordinary items summed over Q(+3) to Q(+6) and scaled by assets at the beginning of Q(+3) – income before extraordinary items summed over Q(-1) to Q(+2) and scaled by assets at the beginning of Q(-1); SIZE = log of the market value of equity at Q(-1); LEV = debt-to-equity ratio, the proxy for the closeness to violations of lending contracts; NONB6 = one if the firm's auditor is not one of big six accounting firms, and zero otherwise; ABSTACC is the absolute value of total accruals over the period Q(-1) through Q(+2) for a dependent variable ADTA(-1, +2), Q(-4) through Q(-1) for ADTA(-4, -1), or Q(-1) and Q(0) for ADTA (-1, 0), scaled by lagged total assets; Tobin's q = Chung and Pruitt's (1994) measure of Tobin's Q and calculated as {[Market value of common stock + Book value of preferred stock + Book value of long-term debt + Book value of current liabilities – (Book value of current assets – Book value of Inventories)] / Book value of total assets} in the last fiscal year ending before the SEO announcement; PPE_V = gross property, plant, and equipment divided by the market value of equity plus the book value of debt in the last fiscal year ending before the SEO announcement; RDint = research and development expense divided by net sales in the last fiscal year ending before the SEO announcement; INSTI = percentage ownership of institutional investors; BLOCK = percentage ownership of blockholders; INSIDER = percentage ownership of insiders; A_WD = number of asset writedown disclosures over M(-24, -18) through M(+18, +24); DIV = number of dividend change disclosures over M(-24, -18) through M(+18, +24); and ACQ = number of acquisition events over M(-24, -18) through M(+18, +24). ***, **, * denote significance at the 1%, 5%, and 10% levels in two-sided significance tests, respectively; t-values are in parentheses.

Independent variables	Dependent variable = ADTA(-1, +2)				= ADTA(-4, -1)	= ADTA(-1, 0)
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
Intercept	-0.0107	0.0229	0.0029	0.0291	-0.0322	-0.0052
	(-0.28)	(0.72)	(0.08)	(0.95)	(-0.84)	(-0.24)
DL	-0.1171	-0.1080	-0.1062	-0.0986	-0.0793	-0.0652
	(-3.33) ***	(-3.22) ***	(-3.13) ***	(-3.05) ***	(-2.00) **	(-2.75) ***
DC	0.0131	0.0343	0.0152	0.0343	-0.0265	0.0159
	(0.32)	(0.91)	(0.38)	(0.94)	(-0.59)	(0.60)
OCF	-0.2211	-0.2166	-0.2168	-0.2162	-0.2269	-0.5160
	(-6.35) ***	(-6.59) ***	(-6.44) ***	(-6.80) ***	(-4.58) ***	(-11.62) ***
CROA	-0.1136	-0.1258	-0.1084	-0.1223	-0.1874	-0.1658
	(-2.47) **	(-2.86) ***	(-2.43) **	(-2.87) **	(-3.74) ***	(-5.42) ***
SIZE	0.0171	0.0095	0.0144	0.0087	0.0092	0.0076
	(2.52) ***	(1.68) *	(2.19) **	(1.59)	(1.31)	(1.90) *
LEV	-0.0003	0.0001	-0.0003	0.0001	0.0001	-0.0002
	(-0.20)	(0.12)	(-0.21)	(0.11)	(0.17)	(-0.92)
NONB6	0.0330	0.0238	0.0419	0.0330	0.0104	0.0360
	(1.06)	(0.83)	(1.38)	(1.17)	(0.28)	(1.74) *
ABSTACC	0.5183	0.8133	0.5452	0.8339	-0.7334	-0.6620
	(0.71)	(1.12)	(0.77)	(1.19)	(-0.81)	(-0.77)
Tobin's q	-0.0001	0.0002	0.0001	0.0001	0.0090	0.0021
	(-0.02)	(0.09)	(0.01)	(0.07)	(3.05) ***	(0.85)
PPE V	-0.0156	-0.0204	-0.0211	-0.0248	0.0290	0.0085
	(-0.87)	(-1.25)	(-1.23)	(-1.58)	(1.62)	(0.73)
RDint	-0.0011	-0.0011	-0.0012	-0.0012	-0.0002	-0.0006
	(-2.53) **	(-2.53) **	(-2.71) ***	(-2.71) ***	(-0.27)	(-1.99) **
INSTI	-0.0900		-0.0634			
	(-2.21) **		(-1.60)			
BLOCK	0.0241		0.0099			
	(0.82)		(0.35)			
INSIDER	0.0803		0.0871			
	(1.99) **		(2.21) **			
A WD			-0.0283	-0.0257	-0.0341	-0.0193
			(-1.71) *	(-1.58)	(-1.83) *	(-1.61)
DIV			0.0031	0.0100	0.0021	0.0011
			(0.31)	(1.02)	(0.17)	(0.16)
ACQ			-0.0056	-0.0047	-0.0005	-0.0055
			(-1.82) *	(-1.64) *	(-0.14)	(-2.63) ***
Number of observations	405	464	405	464	352	464
Adjusted R^2	15.13%	12.42%	16.00%	14.00%	9.51%	24.46%

Table 6
Regression results of one-year post-issue returns on disclosure frequency, earnings management, and other control variables

The following equation is estimated:

$$AR1Y = a + b_1\ ADTA + b_2\ DL + b_3\ DC + b_4\ ADTA*DL + b_5\ ADTA*DC + b_6\ ADTA*SIZE + b_7\ ADTA*ROA + b_8\ ADTA*CROA + b_9\ SIZE + b_{10}\ ROA + b_{11}\ CROA + b_{12}\ BM$$

where AR1Y = market-adjusted returns using the returns on the CRSP value-weighted market index as market returns, with returns compounded daily over the one-year period after the Q(+2) earnings announcement; ADTA = performance-adjusted discretionary total accruals over the period Q(-1) through Q(+2) for ADTA(-1, +2), Q(-4) through Q(-1) for ADTA(-4, -1), or Q(-1) and Q(0) for ADTA(-1, 0), scaled by lagged total assets; DL = average percentile rank of the number of press releases per six-month period over M(-24, -18) through M(+18, +24); DC = changes in the percentile rank of the number of press releases in M(-6, 0) from M(-12, -6); SIZE = log of the market value of equity at Q(-1); ROA = annualized ROA measured as income before extraordinary items summed over Q(-1) to Q(+2) and scaled by assets at the beginning of Q(-1); CROA = changes in annualized ROA measured as income before extraordinary items summed over Q(+3) to Q(+6) and scaled by assets at the beginning of Q(+3) - income before extraordinary items summed over Q(-1) to Q(+2) and scaled by assets at the beginning of Q(-1); and BM = book-to-market ratio at Q(-1). ***, **, * denote significance at the 1%, 5%, and 10% levels in two-sided significance tests, respectively; t-values are in parentheses.

Independent variables	Dependent variable = AR1Y				
	ADTA = ADTA(-1, +2)			= ADTA(-4, -1)	= ADTA(-1, 0)
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
Intercept	-0.1479	-0.1919	-0.1554	-0.0530	-0.1644
	(-1.72) *	(-2.22) **	(-1.79) *	(-0.50) *	(-1.92) *
ADTA	-0.2978		-0.8112	-0.8637	-0.8884
	(-2.96) ***		(-2.27) **	(-1.92) *	(-1.82) *
DL		0.2012	0.2254	0.2620	0.2143
		(1.96) **	(2.15) **	(2.02) **	(2.09) **
DC			0.0181	-0.0502	0.0530
			(0.16)	(-0.36)	(0.47)
ADTA*DL			-0.6659	-0.8414	-1.0358
			(-1.29)	(-1.23)	(-1.25)
ADTA*DC			0.8050	0.7014	1.1016
			(1.79) *	(0.88)	(1.72) *
ADTA*SIZE			0.1622	0.1987	0.2100
			(2.19) **	(1.95) *	(2.12) **
ADTA*ROA			-0.6367	-0.9448	-1.1072
			(-1.68) *	(-2.51) **	(-3.36) ***
ADTA*CROA			-0.8605	-1.2365	-1.7943
			(-1.84) *	(-2.39) **	(-3.76) ***
SIZE	0.0015	-0.0100	-0.0178	-0.0364	-0.0156
	(0.10)	(-0.61)	(-1.10)	(-1.84) *	(-0.98)
ROA	0.2935	0.3574	0.3661	0.3566	0.5101
	(2.98) ***	(3.56) ***	(3.47) ***	(2.73) ***	(4.64) ***
CROA	0.7122	0.7376	0.8187	0.7973	0.9363
	(5.18) ***	(5.32) ***	(5.71) ***	(4.66) ***	(6.41) ***
BM	0.0715	0.0714	0.0707	0.0418	0.0614
	(1.23)	(1.23)	(1.22)	(0.57)	(1.07)
Number of observations	616	616	616	485	616
Adjusted R^2	5.15%	4.38%	5.98%	5.22%	7.31%

Table 7
Disclosure strategy, earnings management, and post-issue returns

Panel A presents the results of the association between earnings management and different disclosure strategies and Panel B presents the effects of different disclosure strategies on post-issue returns. ADTA = performance-adjusted discretionary total accruals over the period Q(-1) through Q(+2) for ADTA(-1, +2), Q(-4) through Q(-1) for ADTA(-4, -1), or Q(-1) and Q(0) for ADTA(-1, 0), scaled by lagged total assets; D1 = one if the average percentile rank of the number of press releases per six-month period over M(-24, -18) through M(-6, 0) is in the top third and the average percentile rank of the number of press releases per six-month period over M(+6, +12) through M(+18, +24) is in the top third as well, and zero otherwise; D2 = one if the percentile rank of the number of press releases of M(-6, 0) is greater than the average percentile rank of the number of press releases per six-month period over M(-24, -18) through M(-12, -6) and greater than the average percentile rank of the number of press releases per six-month period over M(+12, +18) and M(+18, +24), and zero otherwise; D3 = one if the average percentile rank of the number of press releases per six-month period over M(-24, -18) through M(-6, 0) is in the bottom third and the average percentile rank of the number of press releases per six-month period over M(+6, +12) through M(+18, +24) is in the bottom third as well, and zero otherwise; OCF = operating cash flows over the period Q(-1) through Q(+2) for a dependent variable ADTA(-1, +2), Q(-4) through Q(-1) for ADTA(-4, -1), or Q(-1) and Q(0) for ADTA (-1, 0), scaled by lagged total assets; CROA = changes in annualized ROA measured as income before extraordinary items summed over Q(+3) to Q(+6) and scaled by assets at the beginning of Q(+3) – income before extraordinary items summed over Q(-1) to Q(+2) and scaled by assets at the beginning of Q(-1); SIZE = log of the market value of equity at Q(-1); LEV = debt-to-equity ratio, the proxy for the closeness to violations of lending contracts; NONB6 = one if the firm's auditor is not one of big six accounting firms, and zero otherwise; ABSTACC is the absolute value of total accruals over the period Q(-1) through Q(+2) for a dependent variable ADTA(-1, +2), Q(-4) through Q(-1) for ADTA(-4, -1), or Q(-1) and Q(0) for ADTA (-1, 0), scaled by lagged total assets; Tobin's q = Chung and Pruitt's (1994) measure of Tobin's Q and calculated as {[Market value of common stock + Book value of preferred stock + Book value of long-term debt + Book value of current liabilities – (Book value of current assets – Book value of Inventories)] / Book value of total assets} in the last fiscal year ending before the SEO announcement; PPE_V = gross property, plant, and equipment divided by the market value of equity plus book value of debt in the last fiscal year ending before the SEO announcement; RDint = research and development expense divided by net sales in the last fiscal year ending before the SEO announcement; A_WD = number of asset writedown disclosures over M(-24, -18) through M(+18, +24); DIV = number of dividend change disclosures over M(-24, -18) through M(+18, +24); ACQ = number of acquisition events over M(-24, -18) through M(+18, +24); AR1Y = market-adjusted returns using the returns on the CRSP value-weighted market index as market returns, with returns compounded daily over the one-year period after the Q(+2) earnings announcement; ROA = annualized ROA measured as income before extraordinary items summed over Q(-1) to Q(+2) and scaled by assets at the beginning of Q(-1); and BM = book-to-market ratio at Q(-1). ***, **, * denote significance at the 1%, 5%, and 10% levels in two-sided significance tests, respectively; t-values are in parentheses.

Panel A: Disclosure strategy and earnings management

	Dependent variable = ADTA(-1, +2)		= ADTA(-4, -1)	= ADTA(-1, 0)
Independent variables	Model (1)	Model (2)	Model (3)	Model (4)
Intercept	-0.0659	-0.0605	-0.0521	0.0041
	(-1.74) *	(-1.59)	(-1.27)	(0.14)
D1	-0.0386	-0.0384	-0.0443	-0.0299
	(-2.01) **	(-1.99) **	(-2.18) **	(-1.91) *
D2	0.0362	0.0345	-0.0057	0.0249
	(2.13) **	(2.03) **	(-0.29)	(1.73) *
D3	0.0429	0.0444	-0.0015	0.0096
	(1.80) *	(1.87) *	(-0.05)	(0.43)
OCF	-0.2329	-0.2358	-0.2656	-0.5339
	(-6.36) ***	(-6.42) ***	(-5.87) ***	(-9.41) ***
CROA	-0.1619	-0.1637	-0.1949	-0.1705
	(-3.37) ***	(-3.40) ***	(-3.83) ***	(-4.28) ***
SIZE	0.0096	0.0087	0.0091	-0.0010
	(1.52)	(1.38)	(1.32)	(-0.19)
LEV	0.0001	0.0001	0.0001	-0.0002
	(0.06)	(0.02)	(0.24)	(-0.58)
NONB6	0.0406	0.0515	0.0304	0.0525
	(1.52)	(1.59)	(0.81)	(1.95) **
ABSTACC	-0.1095	-0.1595	-1.9056	-1.8417
	(-0.14)	(-0.20)	(-3.23) ***	(-1.79) *
Tobin's q	0.0025	0.0025	0.0113	0.0047
	(0.96)	(0.96)	(4.37) ***	(1.55)
PPE V	0.0189	0.0168	0.0316	0.0215
	(1.09)	(0.97)	(1.67) *	(1.46)
RDint	-0.0009	-0.0009	-0.0004	-0.0007
	(-1.75) *	(-1.76) *	(-0.48)	(-1.65) *
A WD		-0.0235	-0.0335	-0.0180
		(-1.22)	(-1.70) *	(-1.10)
DIV		0.0154	0.0025	0.0018
		(1.34)	(0.19)	(0.19)
ACQ		-0.0036	-0.0007	-0.0063
		(-1.07)	(-0.18)	(-2.19) **
Number of observations	464	464	352	464
Adjusted R^2	9.31%	9.64%	12.00%	17.03%

Panel B: Disclosure strategy and post-issue returns

	Dependent variable = AR1Y			
	ADTA = ADTA(-1, +2)		= ADTA(-4, -1)	= ADTA(-1, 0)
Independent variables	Model (1)	Model (2)	Model (3)	Model (4)
Intercept	-0.0780	-0.0655	0.0209	-0.0684
	(-0.86)	(-0.72)	(0.19)	(-0.75)
D1	0.1250	0.1238	0.1211	0.0972
	(2.48) **	(2.45) **	(2.01) **	(1.97) **
D2	-0.0854	-0.0897	-0.0949	-0.0816
	(-1.94) *	(-2.04) **	(-1.66) *	(-1.74) *
D3	0.0244	0.0100	0.1089	0.0369
	(0.38)	(0.15)	(1.26)	(0.50)
ADTA	-0.2649	-0.6443	-1.2232	-0.8365
	(-2.32) **	(-1.66) *	(-2.33) **	(-2.13) **
ADTA*SIZE		0.0766	0.1717	0.1123
		(1.07)	(1.84) *	(1.47)
ADTA*ROA		-0.6128	-1.2551	-0.9421
		(-1.34)	(-2.73) ***	(-2.97) ***
ADTA*CROA		-1.2013	-1.8421	-1.8275
		(-2.07) **	(-2.81) ***	(-3.92) ***
SIZE	-0.0140	-0.0156	-0.0303	-0.0152
	(-0.91)	(-1.01)	(-1.65) *	(-0.96)
ROA	0.3263	0.3575	0.3862	0.4903
	(3.22) ***	(3.42) ***	(2.83) ***	(4.47) ***
CROA	0.7242	0.8089	0.8600	0.9312
	(5.22) ***	(5.66) ***	(4.89) ***	(6.40) ***
BM	0.0625	0.0705	0.0005	0.0512
	(1.07)	(1.21)	(0.01)	(0.88)
Number of observations	616	616	485	616
Adjusted R^2	5.56%	6.03%	6.69%	7.68%

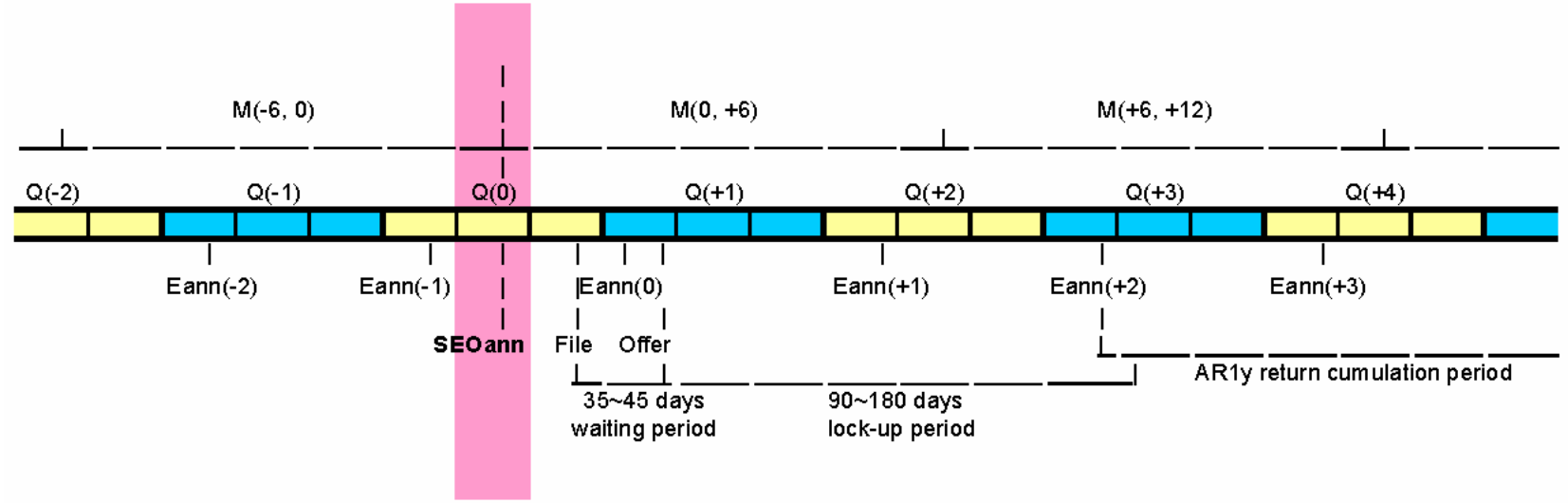

Fig. 1. Timeline of seasoned equity offerings. Q(.) represents the quarters around a SEO. The quarter of the last earnings announcement before the offering announcement is labeled Q(-1). Q(0) is the quarter of the first earnings announcement after the offering announcement. All other quarters are similarly indexed relative to the offering announcement. M(.) is the six-month period in which disclosure frequencies are determined. M(-6, 0) is the last six-month period prior to the SEO announcement, and M(0, +6) is the first six-month period after the SEO announcement. All other six-month periods are similarly indexed relative to the offering announcement. Eann stands for earnings announcement. We measure post-issue returns by compounding daily market-adjusted returns over the one-year period after the Q(+2) earnings announcement. The figure also illustrates important event dates and periods around SEO. The 1933 Securities Act prohibits any "offer to sell" prior to the filing of the registration statement before the file of the offer. It also prohibits any sales prior to the effective date. The period between the date of file and the effective date is "Waiting Period." The average Waiting Period in Rangan (1998) is 35 days. In our sample the average Waiting Period is 49 days and the median is 35 days. Lock-up agreements between issuing firms and their underwriters prevent insiders at issuing firms from selling their holdings until 90 to 180 days after the offering date.