Causes or Consequences? Earnings Management around Seasoned Equity Offerings*

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Abstract: Prior studies find that earnings management around seasoned equity offerings is negatively related to subsequent stock performance and attribute the finding to the issuing firms' use of inflated earnings to boost stock prices. We show in this paper that earnings management is not significantly related to concurrent abnormal returns. Rather, it is significantly positively related to *prior* abnormal returns. This suggests that, rather than a cause of stock price run-up, earnings management is likely a consequence of the stock overvaluation prior to the offerings, supporting the agency theory of overvalued equity (Jensen, 2005). We also show that when examining the relation between earnings management and subsequent stock performance, one has to be careful with the appropriate window for measuring earnings management.

Key Words: Seasoned equity offerings, earnings management, discretionary accruals, post-issue performance, market efficiency

JEL Classification: G14, G32, M41

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1. Introduction

A number of studies find that firms report abnormally large discretionary accruals (noncash component of earnings) around seasoned equity offerings and that such earnings management is negatively related to the post-issue stock performance (Friedlan, 1994; Teoh et al., 1998; Rangan, 1998; DuCharme et al., 2004; Jo and Kim, 2007). The usual interpretation is that the issuing firms opportunistically manage their earnings upward to temporarily boost their stock prices and that the market fails to detect such earnings management and only later corrects the overvaluation. For example, Teoh et al. (1998, p. 63) conclude that "the evidence is consistent with investors' naively extrapolating pre-issue earnings without fully adjusting for the potential manipulation of reported earnings." Rangan (1998, p. 101) concludes that "the stock market temporarily overvalues issuing firms … caused by earnings management."

Although these studies assume that the inflated earnings have *caused* the initial stock price appreciation (and the subsequent underperformance), they focus only on the relation between earnings management and the subsequent underperformance. No study has shown that stock prices have actually reacted to earnings management initially. In this paper, we first examine the contemporaneous return-earnings relation. We show that while discretionary accruals are positive on average in the year around the offerings, discretionary accruals are not significantly related to concurrent abnormal returns. In contrast, for matched control samples of nonissuing firms as well as the issuing firms in the year prior to the offerings, the association between discretionary accruals and concurrent abnormal returns is highly significant. Thus, if the objective of the issuing firms' earnings management is to mislead the market to overvaluation, the objective does not appear to be achieved.

To sharpen the tests, we also examine the three-day market reaction to earnings announcements. In a short window, causality can be more reasonably established with the market reaction traced to the information conveyed by an event (Beaver, 1968; Fama et al., 1969). If the issuing firms use inflated earnings around the offerings to boost stock prices and are able to achieve the purpose, we expect the price movements during earnings announcements in this period to be especially large and be related to earnings management relative to other times when earnings are not or less managed. We find that the market reaction to earnings announcements is more positive prior to the offerings than around the offerings. The overall information content of earnings announcements is also not larger around the offerings. Discretionary accruals around the offerings are either insignificantly or at most marginally related to announcement abnormal returns. These results again cast doubt on the use of inflated earnings to boost stock prices.

What, then, explains the average positive discretionary accruals around the offerings? We offer an alternative explanation in this paper. We show that, rather than a cause of stock price run-up, upward earnings management could be a *consequence* of the stock overvaluation *prior to* the offerings. Stock prices typically experience significant run-up over an extended period before the offerings. For example, in our sample the median abnormal returns of the issuing firms are 26% in the year prior to (quarters -5 to -2), and 20% in the year around (quarters -1 to +2, mostly in quarter -1), the offering announcement. Earnings management, however, is most severe in quarters 0 to +2, after the offering announcement and after stock prices have experienced the most appreciation. We find that, although discretionary accruals are unrelated to concurrent abnormal returns around the offerings, they are significantly positively related to prior abnormal returns. That is, stock returns Granger cause the earnings management. For the control firms, either the relation is insignificant or the economic impact of prior abnormal returns is small.

The finding that stock returns Granger cause earnings management rather than the other way around is consistent with Jensen's (2005) agency theory of overvalued equity. Under this theory, managers of overvalued firms may "turn to further accounting manipulation and even fraudulent practices to continue the appearance of growth and value creation" (Jensen, 2005; p. 10). That is, earnings are managed not necessarily to cause overvaluation. Rather, given that overvaluation has occurred for various reasons,[1] managers are likely to respond by managing earnings upward to prolong the overvaluation.[2] The driving forces for such "organizational or managerial heroin" can be target-based corporate budgeting systems emphasizing meeting short-term targets, equity-based compensations, or other conflicts of interest.

The agency theory of overvalued equity is likely to be especially applicable to seasoned equity offerings for two reasons. First, direct testing of the theory requires identification of overvalued firms. Since the issuing firms tend to time their offerings when their stocks are overvalued (Loughran and Ritter, 1995), this select sample is biased toward containing overvalued firms and provides a natural experimental setting for testing the theory. Second, the incentives of the issuing firms to prolong the overvaluation are particularly strong since overvaluation allows them to obtain more favorable offering prices. Two other concerns provide extra incentives for the issuing firms to avoid immediate price reversal after the offerings (Rangan, 1998). First, firms that have worse post-issue stock performance are more

[1] As Jensen (2005, p. 6) recognizes, over- or undervaluation does not imply market inefficiency or efficiency. Even when the market is efficient, half of the firms will be overvalued and half undervalued.

[2] One may argue that, had earnings not been managed, stock prices would have dropped. Thus, earnings management still plays a causal role in boosting stock prices relative to this unobservable scenario. However, for what can be observed, earnings management is unrelated to the stock price movements. The ultimate driving force is still existing overvaluation, with earnings management a consequential result.

likely to be sued (DuCharme et al., 2004). It is conceivable that the probability of lawsuits would be higher if price drops occur too quickly rather than over an extended period. Second, lock-up agreements with underwriters prevent management from selling their stock holdings during the 90 to 180 days following the offerings. This provides management the incentive to maintain the stock prices until at least after the end of the lock-up period. If earnings management helps prolong the overvaluation that is proxied by the large abnormal stock returns prior to the offerings, the agency theory of overvalued equity predicts that prior abnormal returns are associated with subsequent earnings management.

The agency theory explanation of the issuing firms' earnings management behavior has two interesting implications, which in turn can provide further support to the theory. First, the issuing firms have subsequent stock underperformance on average because of the underlying overvaluation, not earnings management *per se*. Since earnings management did not trigger market reaction initially, the market is not surprised by its subsequent reversal, either. Thus, the poor subsequent stock performance is not expected to concentrate on earnings announcements. This reconciles the previous seemingly contradictory finding that the issuing firms experience long-run poor stock performance, and yet investors do not suffer systematic losses at earnings releases in the years following the offerings (Shivakumar, 2000; Brous, 2001).

Second, if variation in discretionary accruals reflects variation in the issuing firms' overvaluation to be corrected over time, a negative relation between discretionary accruals and subsequent stock performance is expected. Although Teoh et al. (1998) and Rangan (1998) document such a negative relation, Shivakumar (2000) challenges their finding by attributing it to test misspecification.[3] He examines the relation between discretionary accruals *prior to* the

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[3] Shivakumar (2000) proposes an alternative argument that earnings management of the issuing firms is not used to mislead investors. His reasoning is that because the issuing firms' earnings reports are not credible when they

offering announcement and the post-issue stock performance similar to Teoh et al. (1998). Our results indicate that the overvaluation-induced earnings management is most severe around the offerings, especially after the offering announcement. Depending on the measure of discretionary accruals, it is questionable whether the issuing firms even manage earnings on average prior to the offerings (see also Rangan, 1998; Jo and Kim, 2007). Thus, the appropriate window for measuring earnings management is around the offerings including quarters after the offering announcement. In our final set of tests, we use Shivakumar's (2000) recommended specifications and show that a negative relation holds for the appropriate window.

The negative relation between discretionary accruals and subsequent stock performance is similar to the more general accrual anomaly phenomenon that firms with high (low) accruals have significant negative (positive) abnormal returns in the following year (see., e.g., Fama and French, 2007). Sloan (1996) first documents the phenomenon and attributes it to investors' fixation on earnings and putting too much valuation weight on accruals. Recently Kothari et al. (2005) also attribute the phenomenon to the agency cost of overvalued equity. They argue that firms tend to use high accruals to maintain overvaluation but do not have incentives to use low accruals to keep undervaluation. Thus, high accrual firms tend to contain more overvalued firms that will have downward price reversals, though low accrual firms will not have as much upward reversals. It can be noted, however, that in the large sample to study the general accrual anomaly phenomenon, concurrent stock prices are indeed associated with accruals (Guay et al., 1996; Subramanyam, 1996) and subsequent abnormal returns show concentration on earnings

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issue equities, investors will discount the reported earnings regardless at the equity offering announcement. In anticipation of such discounting, firms might as well inflate their earnings initially. By this reasoning, the issuing firms should manage earnings the most *prior to* the offering announcement. Actual earnings management, however, occurs the most *after* the offering announcement. In addition, if the issuing firms do not inflate their earnings in the first place, it is not clear why investors would uniformly discount their earnings. The issuing firms can also take many other actions such as expanded disclosures to increase the credibility of their earnings instead of simply inflating their earnings.

releases as if the market is surprised by the accrual reversals (Sloan, 1996), unlike what we document for the equity offering firms.

Overall, we provide an explanation for earnings management around seasoned equity offerings that is different from those of existing studies. Other related studies can be cast in light of our explanation. For example, overvaluation prior to the offerings could have existed because of firms' timing of the market or because of firms' manipulation of investor expectations. Jo and Kim (2007) show that firms with consistent and extensive disclosure have less earnings management while those that temporarily increase disclosure prior to the offerings have greater earnings management around the offerings. One interpretation is that consistent and extensive disclosure can increase firms' transparency and lower their likelihood of being overvalued, hence less earnings management. Temporary disclosures can be used to hype the stocks and increase the overvaluation, hence more earnings management (Lang and Lundholm, 2000). Although we do not rule out the possibility that overvaluation is due to the market being "fooled" by other means, we show that the release of managed earnings is unlikely to blame.

Our results also have implications for other studies on firms' earnings management behavior around corporate events such as repurchase tender offers (Louis and White, 2007) and mergers and acquisitions (Louis, 2004). One might re-think whether earnings management is a causal or consequential factor for the stock price behavior around these events. An interesting case is earnings management before open market repurchases (Gong et al., 2007). Here firms may have the incentive to use negative accruals to maintain (rather than to cause) undervaluation of their stocks, suggesting a mirroring agency theory of *undervalued* equity.

The rest of the paper proceeds as follows. In the next section we discuss our sample selection and variable measurement. Empirical results are presented in Section 3. Section 4 concludes.

2. Sample and variable measurement

2.1. Sample selection

We obtain seasoned equity offerings from the Security Data Corporation (SDC) database covering the period from 1989 to 2005. Following prior studies, we consider primary and secondary common stock offering and exclude units and warrant offerings. For an offering to be included in our sample, the following conditions must be met: 1) The offering is not made within two years of the initial public offering to avoid the confounding effect of IPO performance; 2) For firms with multiple offerings over the sample period, only the first issuance is retained; 3) The issuing firm is not in the utilities industry (SIC 4900-4999) or the financial sector (SIC 6000-6999) since these industries are regulated and/or the nature of their accruals is different from that of other industries; 4) The issuing firm must have sufficient accounting data from Compustat and market data from CRSP.

A total 989 offerings meet the above criteria. Table 1 provides the summary statistics for the sample. Panel A indicates some variation in the number of offerings over the years. The early to mid-1990s (especially 1991) contain more issues than other years. Panel B shows that the offerings are made by firms in a wide range of industries, with computer, electronics and chemical products having more representations than other industries. Panel C provides the size characteristics of the issuing firms at the end of the quarter immediately preceding the offering announcement as well as the size characteristics of the issues. The mean and median book value of assets are $816 million and $123 million. The mean and median market capitalization are $594 million and $137 million. The offerings have a mean proceeds of $80 million or 42% of the market value, and increase the number of shares outstanding by 25% on average. The median offering size is smaller than the mean. These characteristics are similar to those reported earlier (e.g., Jo and Kim, 2007).

2.2. Variable measurement

Following prior studies, we measure earnings management by abnormal/discretionary accruals after removing expected accruals. Although the earnings management literature has generally used discretionary total accruals, Teoh et al. (1998) show that the current portion of discretionary accruals are most relevant to capturing earnings management around seasoned equity offerings. Thus, we use both measures: discretionary total accruals (DTA) and discretionary current accruals (DCA).

Following the suggestion of Hribar and Collins (2002), we measure accruals using data from the cash flow statement instead of successive changes in balance sheet accounts to avoid measurement errors due to acquisitions, divestitures and accounting changes. We estimate discretionary accruals on a quarterly basis and then obtain the annual measures by summing the quarterly measures (see., e.g., Rangan, 1998; Jo and Kim, 2007). For across-firm comparability, all earning-related variables are deflated by lagged total assets (ASSET) (Compustat item 44). For brevity, the deflator is omitted from notation below.

Total accruals (TA) of firm i at time t are defined as

$TA_{it} = NI_{it} - CFO_{it}$,

where NI is net income before extraordinary items and discontinued operations (Compustat item 76), CFO is operating cash flow from continuing operations (Compustat item 108 – item 78). For each issuing firm, we estimate the following cross-sectional Jones (1991) model using all non-issuing firms in the same two-digit SIC industry and in the same quarter (a minimum of 10 observations are required),

$$TA_{it} = \beta_0 \,(1/ASSET_{it-1}) + \beta_1 \Delta REV_{it} + \beta_2 PPE_{it} + \varepsilon_{it}.$$

where ΔREV is change in revenue (Compustat item #2) and PPE is gross property, plant and equipment (Compustat item 118).[4] To mitigate the effect of outliers, regression variables are winsorized at the top and bottom 1% level for the entire population of firms (both issuing and non-issuing firms). The estimated coefficients $\hat{\beta}_0$, $\hat{\beta}_1$ and $\hat{\beta}_2$ from the above model are then applied to the issuing firm, with discretionary total accruals measured as the difference between total accruals and expected accruals (fitted value),

$$DTA_{it} = TA_{it} - [\hat{\beta}_0 \,(1/ASSET_{it-1}) + \hat{\beta}_1 \,(\Delta REV_{it} - \Delta REC_{it}) + \hat{\beta}_2 \,PPE_{it}],$$

where ΔREC is change in accounting receivable. Change in accounts receivable is removed from change in revenue because it captures increases in credit sales of a suspect firm possibly due to premature recognition of revenue (Dechow et al., 1995). Thus, it is not regarded as part of expected accruals.

Current accruals are obtained by removing depreciation and amortization expenses (DEP, the negative of Compustat item 77) from total accruals,[5]

$$CA_{it} = TA_{it} - DEP_{it}.$$

Discretionary current accruals (DCA) are measured following the same estimation procedure for DTA as described above except that in the Jones model PPE is not used.

When DTA (DCA) is used as the earnings management measure, we define unmanaged earnings correspondingly as

$$NI\_UM_{it} = NI_{it} - DTA_{it} \text{ (or } DCA_{it}).$$

[4] Following Jones (1991) and Dechow et al. (1995), we use 1/ASSET instead of an intercept in the model (see e.g., Teoh et al., 1998). The overall qualitative results would not change if we included an intercept.

[5] Deferred taxes (Compustat item 79) contain both current and long-term components. Note that PPE (gross property, plant and equipment) in the Jones model is only meant to capture the normal level of depreciation and amortization expense. Hence we leave deferred taxes in current accruals and use ΔREV to control for its normal level similar to other current accruals. Removing it from total accruals does not affect our results qualitatively.

Finally, we measure abnormal returns of a firm over a period (e.g., a quarter) as the buy-and-hold returns of the firm minus the buy-and-hold value-weighted market returns,

$$AR_{it} = \prod_{j=1}^{m} (1+RET_{ij}) - \prod_{j=1}^{m} (1 + VWRETD_{j}),$$

where RET_{ij} is the daily stock return at the jth day of period t, m is the number of trading days in period t, and VWRETD is the CRSP value-weighted index return.

To ensure that earnings information is available to the market for possible market reaction, we measure concurrent returns of a quarter from two days after the earnings announcement of the previous quarter to one day after the earnings announcement of the current quarter. Similarly, we measure concurrent returns of a year from two days after the last quarterly earnings announcement of the previous year to one day after the last quarterly earnings announcement of the current year. Short-window market reactions to an earnings announcement are measured for the three days centered on the announcement date.

2.3. Timing convention

The SDC database provides the filing date of the equity offerings, which is the same as or one day after the announcement date for nearly all offerings.[6] Following previous studies, we define quarter 0 as the quarter that has the first earnings announcement after the filing/announcement of an offering. Other quarters are indexed accordingly. For example, quarter -1 is the quarter that has the last earnings announcement before the offering announcement. Rangan (1998) argues that the incentives to manipulate earnings is the strongest in quarter -1 because this is the quarter the issuing firms would most want to use inflated earnings to boost stock prices, even though he does not find significant earnings management in this quarter. We similarly follow him to define year 0 as quarters -1 to 2, year -1 as quarters -

[6] Purnanandam and Swaminathan (2006) find that 90% of the offerings are announced on the same day as the filing date and most of the remaining ones are announced one day before.

5 to -2 and year +1 as quarters 3 to 6. Year 0 is referred to as the year around the offerings.

3. Empirical results

3.1. Time series descriptive statistics

Panel A of Table 2 provides the median discretionary total accruals (DTA), discretionary current accruals (DCA), and net income (ROA) for quarters -5 to 6 of our sample firms. Median DTA is positive and significant for quarters -1 to 3 by the Wilcoxon signed rank test. The magnitude is the largest in quarters 1 and 2, *after* the offering announcement. DCA is larger than DTA and is significant at the less than 0.05 level for all quarters. Quarters 0 and 1, after the offering announcement, have the largest DCA. The 0.80% median DCA in quarter 1 is economically substantial considering that the median net income (ROA) is only 1.56%. These results are qualitatively similar to those reported earlier (e.g., Jo and Kim, 2007). While the size of earnings management depends on the measure used, it is important to note that earnings management occurs mostly around, especially after, the offering announcement (quarters -1 to 2). If DCA suggests some weak evidence that earnings management starts earlier, such action is much exacerbated around the offering announcement.

The time series pattern of abnormal returns in Panel B is quite different from that of discretionary accruals. Median quarterly abnormal returns (AR) are positive and large starting in quarter -5 and reach the highest level in quarter -1. In quarter 1 where earnings management is most severe, there are no significant abnormal returns. The pattern for three-day earnings announcement returns (EAR) is similar. If announcement returns capture the effect of earnings surprises, it appears that the market is positively surprised mostly before the offering announcement when earnings are not or less managed. These positive announcement returns may also be part of the general stock price run-up over this period. Starting from quarter 1 where earnings are managed the most, the median announcement returns are nearly all insignificant (see also Shivakumar, 2000 and Brous, et al., 2001).

The absolute abnormal returns around the earnings announcements are often used as a measure of the overall information content of earnings announcements (e.g., Beaver, 1968). Thus, we also report the absolute values of the announcement returns. There is practically no pattern in this measure over the 12 quarters. There does not appear to be evidence that the abnormally high levels of discretionary accruals in the quarters around the offerings have led to unusual market movements.

In Panels C and D, we report the medians of the measures on the annual basis that are used in our later tests. Median DTA is significant only in year 0 (2.38%). Although median DCA is significant in all three years, it is nearly three times as large in year 0 (3.17%) as in the other two years (0.93% and 1.19%). On the other hand, abnormal returns either over the entire year or over the four quarterly earnings announcements are the largest in year -1, smaller in year 0, and become negative in year -1. Overall, it appears that increases in discretionary accruals lag abnormal returns. Thus, the notion that positive abnormal returns before the offerings are attributable to earnings management is dubious.

To contrast with the issuing firms, we construct two control samples of nonissuing firms and also report their measures in Panels C and D. The first control sample consists of firms matched to the issuing firms based on the two-digit SIC industry and the market value of equity at the end of quarter -1. Since the issuing firms experience significant stock price appreciation in year -1 that may reflect market expectation of their unusually high growth, we also construct a control sample consisting of matching firms in the same two-digit SIC industry and with the closest abnormal stock returns in year -1. Median discretionary accruals of both control samples are much smaller than those of the issuing firms in year 0 (DTA of -0.45% and 0.89% and DCA of 0.47% and 1.83%). Net income of the issuing firms in year 0 is higher than that of the control firms nearly by the difference in discretionary accruals.

3.2. The return-earnings relation around the offerings

The return-earnings relation has long been mainstream research in the accounting literature (e.g., Ball and Brown, 1968; Kothari, 2001). Numerous studies document that concurrent returns and earnings are strongly positively correlated either because earnings convey new information to the market or because both reflect underlying value drivers. If the issuing firms are able to boost stock prices with inflated earnings, we expect that the contemporaneous relation to at least hold and even possibly be stronger around the offerings.

To examine the impact of earnings management on stock prices, we start from the following model that links abnormal returns to concurrent and lagged earnings and lagged abnormal returns,

$$AR_t = \rho_0 + \rho_1 NI_t + \rho_2 NI_{t-1} + \rho_3 AR_{t-1} + \varepsilon_t.$$

Putting aside the third variable AR_{t-1} for the moment, this model is algebraically equivalent to the expression $AR_t = \rho_0 + (\rho_1 + \rho_2) NI_t - \rho_2 \Delta NI_t + \varepsilon_t$. If one restricts $\rho_2 = -\rho_1$, we have the commonly used model that links abnormal returns to "earnings surprises" assuming that earnings follow a random walk process. Ali and Zarowin (1992) and Easton and Harris (1992) argue and show that earnings levels can also serve as a proxy for surprises and both earnings levels and changes are related to abnormal returns. This amounts to a relaxation of the restriction $\rho_2 = -\rho_1$, leading to the above general model. We include lagged abnormal returns AR_{t-1} in the model for two reasons. First, the issuing firms may choose to time their equity offerings after having continuous increases in stock prices, even though a random sample may not have such momentum effect. Second, including AR_{t-1} makes the model into a more general form that is comparable to those used in the next subsection for studying the Granger causality across variables.

The above model can be expanded by decomposing earnings into two components, unmanaged earnings and discretionary accruals. This allows us to examine the price impact of earnings management.

$$AR_t = \alpha_0 + \alpha_1 \, NI\_UM_t + \alpha_2 \, DA_t + \alpha_3 \, NI\_UM_{t-1} + \alpha_4 \, DA_{t-1} + \alpha_5 \, AR_{t-1} + \varepsilon_t. \qquad (1)$$

where DA is DTA or DCA. If discretionary accruals lead to higher stock prices, through increasing either earnings levels or earnings changes, we expect $\alpha_2 > 0$.

Given that earnings management is most active in year 0, we focus on this year and report the regression results with annual data for model (1) in Table 3. Discretionary accruals are measured by DTA and DCA in Panels A and B respectively. [7] In the univariate cases, abnormal stock returns are significantly negatively related to lagged discretionary accruals by both measures. This is consistent with the accrual anomaly that high (low) accruals or discretionary accruals are followed by low (high) abnormal returns in the subsequent year (Sloan, 1996; Fama and French, 2007). Concurrent unmanaged earnings are significant only when discretionary accruals are measured by DTA. In the multivariate regressions, concurrent and lagged unmanaged earnings take significant coefficients that are of opposite signs, with the coefficient on concurrent unmanaged earnings larger in magnitude. This suggests that both the level and change in unmanaged earnings carry value-relevant information to the market.

Most notably, the coefficient on concurrent discretionary accruals is not significant at the less than 0.05 level in any specification. In the univariate case where the coefficient is

[7] In all regressions below, the regression variables are winsorized at the top and bottom 1% level within the samples used to mitigate the effect of outliers. All the results remain qualitatively similar if the outliers are eliminated or not treated.

significant at the 0.10 level, it is negative, implying that higher discretionary accruals are associated with lower abnormal returns. Thus, the market does not appear to treat managed earnings the same as unmanaged earnings and positively price them. A long-window association between abnormal returns and earnings or earnings components by itself does not necessarily imply a causal relation. For example, an association would exist if other known value drivers are reflected in both stock prices and earnings or earnings components. However, lack of an association between discretionary accruals and concurrent abnormal returns certainly casts doubt on the existence of a causal relation between the two.

Causality can be more reasonably established in the short window around earnings announcements where abnormal returns can be attributed to the new information conveyed by earnings. If the issuing firms are able to manage earnings to boost stock prices to levels that otherwise would not be achieved, the price movements around the announcements should be particularly tied to earnings relative to earlier days when earnings information is not available yet. We use the sum of abnormal returns around the four earnings announcements as the dependent variable in model (1) and report the regression results in Table 4. The coefficients on all earnings components are smaller than those in Table 3, suggesting that in general the information reflected in earnings is already partially incorporated in stock prices during the year rather than only at earnings announcements. Importantly, while the coefficients on concurrent and lagged unmanaged earnings are significant, the coefficient on concurrent discretionary accruals is much smaller and not significant at the 0.05 level in any specification.[8]

[8] Given that abnormal returns of year 0 (median 20.26%) are mostly driven by abnormal returns in quarter -1 (median 16.36%), it is possible that stock prices are influenced by earnings management in this quarter that is relatively small but nonetheless significant (Table 2). We also run regressions on a quarterly basis and find that the coefficient on discretionary accruals is negative and insignificant for this quarter. A positive and significant coefficient on discretionary accruals is found only in quarter +1 and only with the quarter-long returns. Abnormal returns for this quarter, however, are negative on average.

In the bottom rows of each panel of Tables 3 and 4, we report the regression results for the two control samples of nonissuing firms as well as the issuing firms in year -1 as an additional control sample. For annual returns (Table 3), the coefficient on discretionary accruals is always significant at the 0.01 level and nearly of the same size as that on unmanaged earnings. This is consistent with the previous finding that when firms do not have particular incentives to opportunistically manage earnings, discretionary accruals serve an informational role and are treated similarly to unmanaged earnings (e.g., Guay et al, 1996; Subramanyam, 1996). The market essentially regards earnings as a whole even though an accrual model would always yield discretionary accrual measures. The results using earnings announcement returns (Table 4) are qualitatively similar for industry and size matched nonissuing firms. For nonissuing firms matched on industry and prior abnormal returns and for issuing firms in the prior year, the coefficient on discretionary accruals is not significant. This together with the significant coefficient for annual returns suggests that discretionary accruals of these firms do reflect certain information, which, however, has been incorporated in stock prices before the earnings announcements. Compared to these control firms, the market does not appear to react in any fashion to the unusually large discretionary accruals of the issuing firms in the year around the offerings.

3.3. The earnings-return relation around the offerings

Given that the extent of earnings management around the offerings is nontrivial and yet does not result in significant concurrent abnormal returns, earnings management of the issuing firms is likely driven by something other than boosting stock prices. The agency theory of overvalued equity suggests that, since issuing firms tend to time their offerings when they are overvalued, they are likely to take actions such as earnings management to prolong the overvaluation. Larger overvaluation would require larger earnings management. If the issuing firms' abnormal returns in the prior year proxy for the degree of their overvaluation before the offerings, then prior abnormal returns are expected to be associated with, i.e., Granger cause, subsequent earnings management around the offerings.

To test the above Granger causality, we use the following models for the two earnings components,

$$DA_t = \beta_0 + \beta_1 \, NI\_UM_t + \beta_2 \, NI\_UM_{t-1} + \beta_3 \, DA_{t-1} + \beta_4 \, AR_t + \beta_5 \, AR_{t-1} + \varepsilon_t. \quad (2)$$

$$NI\_UM_t = \gamma_0 + \gamma_1 \, NI\_UM_{t-1} + \gamma_2 \, DA_t + \gamma_3 \, DA_{t-1} + \gamma_4 \, AR_t + \gamma_5 \, AR_{t-1} + \varepsilon_t. \quad (3)$$

Note that if concurrent variables are not included as part of the explanatory variables, models (1), (2) and (3) form a vector autoregressive system (VAR) that is often used to test the Granger causality across variables. Other than abnormal returns, concurrent and lagged earnings components are also included not only for completeness but also because there are reasons to believe that earnings components are interrelated. For example, core earnings performance tends to be persistent, which implies $\gamma_1 > 0$. Accruals mitigate the timing and mismatching problem of cash flows, making earnings smoother (Dechow, 1994). Dechow and Dichev (2002) show that accruals are negatively related to concurrent cash flows and positively related to lagged and lead cash flows. Discretionary accruals may serve a similar role and be related to unmanaged earnings similarly. This would imply β_1 and $\gamma_2 < 0$, and β_2 and $\gamma_3 > 0$. Discretionary accruals also will reverse, though it is not clear whether the reversal will be reflected in subsequent unmanaged earnings or discretionary accruals.

The regression results for model (2) are reported in Panels A and B of Table 5. As expected, discretionary accruals by either DTA or DCA are negatively related to concurrent unmanaged earnings and positively related to lagged unmanaged earnings, suggesting an earnings smoothing effect. Discretionary accruals appear to be persistent and are positively related to their own lagged measures. As found in Table 3, discretionary accruals and concurrent abnormal returns are not significantly related. However, with or without controlling for other variables, discretionary accruals are significantly positively related to lagged abnormal returns at the 0.05 level ($\beta_5 > 0$). That is, prior abnormal returns Granger cause earnings management around the offerings, supporting the agency theory of overvalued equity. For nonissuing firms matched on industry and lagged abnormal returns, the coefficient on lagged abnormal returns is insignificant. That is, when lagged abnormal returns are large and potentially have large effects on subsequent discretionary accruals, only the issuing firms exhibit such effects. For nonissuing firms matched on industry and size and for issuing firms in the prior year, the coefficient on lagged abnormal returns is also significant. While this suggests that discretionary accruals as a response to prior stock performance may be a more general phenomenon (Kothari et al., 2005), the average effect is small for these control firms because of the small magnitude of lagged abnormal the returns.[9]

The regression results for unmanaged earnings based on model (3) are reported in Panels C and D. An important difference between unmanaged earnings and discretionary accruals is that unmanaged earnings are significantly related to concurrent abnormal returns. It can be noted that unmanaged earnings are also positively related to lagged abnormal returns. The coefficient on lagged abnormal returns is nearly the same as that in Panels A and B for discretionary accruals. For the control firms, the relation between unmanaged earnings and prior abnormal returns is insignificant, negative, or positive, depending on the sample.

One interpretation of the joint results in Panels A to D is that stock prices of the issuing firms go up significantly in the prior year as the market was expecting the outcome of some

[9] The median lagged abnormal return is -0.88% for the matched nonissuing firms (see Table 2) and -7.16% for the issuing firms in year -1. The mean is 4.47% and 7.36%, respectively.

long-term investment projects to be realized in the future. Actual unmanaged performance conforms partly to such expectations. However, the market overestimated. The firms choose this favorable time to issue equity and manage earnings upward to maintain and meet the market expectations. The similarly large coefficients on lagged abnormal returns for unmanaged earnings and discretionary accruals suggest that the actual performance falls short of expectations by roughly half and discretionary accruals are used to make up the other half.

By the size of lagged abnormal returns (median of 26.1% and mean 57.3%) as well as the coefficient (0.014), we can estimate that the issuing firms increase discretionary accruals in response to prior abnormal returns by a median of about 0.4% and a mean of about 0.7% of assets. These represent roughly 15~25% of DTA and 10~15% of DCA. One reason for the relatively small coefficient is that prior abnormal returns proxy for the issuing firms' degree of overvaluation with error. If the issuing firms are overvalued, the unusually large abnormal returns in the prior year are likely a contributing factor and are thus a reasonable proxy. However, measurement errors are possible and even large since overvaluation is influenced by other factors; for example, the issuing firms could start the prior year already overvalued.

Prior abnormal returns may not be a good proxy for overvaluation when the abnormal returns are negative. First, negative abnormal returns suggest that the firms may have started correction of overvaluation even in the previous year. If by the end of the year they are no longer overvalued, they should not have incentives to manage earnings downward to correspond to the negative abnormal returns. Second, these firms could still be overvalued even after experiencing negative abnormal returns. In this case, they still have incentives to manage earnings upward, but the negative abnormal returns themselves are unlikely to represent the remaining overvaluation that would influence earnings management. Thus, the Granger causality between abnormal returns and discretionary accruals is expected to hold for positive prior abnormal returns but not for negative prior abnormal returns.

Table 6 reports the regression results for models (1), (2) and (3) for the two subsamples with positive and negative abnormal returns in year -1. For brevity, only results for the full models are reported. As expected, the majority of the issuing firms have positive prior abnormal returns (Panel A). For this group, we continue to find that in the return-earnings relation concurrent abnormal returns and discretionary accruals are not significantly related. In the earnings-return relation, the coefficient on lagged abnormal returns is larger for discretionary accruals (0.019) and is smaller, and less significant statistically, for unmanaged earnings (0.011) compared to the full sample. This suggests that these firms are likely to be severely overvalued, and earnings performance, if not managed, would fall far short of expectations. For the smaller group of firms with negative prior abnormal returns (Panel B), lagged abnormal returns are not significantly related to either discretionary accruals or unmanaged earnings. Untabulated results indicate that these firms still have significant positive discretionary accruals around the offerings, with median DTA of 2.18% and DCA of 1.84%, both significant at the 0.01 level. Thus, it is likely that these firms are still overvalued even after experiencing negative abnormal returns in the previous year.[10] Although they would also manage earnings around the offerings to maintain the stock prices, the degree of overvaluation is now not well represented by prior negative abnormal returns.

3.4. Earnings management and subsequent stock performance

3.4.1. Abnormal returns around subsequent earnings announcements

Prior studies document that the issuing firms underperform the market in the years

[10] This is further evidenced by the fact that these firms have a median abnormal return of -21% in year 1 following the offerings.

following seasoned equity offerings (Loughran and Ritter, 1995; Spiess and Affleck-Graves 1995). If earnings management causes the initial overvaluation of the issuing firms and subsequent corrections, not only should we observe market reaction to earnings management initially, but we should also expect investors to be disappointed later at earnings announcements when accruals reverse and earnings fall below expectations. Thus, the underperformance should be more pronounced around subsequent earnings announcements. Shivakumar (2000) and Brous (2001) test this hypothesis and find that market reactions to earnings announcements following the offerings are indistinguishable from zero.

Our results in Table 2 are consistent. In quarters 3 to 6, the market reactions to earnings announcements are negative on average in three of the four quarters but are all insignificant (-0.26%, 0.09%, -0.08%, and -0.22%). Given that the abnormal returns for the entire quarter are negative on average (-4.45%, -3.35%, -2.82%, and -1.77%), one would expect that any three-day period in the quarter would pick up about one twentieth of the quarter-long abnormal returns. Other than quarter 4, the three-day abnormal returns around the earnings announcements in quarters 3, 5 and 6 are indeed fairly close to such random three-day abnormal returns.[11] Thus, the underperformance does not appear to concentrate on earnings announcements.

The agency theory of overvalued equity provides an explanation for why the issuing firms manage earnings around the offerings and yet the subsequent stock underperformance is unrelated to earnings announcements. Under this theory, the underperformance is due to overvaluation, not earnings management *per se*. Earnings management is a response to overvaluation and did not trigger market reaction initially. The market is thus not to be

[11] The sum of the four announcement abnormal returns is -0.47%, which is smaller than one twentieth of the sum of the four quarter-long abnormal returns. Note, however, that even though a three-day return is not significant, 20 such negative returns can make the aggregate return highly significant.

surprised by its reversal at subsequent earnings announcements. Shivakumar (2000) provides an alternative explanation and argues that the market has already adjusted for prior earnings management at the offering announcement. However, his argument cannot explain why the issuing firms continue to manage earnings, at even a higher level, *after* the offering announcement. Furthermore, the market does not appear to either positively react or adjust downward such earnings management.

3.4.2. The negative relation between discretionary accruals and subsequent stock performance

If the issuing firms manage earnings to prolong their overvaluation, larger overvaluation would require using larger discretionary accruals. To the extent that variation in discretionary accruals reflects variation in overvaluation, a negative relation between discretionary accruals and subsequent stock performance is expected as overvaluation corrects over time.[12] Teoh et al. (1998) and Rangan (1998) document such a negative relation but use different windows of earnings management. Teoh et al. (1998) use discretionary accruals in the fiscal year prior to the offerings. Rangan (1998) use discretionary accruals in year 0 around the offerings announcement (quarters -1 to 2). Shivakumar (2000) attributes the results of Teoh et al. and Rangan to test misspecification and shows that the negative relation is insignificant when alternative research designs are used. His interpretation is that investors have already adjusted for earnings management when the offering announcement is made.

The window of earnings management that Shivakumar (2000) uses is the four quarters prior to the offering announcement (quarters -4 to -1). Overvaluation-induced earnings

[12] In our previous tests, we interpret prior abnormal returns as a proxy for the issuing firms' overvaluation. If one believes that earnings management is used to prolong the overvaluation, discretionary accruals are likely to summarize the overvaluation even beyond that contributed by prior abnormal returns. In untabulated results for the tests in this subsection, we also include abnormal returns of year t-1 as an additional control variable. Its coefficients are generally insignificant and do not affect qualitatively the coefficients on discretionary accruals.

management, however, occurs the most around, and especially after, the offering announcement, consistent with the agency theory of overvalued equity. Thus, to examine the negative relation between discretionary accruals and the subsequent stock performance, the appropriate window to measure earnings management is year 0, as in Rangan (1998). It is not clear, however, whether this window stands to test under Shivakumar's recommended research designs. Thus, we follow his research designs and use both his pre-offering window and the year 0 window. For the pre-offering window, we measure subsequent abnormal returns from two days after the offering announcement. For the year 0 window, we measure subsequent abnormal returns from two days after the last quarterly earnings announcement of the year.

First, we conduct the event-time regressions by regressing abnormal returns in the subsequent year on discretionary accruals of a window as well as firm size (SIZE) and the book-to-market ratio (BM). In Table 7 Panels A and B for the two windows, we first use (market-adjusted) abnormal returns as we define earlier. The coefficients on DTA and DCA are insignificant for the pre-offering window (similar to the finding of Shivakumar, 2000) and significantly negative for the year 0 window (similar to the finding of Rangan, 1998). Shivakumar argues that market-adjusted abnormal returns are problematic and advocates the use of abnormal returns from a control-firm approach following Barber and Lyon (1997). Thus, we also calculate abnormal returns as the returns of the issuing firms less the returns of control firms that are matched by size and book-to-market ratio at the end of each earnings management window. Using the control-firm adjusted abnormal returns, the coefficients on the two discretionary accrual measures remain negative for the year 0 window, significant at the 0.10 level, two-sided, for DTA and at the 0.10 level, one-sided, for DCA.[13] Thus, we find at

[13] The significance of the two coefficients would increase to the 0.05 and 0.10 levels, both two-sided, if we include other control variables used by Rangan (1998), namely, unexpected earnings in the subsequent year, growth in

least some weak evidence that the negative relation between discretionary accruals and subsequent abnormal returns holds for the appropriate window even with the alternative measure of abnormal returns.

Second, we follow the calendar-time portfolio approach and sort firms into discretionary accruals quintiles for each month from November 1989 to December 2006 for all issuing firms that are within 12 months following an earnings management window. The equal-weighted returns are then calculated for each quintile. We examine whether the returns differ systematically across quintiles after adjusting for risk factors by regressing the monthly quintile returns on the Fama and French (1993) factors (i.e., the excess market returns, SMB and HML). The results are reported in Table 8. When earnings management is measured in the pre-offering window (Panel A), the intercepts are generally insignificant for quintiles 1-4 but significantly negative for quintile 5 (with the highest discretionary accruals). The difference in the intercepts across the top and bottom quintiles is -0.019 for both DTA and DCA, significant at the 0.01 level. This suggests that a strategy of buying quintile 1 and shorting quintile 5 yields a monthly excess return of 1.9% after controlling for risk factors. The results for the year 0 window are similar (Panel B). The same strategy would yield a monthly excess return of 1.8% based on DTA and 1.5% based on DCA.[14] These results confirm that higher discretionary accruals are followed by lower subsequent abnormal returns.

Finally, we use the Fama and MacBeth (1973) panel procedure by running cross-

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sales and growth in capital expenditure.

[14] Shivakumar obtains similar results but criticizes the method for assuming constant loadings on the Fama-French factors over time and for being unduly influenced by small and low book-to-market firms. He proposes another method by regressing the return differential between the top and bottom quintiles on the corresponding *differences* in size and book-to-market ratios. This method is rather nonstandard and suffers the problem of lacking variation in the size difference and book-to-market difference variables, making them nearly the same as the intercept itself. To illustrate, we separately regress the return differential on an intercept and on the size difference without the intercept. Both the intercept and the size difference are significant. Yet, when both the intercept and the size difference are included in the regression, neither is significant, indicating a serious multicollinearity problem. Hence, we do not believe an insignificant intercept in this design is meaningful.

sectional regressions of monthly returns on discretionary accruals, firm size and book-to-market ratios for all issuing firms that are within 12 months following an earnings management window. The regressions are run separately for each month from November 1989 to December 2006. The mean coefficients from the monthly cross-section regressions are reported in Table 9. Teoh et al. (1998) obtain a significant t-statistic for the mean coefficient on discretionary accruals using the mean of the monthly t-statistics multiplied by the square root of the number of monthly regressions. Shivakumar (2000) argues that this measure is biased in favor of finding statistical significance, which would disappear if the t-statistic is calculated as the mean coefficient divided by its time-series standard error. We use the t-statistic suggested by Shivakumar in Table 9. For the pre-issue earnings management window (Panel A), the coefficient on DCA is insignificant and the coefficient on DTA is significant at the 0.10 level. However, for the year 0 window (Panel B), the coefficients on DTA and DCA are both negative, significant at the 0.05 and 0.10 levels.

Overall, our evidence supports the negative relation between earnings management and subsequent stock performance. However, one should be careful with the appropriate window to measure earnings management. Earnings are managed the most around the offerings, not prior to the offerings. The relation between pre-issue earnings management and subsequent stock performance are not robust to alternative research designs as Shivakumar (2000) documents. For the window around the offerings, the negative relation holds rather robustly.

4. Conclusions

We examine earnings management around seasoned equity offerings and its relation to concurrent, prior and subsequent stock returns. Prior studies typically attribute the negative relation between earnings management and the subsequent stock performance to the issuing firms' use of inflated earnings to boost stock prices (e.g., Teoh et al., 1998; Rangan, 1998). Earnings management is regarded as a causal factor for the issuing firms' stock price run-up. However, stock prices start to appreciate well before the offerings whereas earnings management occurs mostly after the offering announcement. By both the long-window association between abnormal returns and earnings and short-window market reaction to earnings announcements, we show that earnings management around the offerings is insignificantly related to concurrent abnormal returns. Thus, it is questionable that earnings inflation is used to boost stock prices.

The agency theory of overvalued equity suggests that when a firm's stock is overvalued, managers have incentives to prolong the overvaluation through various measures such as earnings management (Jensen, 2005). The issuing firms typically time their offerings when their stocks are overvalued to obtain favorable offering prices (Loughran and Ritter, 1995). Legal liability concerns and lock-up agreements with underwriters provide them additional incentives to delay price reversals even after the offerings (Rangan, 1998). We show that the issuing firms' earnings management around the offerings is significantly positively related to prior abnormal return. Thus, earnings management appears to be a *consequence* of the stock overvaluation prior to the offerings, supporting the agency theory of overvalued equity.

Our results explain why the issuing firms have subsequent stock underperformance and yet investors do not seem to suffer systematic losses at subsequent earnings announcements. Although earnings management corresponds to the issuing firms' overvaluation, the driving force for the underperformance is overvaluation and not earnings management *per se*. The market does not face negative surprises at subsequent earnings announcements. Rather, the underperformance is relatively evenly spread over time. Our results also indicate that, to examine the relation between earnings management and subsequent stock performance, the appropriate measurement window for earnings management is not prior to the offerings, but around the offerings when earnings are managed the most. For this window, a negative relation holds relatively robustly even with the research designs suggested by Shivakumar (2000) who discredits the negative relation by using the window prior to the offerings.

Overall, we provide a new explanation for the earnings management behavior around seasoned equity offerings. The alternative causal relation that our results suggest supports the agency theory of overvalued equity and should help us better understand firms' equity offering decisions and financial reporting decisions. It also provides an alternative way to think about the earnings management behavior around other corporate events such as mergers and acquisitions and open market repurchases.

References

Ali, A., Zarowin, P., 1992. The role of earnings levels in annual earnings-returns studies. Journal of Accounting Research 30, 286-296.

Ball, R.J., Brown, P., 1968. An empirical evaluation of accounting income numbers. Journal of Accounting Research 5, 159-178.

Barber, B.M., Lyon, J.D., 1997. Detecting long-run abnormal stock returns: the empirical power and specifications of test statistics. Journal of Financial Economics 43, 341-372.

Beaver, W.H., 1978. The information content of annual earnings announcements. Journal of Accounting Research 6 (Supplement), 67-92.

Brous, P., Datar, V., Kini, O., 2001. Is the market optimistic about the future earnings of seasoned equity offering firms? Journal of Financial and Quantitative Analysis 36, 141-168.

Dechow, P., 1994. Accounting earnings and cash flows as measures of firm performance: the role of accounting accruals. Journal of Accounting and Economics 16, 3-42.

Dechow, P., Sloan, R., Sweeney, A., 1995. Detecting earnings management. The Accounting Review 70, 193-226.

Dechow, P., Dichev, I., 2002. The quality of accruals and earnings: the role of accrual estimation errors. The Accounting Review 77 (supplement), 35-59.

DuCharme, L.L., Malatesta, P.H., Sefcik, S.E., 2004. Earnings management, stock issues and shareholder lawsuits. Journal of Financial Economics 71, 27-49.

Easton, P., Harris, T., 1991. Earnings as an explanatory variable for returns. Journal of Accounting Research 29, 19-36.

Fama, E., Fisher, L., Jensen, M., Roll, R., 1969. The adjustment of stock prices to new information. International Economics Review 10, 1-21.

Fama, E., French, K.R., 2007. Detecting anomalies. Working paper, University of Chicago.

Fama, E., French, K.R., 1993. Common risk factors in the returns on stocks and bonds. Journal of Financial Economics 49, 283-306.

Fama, E., MacBeth, J.. 1973. Risk, return, and equilibrium: Empirical tests. The Journal of Political Economy 81, 607-636.

Friedlan, J.M., 1994. Accounting choices of issues of initial public offerings. Contemporary Accounting Research 11, 1-32.

Gong, G., Louis, H., Sun, A., 2007. Earnings management and firm performance following open-market repurchases. Journal of Finance, forthcoming.

Guay,, W.R., Kothari, S.P., Watts, R.L., 1996. A market-based evaluation of discretionary accrual models. Journal of Accounting Research 34 (Supplement), 83-105.

Hribar, P., Collins, D.W., 2002. Errors in estimating accruals: implications for empirical research. Journal of Accounting Research 40, 105-134.

Jensen, M., 2005. Agency costs of overvalued equity. Financial Management 34, 5-19.

Jo, H., Kim, Y., 2007. Disclosure frequency and earnings management. Journal of Financial Economics 84, 561-590.

Jones, J., 1991. Earnings management during import relief investigations. Journal of Accounting Research 29, 193-228.

Kothari, S.P., Loutskina, E., Nikolaev, V., 2005. Agency theory of overvalued equity as an explanation for the accrual anomaly. Working paper, MIT.

Kothari, S.P., 2001. Capital markets research in accounting. Journal of Accounting and Economics 31, 105-231.

Lang, M., and R. J., Lundholm. 2000. Voluntary disclosure and equity offerings: Reducing information asymmetry or hyping the stock? Contemporary Accounting Research 17, 623-662.

Loughran, T., Ritter, J.R., 1995. The new issue puzzle. Journal of Finance 50, 23-51.

Louis, H., 2004. Earnings management and the market performance of acquiring firms. Journal of Financial Economics 74, 121-148.

Louis, H., White, H., 2007. Do managers intentionally use repurchase tender offers to signal private information? Evidence from firm financial reporting behavior. Journal of Financial Economics 85, 205-233.

Purnanandam, A.K. and Swaminathan, B., 2006. Do stock prices underreact to SEO announcements? evidence from SEO valuation. Working paper, University of Michigan.

Rangan, S., 1998. Earnings management and the performance of seasonsed equity offerings. Journal of Financial Economics 50, 101-122.

Shivakumar, L., 2000. Do firms mislead investors by overstating earnings before seasoned equity offerings. Journal of Accounting and Economics 29, 339-370.

Spiess, K., Affleck-Graves, J., 1995. Underperformance in long-run stock returns following seasoned equity offerings. Journal of Financial Economics 38, 243-267.

Teoh, S.H., Welch, I., Wong, T.J. 1998. Earnings management and the underperformance of seasoned equity offerings. Journal of Financial Economics 50, 63-99.

Sloan, R., 1996. Do stock prices fully impound information in accruals about future earnings? The Accounting Review 71, 289-315.

Subramanyam, K.R., 1996. The pricing of discretionary accruals. Journal of Accounting and Economics 22, 249-281.

Table 1
Sample characteristics of seasoned equity offerings
Entries report summary characteristics of 989 seasoned equity offerings over the period from 1989 to 2005. Total assets and market value of equity are measured at the end of the quarter immediately preceding the offer announcement. Proceeds size is the ratio of offer amount to total market capitalization. Offer size is the number of shares offered divided by the number of shares outstanding before the offering.

Panel A: Time distribution

Year	SEO frequency	% of total	Year	SEO frequency	% of total
1989	56	5.67	1998	34	3.44
1990	48	4.86	1999	56	5.67
1991	134	13.56	2000	57	5.77
1992	86	8.70	2001	30	3.04
1993	77	7.79	2002	39	3.95
1994	46	4.66	2003	46	4.66
1995	62	6.28	2004	30	3.04
1996	86	8.70	2005	22	2.23
1997	79	8.00			

Panel B: Industry distribution

Industry	SIC codes	SIC frequency	% of total
Oil and gas	13	57	5.77
Food products	20	15	1.52
Paper and paper products	24 - 27	38	3.85
Chemical products	28	89	9.01
Manufacturing	30-34	47	4.76
Computer equipment and services	35, 73	175	17.71
Electronic equipment	36	98	9.92
Transportation	37, 39, 40, 42, 44, 45	54	5.47
Scientific instruments	38	82	8.30
Communications	48	40	4.05
Durable goods	50	32	3.24
Non-durable goods	51	13	1.32
Retail	53, 54, 56, 57, 59	72	7.29
Eating and drinking establishments	58	15	1.52
Entertainment services	70, 78, 79	20	2.02
Health	80	31	3.14
All others		110	11.13

Panel C: Size Characteristics

	Total assets ($ Million)	Market value ($ Million)	Offer amount ($ Million)	Proceeds size (%)	Offer size (%)
Mean	816.41	593.93	80.04	42.26	25.33
Median	122.75	137.14	45.00	29.60	20.30
Std. Dev.	3,231.63	2,301.10	143.35	65.82	32.51

Table 2
Median accounting and stock performance measures
Panel A reports the median quarterly discretionary total accruals (*DTA*), discretionary current accruals (*DCA*) and return on assets (*ROA*). Panel B reports the median quarterly returns (*AR*), abnormal earnings-announcement returns (*EAR*) and absolute values of abnormal earnings announcement returns ($|EAR|$). Panels C and D report the corresponding annual measures. Discretionary accruals of a sample firm are the difference between total accruals and normal accruals (scaled by the assets at the beginning of the period), estimated from the cross-sectional modified Jones' (1991) model using all firms in the same two-digit SIC as the sample firm. The quarter of the first earnings announcement after the offering announcement is defined as $Q(0)$. All other quarters are indexed accordingly. Year 0, or $Y(0)$, covers quarters $Q(-1)$ to $Q(+2)$. All other years are indexed accordingly. Observations numbers vary across quarters and years due to the availability of data for calculating the required variables. The sample spans 1989 to 2005.

Panel A: Quarterly accounting measures of sample firms

	DTA			*DCA*			*ROA*		
Periods	N	Median (%)	Wilcoxon *p*-value	N	Median (%)	Wilcoxon *p*-value	N	Median (%)	Wilcoxon *p*-value
$Q(-5)$	898	0.02	0.94	893	0.37	0.01	956	0.94	0.00
$Q(-4)$	924	0.19	0.48	920	0.60	0.00	966	1.09	0.00
$Q(-3)$	942	0.15	0.23	931	0.35	0.00	972	1.14	0.00
$Q(-2)$	965	0.10	0.26	953	0.33	0.00	982	1.35	0.00
$Q(-1)$	979	0.45	0.00	966	0.66	0.00	989	1.52	0.00
$Q(0)$	979	0.43	0.00	964	0.77	0.00	989	1.57	0.00
$Q(+1)$	979	0.63	0.00	960	0.80	0.00	989	1.56	0.00
$Q(+2)$	980	0.61	0.00	962	0.69	0.00	989	1.45	0.00
$Q(+3)$	970	0.39	0.00	953	0.67	0.00	980	1.35	0.00
$Q(+4)$	952	-0.03	0.52	939	0.29	0.00	966	1.24	0.00
$Q(+5)$	936	-0.04	0.69	923	0.28	0.02	950	1.11	0.00
$Q(+6)$	909	0.14	0.58	898	0.22	0.01	926	1.03	0.00

Panel B: Quarterly stock performances of sample firms

	AR			*EAR*			$|EAR|$		
Periods	N	Median (%)	Wilcoxon *p*-value	N	Median (%)	Wilcoxon *p*-value	N	Median (%)	Wilcoxon *p*-value
$Q(-5)$	986	3.04	0.00	986	0.60	0.00	986	4.16	0.00
$Q(-4)$	975	2.95	0.00	975	0.39	0.00	975	4.21	0.00
$Q(-3)$	967	4.93	0.00	967	0.83	0.00	967	4.23	0.00
$Q(-2)$	974	9.54	0.00	974	1.39	0.00	974	4.20	0.00
$Q(-1)$	989	16.39	0.00	989	1.24	0.00	989	4.08	0.00
$Q(0)$	989	4.28	0.00	989	0.78	0.00	989	3.90	0.00
$Q(+1)$	978	-1.94	0.60	978	0.14	0.28	978	4.26	0.00
$Q(+2)$	960	-2.84	0.01	962	-0.32	0.05	962	4.38	0.00
$Q(+3)$	939	-4.45	0.00	950	-0.26	0.15	950	4.14	0.00
$Q(+4)$	930	-3.35	0.00	941	0.09	0.87	941	4.60	0.00
$Q(+5)$	916	-2.82	0.00	920	-0.08	0.17	920	4.47	0.00
$Q(+6)$	899	-1.77	0.18	903	-0.22	0.74	903	4.38	0.00

Table 2 (Continued)

Panel C: Annual accounting measures									
	DTA			*DCA*			*ROA*		
Periods	N	Median (%)	Wilcoxon *p*-value	N	Median (%)	Wilcoxon *p*-value	N	Median (%)	Wilcoxon *p*-value
Sample firms									
$Y(-1)$	887	-0.15	0.59	882	0.93	0.00	945	4.79	0.00
$Y(0)$	975	2.38	0.00	959	3.17	0.00	981	6.99	0.00
$Y(+1)$	899	0.14	0.17	885	1.19	0.00	921	4.86	0.00
Control firms: matched by industry and size in $Q(-1)$									
$Y(-1)$	843	1.30	0.06	836	1.53	0.00	937	5.64	0.00
$Y(0)$	974	-0.45	0.64	964	0.47	0.00	981	4.43	0.00
$Y(+1)$	866	0.15	0.56	855	0.69	0.03	901	4.27	0.00
Control firms: matched by industry and abnormal returns in $Y(-1)$									
$Y(-1)$	856	0.39	0.06	849	0.88	0.00	948	5.39	0.00
$Y(0)$	973	0.89	0.64	962	1.83	0.00	981	5.44	0.00
$Y(+1)$	834	0.24	0.56	822	0.67	0.03	879	4.82	0.00

Panel D: Annual stock performances									
	AR			*EAR*			$\lvert EAR \rvert$		
Periods	N	Median (%)	Wilcoxon *p*-value	N	Median (%)	Wilcoxon *p*-value	N	Median (%)	Wilcoxon *p*-value
Sample firms									
$Y(-1)$	989	26.12	0.00	963	4.82	0.00	963	10.81	0.00
$Y(0)$	966	20.26	0.00	962	1.54	0.00	962	10.06	0.00
$Y(+1)$	892	-16.60	0.00	866	-1.20	0.07	866	11.02	0.00
Control firms: matched by industry and size in $Q(-1)$									
$Y(-1)$	988	-0.88	0.00	944	0.51	0.42	944	9.00	0.00
$Y(0)$	949	-6.26	0.02	917	-0.25	0.10	917	9.98	0.00
$Y(+1)$	852	-12.13	0.00	820	-0.62	0.52	820	9.58	0.00
Control firms: matched by industry and abnormal returns in $Y(-1)$									
$Y(-1)$	989	24.93	0.00	942	4.33	0.42	942	9.62	0.00
$Y(0)$	958	-7.80	0.02	923	-0.15	0.10	923	9.78	0.00
$Y(+1)$	846	-10.73	0.00	819	0.42	0.52	819	9.38	0.00

Table 3
The annual return-earnings relation
Entries report the results estimated from the model:

$$AR_t = \alpha_0 + \alpha_1 NI\_UM_t + \alpha_2 DA_t + \alpha_3 NI\_UM_{t-1} + \alpha_4 DA_{t-1} + \alpha_5 AR_{t-1} + \varepsilon_t,$$

where AR is annual market-adjusted stock returns, NI_UM is pre-managed earnings, and DA denotes discretionary total accruals (DTA) in Panel A and discretionary current accruals (DCA) in Panel B. Time indices t and $t-1$ denote years 0 and -1, respectively. T-statistics are reported in parentheses.

Intercept	NI_UM_t	DA_t	NI_UM_{t-1}	DA_{t-1}	AR_{t-1}	N	R^2
Panel A: DTA_t to proxy for earnings management							
0.479	0.270					953	0.47%
(12.43)	(2.13)						
0.485		-0.334				953	0.38%
(12.49)		(-1.92)					
0.483			0.099			866	0.06%
(11.74)			(0.69)				
0.481				-0.661		866	1.16%
(11.77)				(-3.19)			
0.487	0.240	-0.287				953	0.75%
(12.55)	(1.88)	(-1.64)					
0.481			0.019	-0.656		866	1.16%
(11.74)			(0.13)	(-3.11)			
0.486	0.554	-0.081	-0.369	-0.759		866	2.45%
(11.82)	(3.19)	(-0.42)	(-1.93)	(-3.40)			
0.495	0.560	-0.074	-0.372	-0.762	-0.015	866	2.48%
(10.89)	(3.21)	(-0.38)	(-1.95)	(-3.41)	(-0.46)		
Control firms: matched by industry and size in $Q(-1)$							
0.028	1.370	1.266	-1.069	-0.883	-0.070	814	7.04%
(1.41)	(7.03)	(5.76)	(-5.66)	(-4.33)	(-2.80)		
Control firms: matched by industry and abnormal returns in $Y(-1)$							
0.0547	1.294	1.095	-0.961	-0.867	-0.022	834	8.77%
(2.25)	(7.88)	(5.93)	(-5.72)	(-4.47)	(-0.93)		
Control firms: sample firms in $Y(-1)$							
0.387	1.449	1.232	-1.571	-1.874	-0.103	596	8.25%
(11.63)	(5.93)	(4.25)	(-5.35)	(-5.99)	(-2.06)		

Table 3 (Continued)

Intercept	NI_UM_t	DA_t	NI_UM_{t-1}	DA_{t-1}	AR_{t-1}	N	R^2
Panel B: DCA_t to proxy for earnings management							
0.472	0.128					939	0.13%
(12.85)	(1.10)						
0.478		-0.197				939	0.15%
(12.72)		(-1.18)					
0.474			0.049			863	0.02%
(12.26)			(0.38)				
0.481				-0.468		863	0.67%
(12.52)				(-2.41)			
0.481	0.108	-0.172				939	0.24%
(12.75)	(0.92)	(-1.01)					
0.481			-0.016	-0.473		863	0.67%
(12.43)			(-0.12)	(-2.38)			
0.485	0.311	0.015	-0.231	-0.544		859	1.16%
(12.22)	(2.01)	(0.08)	(-1.34)	(-2.53)			
0.489	0.314	0.019	-0.232	-0.545	-0.007	859	1.17%
(11.22)	(2.02)	(0.10)	(-1.35)	(-2.54)	(-0.24)		
Control firms: matched by industry and size in $Q(-1)$							
0.030	1.294	1.158	-0.921	-0.949	-0.067	803	6.49%
(1.46)	(6.72)	(4.90)	(-5.14)	(-4.33)	(-2.61)		
Control firms: matched by industry and abnormal returns in $Y(-1)$							
0.055	1.332	1.128	-1.036	-0.862	-0.020	825	9.45%
(2.23)	(8.34)	(6.13)	(-6.10)	(-4.18)	(-0.85)		
Control firms: sample firms in $Y(-1)$							
0.392	1.124	1.230	-1.242	-1.706	-0.095	591	6.97%
(11.34)	(4.84)	(4.31)	(-4.65)	(-5.50)	(-1.87)		

Table 4
The earnings-announcement return-earnings relation
Entries report the results estimated from the model:

$$EAR_t = \alpha_0 + \alpha_1 NI\_UM_t + \alpha_2 DA_t + \alpha_3 NI\_UM_{t-1} + \alpha_4 DA_{t-1} + \alpha_5 EAR_{t-1} + \varepsilon_t,$$

where EAR is the sum of the four quarterly market-adjusted stock returns around earnings announcements in year 0, NI_UM is pre-managed earnings, and DA denotes discretionary total accruals (DTA) in Panel A and discretionary current accruals (DCA) in Panel B. Time indices t and $t-1$ denote years 0 and -1, respectively. T-statistics are reported in parentheses.

Intercept	NI_UM_t	DA_t	NI_UM_{t-1}	DA_{t-1}	EAR_{t-1}	N	R^2
Panel A: DTA_t to proxy for earnings management							
0.031	0.128					949	3.12%
(5.03)	(5.52)						
0.030		-0.008				949	0.01%
(4.72)		(-0.22)					
0.033			0.058			862	0.55%
(4.95)			(2.19)				
0.032				-0.007		862	0.00%
(4.83)				(-0.17)			
0.029	0.137	0.050				949	3.29%
(4.68)	(5.67)	(1.29)					
0.033			0.060	0.014		862	0.57%
(4.95)			(2.20)	(0.32)			
0.029	0.222	0.082	-0.118	-0.079		862	4.33%
(4.40)	(5.80)	(1.81)	(-2.90)	(-1.64)			
0.027	0.210	0.079	-0.117	-0.081	0.043	843	4.25%
(3.82)	(5.40)	(1.74)	(-2.82)	(-1.66)	(1.36)		
Control firms: matched by industry and size in $Q(-1)$							
-0.003	0.365	0.315	-0.168	-0.295	0.022	766	6.61%
(-0.53)	(6.01)	(4.39)	(-2.85)	(-4.55)	(0.64)		
Control firms: matched by industry and abnormal returns in $Y(-1)$							
0.009	0.202	0.094	-0.104	-0.196	-0.055	770	3.43%
(1.21)	(3.79)	(1.58)	(-1.91)	(-3.19)	(-1.91)		
Control firms: sample firms in $Y(-1)$							
0.055	0.161	0.067	-0.006	-0.022	0.130	574	4.07%
(5.78)	(3.17)	(1.08)	(-0.09)	(-0.32)	(2.74)		

Table 4 (Continued)

Intercept	NI_UM_t	DA_t	NI_UM_{t-1}	DA_{t-1}	EAR_{t-1}	N	R^2
			Panel B: DCA_t to proxy for earnings management				
0.033	0.110					935	2.57%
(5.33)	(4.96)						
0.029		-0.003				935	0.00%
(4.50)		(-0.08)					
0.034			0.061			859	0.64%
(5.08)			(2.35)				
0.032				-0.026		859	0.04%
(4.85)				(-0.62)			
0.030	0.120	0.052				935	2.78%
(4.71)	(5.16)	(1.40)					
0.034			0.060	0.000		859	0.64%
(5.06)			(2.27)	(0.00)			
0.031	0.173	0.069	-0.077	-0.076		855	3.47%
(4.57)	(4.99)	(1.63)	(-2.02)	(-1.61)			
0.028	0.161	0.068	-0.078	-0.084	0.062	836	3.68%
(3.80)	(4.60)	(1.58)	(-2.01)	(-1.74)	(1.96)		
			Control firms: matched by industry and size in $Q(-1)$				
0.000	0.371	0.313	-0.176	-0.300	0.016	757	6.63%
(-0.07)	(6.29)	(4.18)	(-3.24)	(-4.37)	(0.46)		
			Control firms: matched by industry and abnormal returns in $Y(-1)$				
0.013	0.218	0.083	-0.135	-0.225	-0.054	762	3.76%
(1.79)	(4.26)	(1.40)	(-2.51)	(-3.45)	(-1.86)		
			Control firms: sample firms in $Y(-1)$				
0.057	0.153	0.097	-0.003	-0.035	0.129	570	4.07%
(5.81)	(2.99)	(1.56)	(-0.06)	(-0.48)	(2.74)		

Table 5

The earnings-return relation

Entries in Panel A and B report the results estimated from the model: $DA_t = \beta_0 + \beta_1 NI\_UM_t + \beta_1 NI\_UM_{t-1} + \beta_3 DA_{t-1} + \beta_4 AR_t + \beta_5 AR_{t-1} + \varepsilon_t$. Entries in Panel C and D report the results estimated from the model: $NI\_UM_t = \gamma_0 + \gamma_1 NI\_UM_{t-1} + \gamma_2 DA_t + \gamma_3 DA_{t-1} + \gamma_4 AR_t + \gamma_5 AR_{t-1} + \varepsilon_t$. AR is annual market-adjusted stock returns, NI_UM is pre-managed earnings, and DA denotes discretionary total accruals (DTA) in Panel A and C and discretionary current accruals (DCA) in Panel B and D. Time indices t and $t-1$ denote years 0 and -1, respectively. T-statistics are reported in parentheses.

Intercept	NI_UM_t	NI_UM_{t-1}	DA_{t-1}	AR_t	AR_{t-1}	N	R^2
Panel A: DTA_t used as dependent variable							
0.029	-0.108					975	2.20%
(4.20)	(-4.68)						
0.027		0.003				886	0.00%
(3.60)		(0.10)					
0.027			0.290			886	6.46%
(3.76)			(7.82)				
0.037				-0.012		953	0.38%
(4.76)				(-1.92)			
0.024					0.012	975	0.46%
(3.07)					(2.12)		
0.027	-0.190	0.175	0.344			886	10.80%
(3.81)	(-6.36)	(5.28)	(9.17)				
0.029	-0.185	0.173	0.337	-0.003		866	10.63%
(3.71)	(-6.12)	(5.19)	(8.85)	(-0.42)			
0.019	-0.195	0.176	0.344		0.013	886	11.35%
(2.44)	(-6.50)	(5.34)	(9.21)		(2.32)		
0.020	-0.190	0.175	0.338	-0.002	0.014	866	11.22%
(2.40)	(-6.27)	(5.26)	(8.89)	(-0.38)	(2.39)		
Control firms: matched by industry and size in $Q(-1)$							
-0.007	-0.502	0.412	0.369	0.031	0.009	814	34.40%
(-2.12)	(-19.27)	(15.54)	(12.46)	(5.76)	(2.22)		
Control firms: matched by industry and abnormal returns in $Y(-1)$							
0.007	-0.334	0.336	0.356	0.037	0.000	834	19.61%
(1.62)	(-11.47)	(11.47)	(10.47)	(5.93)	(0.03)		
Control firms: sample firms in $Y(-1)$							
-0.011	-0.432	0.463	0.476	0.024	0.017	596	31.63%
(-2.16)	(-14.24)	(12.36)	(11.73)	(4.25)	(2.49)		

Table 5 (Continued)

Intercept	NI_UM_{t-1}	DA_t	DA_{t-1}	AR_t	AR_{t-1}	N	R^2
Panel B: DCA_t used as dependent variable							
0.050	-0.115					959	2.77%
(7.14)	(-5.22)						
0.052		-0.011				878	0.02%
(6.92)		(-0.44)					
0.046			0.347			878	9.58%
(6.46)			(9.63)				
0.058				-0.007		939	0.15%
(7.49)				(-1.18)			
0.046					0.014	959	0.58%
(6.00)					(2.36)		
0.043	-0.194	0.172	0.399			878	14.87%
(6.17)	(-7.20)	(5.66)	(11.03)				
0.043	-0.191	0.171	0.399	0.000		859	14.85%
(5.58)	(-6.99)	(5.56)	(10.91)	(0.08)			
0.035	-0.198	0.174	0.398		0.013	878	15.45%
(4.53)	(-7.35)	(5.73)	(11.04)		(2.45)		
0.034	-0.195	0.172	0.398	0.001	0.014	859	15.48%
(4.09)	(-7.14)	(5.63)	(10.92)	(0.10)	(2.53)		
Control firms: matched by industry and size in $Q(-1)$							
0.004	-0.449	0.343	0.265	0.025	0.008	803	30.64%
(1.47)	(-18.33)	(14.29)	(8.46)	(4.90)	(2.09)		
Control firms: matched by industry and abnormal returns in $Y(-1)$							
0.013	-0.350	0.349	0.299	0.039	0.005	825	19.43%
(2.88)	(-12.36)	(11.71)	(8.04)	(6.13)	(1.03)		
Control firms: sample firms in $Y(-1)$							
-0.001	-0.379	0.373	0.419	0.025	0.020	591	27.73%
(-0.20)	(-12.67)	(10.50)	(9.98)	(4.31)	(2.76)		

Table 5 (Continued)

Intercept	NI_UM_{t-1}	DA_t	DA_{t-1}	AR_t	AR_{t-1}	N	R^2
Panel C: $NI\_UM_t = NI_t - DTA_t$ used as dependent variable							
-0.006	0.681					886	39.08%
(-0.69)	(23.81)						
-0.010		-0.203				975	2.20%
(-0.98)		(-4.68)					
-0.018			0.043			886	0.07%
(-1.70)			(0.81)				
-0.023				0.018		953	0.47%
(-2.13)				(2.13)			
-0.025					0.016	975	0.41%
(-2.35)					(2.01)		
0.002	0.719	-0.230	0.298			886	43.68%
(0.20)	(25.64)	(-6.36)	(7.08)				
-0.008	0.716	-0.225	0.309	0.021		866	44.10%
(-0.93)	(25.36)	(-6.12)	(7.28)	(3.19)			
-0.007	0.717	-0.235	0.299		0.014	886	44.00%
(-0.77)	(25.64)	(-6.50)	(7.12)		(2.25)		
-0.017	0.715	-0.230	0.311	0.021	0.014	866	44.43%
(-1.76)	(25.36)	(-6.27)	(7.33)	(3.21)	(2.26)		
Control firms: matched by industry and size in $Q(-1)$							
-0.005	0.751	-0.627	0.511	0.042	0.006	814	66.40%
(-1.37)	(35.76)	(-19.27)	(16.30)	(7.03)	(1.40)		
Control firms: matched by industry and abnormal returns in $Y(-1)$							
-0.003	0.783	-0.410	0.461	0.054	-0.012	834	62.65%
(-0.60)	(35.59)	(-11.47)	(12.57)	(7.88)	(-2.60)		
Control firms: sample firms in $Y(-1)$							
-0.014	0.865	-0.592	0.575	0.039	0.023	596	57.21%
(-2.29)	(25.48)	(-14.24)	(12.21)	(5.93)	(2.85)		

Table 5 (Continued)

Intercept	NI_UM_{t-1}	DA_t	DA_{t-1}	AR_t	AR_{t-1}	N	R^2
Panel D: $NI\_UM_t = NI_t - DCA_t$ as dependent variable							
-0.019	0.662					878	36.03%
(-2.11)	(22.21)						
-0.026		-0.241				959	2.77%
(-2.57)		(-5.22)					
-0.043			0.000			878	0.00%
(-3.94)			(0.00)				
-0.042				0.010		939	0.13%
(-3.82)				(1.10)			
-0.048					0.015	959	0.33%
(-4.29)					(1.77)		
-0.008	0.702	-0.288	0.314			878	41.09%
(-0.90)	(23.96)	(-7.20)	(6.84)				
-0.014	0.700	-0.283	0.316	0.015		859	41.29%
(-1.47)	(23.74)	(-6.99)	(6.84)	(2.01)			
-0.017	0.701	-0.294	0.314		0.015	878	41.44%
(-1.76)	(23.98)	(-7.35)	(6.86)		(2.29)		
-0.023	0.700	-0.289	0.317	0.015	0.015	859	41.63%
(-2.22)	(23.77)	(-7.14)	(6.86)	(2.02)	(2.24)		
Control firms: matched by industry and size in $Q(-1)$							
-0.005	0.716	-0.661	0.530	0.041	0.005	803	65.88%
(-1.45)	(34.91)	(-18.33)	(15.17)	(6.72)	(1.18)		
Control firms: matched by industry and abnormal returns in $Y(-1)$							
-0.008	0.814	-0.449	0.462	0.059	-0.012	825	63.65%
(-1.55)	(35.69)	(-12.36)	(11.37)	(8.34)	(-2.39)		
Control firms: sample firms in $Y(-1)$							
-0.014	0.814	-0.569	0.526	0.034	0.026	591	54.72%
(-2.05)	(24.30)	(-12.67)	(10.28)	(4.84)	(2.91)		

Table 6
The relations between earnings and returns - subsample results
The results are obtained from estimating equation (1), (2), and (3) using subsamples with positive abnormal stock returns and negative abnormal stock returns in year -1 in Panels A and B, respectively. *AR* is annual market-adjusted stock returns, *NI_UM* is pre-managed earnings, *DTA* denotes discretionary total accruals, and *DCA* denotes discretionary current accruals. Time indices t and $t-1$ denote years 0 and -1, respectively. T-statistics are reported in parentheses.

Panel A: Subsample with positive abnormal returns in year -1

Results from equation (1) with AR_t as the dependent variable

Intercept	NI_UM_t	DTA_t	NI_UM_{t-1}	DTA_{t-1}	AR_{t-1}	N	R^2
0.355	0.782	-0.205	-0.485	-0.313	0.060	610	3.58%
(6.82)	(3.31)	(-0.70)	(-1.96)	(-0.96)	(1.63)		

Results from equation (2) with DTA_t as the dependent variable

Intercept	NI_UM_t	NI_UM_{t-1}	DTA_{t-1}	AR_t	AR_{t-1}	N	R^2
0.020	-0.393	0.345	0.519	-0.004	0.019	610	35.76%
(2.68)	(-13.65)	(11.05)	(13.09)	(-0.70)	(3.69)		

Results from equation (3) with NI_UM_t as the dependent variable

Intercept	NI_UM_{t-1}	DTA_t	DTA_{t-1}	AR_t	AR_{t-1}	N	R^2
0.008	0.766	-0.599	0.447	0.023	0.011	610	59.65%
(0.85)	(26.83)	(-13.65)	(8.53)	(3.31)	(1.72)		

Results from equation (1) with AR_t as the dependent variable

Intercept	NI_UM_t	DCA_t	NI_UM_{t-1}	DCA_{t-1}	AR_{t-1}	N	R^2
0.368	1.077	0.188	-0.787	-0.079	0.077	608	5.69%
(6.37)	(5.13)	(0.68)	(-3.47)	(-0.24)	(2.03)		

Results from equation (2) with DCA_t as the dependent variable

Intercept	NI_UM_t	NI_UM_{t-1}	DCA_{t-1}	AR_t	AR_{t-1}	N	R^2
0.032	-0.353	0.294	0.507	-0.008	0.019	602	32.31%
(3.84)	(-12.35)	(8.99)	(11.73)	(-1.34)	(3.27)		

Results from equation (3) with NI_UM_t as the dependent variable

Intercept	NI_UM_{t-1}	DCA_t	DCA_{t-1}	AR_t	AR_{t-1}	N	R^2
0.006	0.747	-0.578	0.402	0.013	0.011	602	53.63%
(0.55)	(23.05)	(-12.35)	(6.80)	(1.62)	(1.51)		

Table 6 (Continued)

Panel B: Subsample with negative abnormal returns in year -1

Results from equation (1) with AR_t as the dependent variable

Intercept	NI_UM_t	DTA_t	NI_UM_{t-1}	DTA_{t-1}	AR_{t-1}	N	R^2
0.377	1.031	0.532	-0.898	-1.789	-0.709	256	8.08%
(3.16)	(2.49)	(1.19)	(-1.98)	(-4.02)	(-1.87)		

Results from equation (2) with DTA_t as the dependent variable

Intercept	NI_UM_t	NI_UM_{t-1}	DTA_{t-1}	AR_t	AR_{t-1}	N	R^2
0.032	-0.250	0.234	0.230	0.011	0.068	256	9.55%
(1.89)	(-4.37)	(3.72)	(3.63)	(1.19)	(1.27)		

Results from equation (3) with NI_UM_t as the dependent variable

Intercept	NI_UM_{t-1}	DTA_t	DTA_{t-1}	AR_t	AR_{t-1}	N	R^2
-0.010	0.858	-0.284	0.404	0.023	0.048	256	64.38%
(-0.57)	(20.28)	(-4.37)	(6.26)	(2.49)	(0.83)		

Results from equation (1) with AR_t as the dependent variable

Intercept	NI_UM_t	DCA_t	NI_UM_{t-1}	DCA_{t-1}	AR_{t-1}	N	R^2
0.324	0.887	0.531	-0.797	-1.640	-1.018	257	8.09%
(2.69)	(2.22)	(1.18)	(-1.82)	(-3.54)	(-2.69)		

Results from equation (2) with DCA_t as the dependent variable

Intercept	NI_UM_t	NI_UM_{t-1}	DCA_{t-1}	AR_t	AR_{t-1}	N	R^2
0.045	-0.239	0.210	0.230	0.010	0.063	257	9.02%
(2.68)	(-4.38)	(3.49)	(3.54)	(1.18)	(1.18)		

Results from equation (3) with NI_UM_t as the dependent variable

Intercept	NI_UM_{t-1}	DCA_t	DCA_{t-1}	AR_t	AR_{t-1}	N	R^2
-0.015	0.853	-0.297	0.470	0.022	0.059	257	63.85%
(-0.80)	(20.00)	(-4.38)	(6.93)	(2.22)	(0.98)		

Table 7
Post-issue stock performance and earnings management
Entries report results estimated from the model:

$$AR_{t+1} = \beta_0 + \beta_1 DA_t + \beta_2 LNME_t + \beta_3 LNBM_t + \varepsilon_{t+1},$$

where *AR* is annual market-adjusted stock returns in Panel A and control-firm adjusted returns in Panel B. *DTA* is discretionary total accruals, *DCA* is discretionary current accruals, *LNME* is the natural logarithm of market capitalization, and *LNBM* is the natural logarithm of book-to-market equity ratio. Earnings management window is defined as quarters -4 to -1 (the "pre-offering" window) in Panel A and as quarters -1 to $+2$ (the "year 0" window) in Panel B. *T*-statistics are reported in parentheses.

Intercept	DTA_{t-1}	DCA_{t-1}	$LNME_{t-1}$	$LNBM_{t-1}$	N	R^2
Panel A: The "pre-offering" window						
Market-adjusted abnormal returns						
-0.208	0.018		0.036	0.053	801	1.05%
(-2.66)	(0.14)		(2.42)	(2.01)		
-0.211		0.078	0.036	0.055	797	1.09%
(-2.70)		(0.62)	(2.42)	(2.08)		
Control-firm adjusted abnormal returns						
-0.256	-0.004		0.018	-0.061	705	0.46%
(-2.08)	(-0.02)		(0.77)	(-1.45)		
-0.280		0.069	0.021	-0.061	706	0.54%
(-2.28)		(0.35)	(0.91)	(-1.48)		
Panel B: The "year 0" window						
Market-adjusted abnormal returns						
-0.195	-0.327		0.035	0.069	863	1.72%
(-2.19)	(-2.69)		(2.15)	(2.08)		
-0.191		-0.302	0.032	0.052	852	1.58%
(-2.14)		(-2.62)	(1.96)	(1.59)		
Control-firm adjusted abnormal returns						
-0.020	-0.322		0.008	0.072	770	0.73%
(-0.15)	(-1.86)		(0.34)	(1.56)		
-0.005		-0.218	0.002	0.060	757	0.47%
(-0.04)		(-1.43)	(0.11)	(1.29)		

Table 8
Calendar-month returns for portfolios formed based on abnormal accruals
For each month from November 1989 to December 2006, all sample firms that are within 12 months following the earnings management window are sorted into quintile groups based on their abnormal accruals. Earnings management window is defined as quarters -4 to -1 (the "pre-offering" window) in Panel A and as quarters -1 to $+2$ (the "year 0" window) in Panel B. The equal-weighted portfolio returns are computed for each month. The table presents the time-series averages of total returns (RET) on each portfolio and the intercepts obtained from the time-series regression of returns net of risk-free rate on the Fama-French three factors: MKT_RF, SMB, and HML. The Fama-French three factors are downloaded from Kenneth French's online data library. T-statistics are reported in parentheses.

	Low	2	3	4	High	High - Low
Panel A: The "pre-offering" window						
	DTA to proxy for earnings management					
RET	0.011	0.009	0.006	0.008	-0.004	-0.015
t	(2.86)	(2.39)	(1.66)	(2.27)	(-0.93)	(-2.75)
Intercept from	-0.001	-0.006	-0.005	-0.008	-0.020	-0.019
Fama-French model	(-0.28)	(-1.53)	(-1.27)	(-1.83)	(-3.91)	(-2.94)
	DCA to proxy for earnings management					
RET	0.012	0.008	0.004	0.010	-0.003	-0.015
t	(2.99)	(2.28)	(1.04)	(2.74)	(-0.78)	(-2.85)
Intercept from	-0.002	-0.005	-0.008	-0.005	-0.021	-0.019
Fama-French model	(-0.46)	(-1.22)	(-2.11)	(-1.13)	(-4.07)	(-2.83)
Panel B: The "year 0" window						
	DTA to proxy for earnings management					
RET	0.011	0.011	0.007	0.009	-0.001	-0.012
t	(2.69)	(2.96)	(2.04)	(2.58)	(-0.36)	(2.70)
Intercept from	0.007	-0.001	-0.005	-0.003	-0.012	-0.018
Fama-French model	(1.49)	(-0.29)	(-1.52)	(-0.78)	(-2.59)	(-3.17)
	DCA to proxy for earnings management					
RET	0.010	0.009	0.013	0.005	0.000	-0.010
t	(2.37)	(2.57)	(3.83)	(1.41)	(0.08)	(-2.39)
Intercept from	0.004	-0.002	0.002	-0.006	-0.011	-0.015
Fama-French model	(0.83)	(-0.39)	(0.42)	(-1.50)	(-2.51)	(2.64)

Table 9

Time-series averages of monthly Fama-MacBeth regressions

For each month from November 1989 to December 2006, the following cross-sectional regression is run for all firms that are within 12 months following the earnings management window:

$$R\_RF_i = \beta_0 + \beta_1 DA_i + \beta_2 LNME_i + \beta_3 LNBM_i + \varepsilon_i,$$

where R_RF_i is raw monthly stock returns net of risk-free rate for firm i, DTA_i is discretional total accruals, DCA_i is discretionary current accruals, $LNME_i$ is the natural logarithm of equity capitalization, and $LNBM_i$ is the natural logarithm of book-to-market ratio. Earnings management window is defined as quarters -4 to -1 (the "pre-offering" window) in Panel A and as quarters -1 to $+2$ (the "year 0" window) in Panel B. The time-series averages of the coefficient estimates and the t-statistics (in parentheses) are reported.

Intercept	*DTA*	*DCA*	*LNME*	*LNBM*
Panel A: The "pre-offering" window				
0.011	-0.028		0.000	0.002
(0.87)	(-1.78)		(0.18)	(0.56)
0.009		-0.020	0.000	0.001
(0.75)		(-1.28)	(0.22)	(0.22)
Panel B: The "year 0" window				
0.007	-0.036		0.000	-0.002
(0.47)	(-2.35)		(-0.16)	(-0.39)
0.007		-0.028	0.000	-0.003
(0.39)		(-1.74)	(-0.17)	(-0.51)