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# Earnings management and the underperformance of seasoned equity offerings[1]

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**Abstract**

Seasoned equity issuers can raise reported earnings by altering discretionary accounting accruals. We find that issuers who adjust discretionary current accruals to report higher net income prior to the offering have lower post-issue long-run abnormal stock returns and net income. Interestingly, the relation between discretionary current accruals and future returns (adjusted for firm size and book-to-market ratio) is stronger and more persistent for seasoned equity issuers than for non-issuers. The evidence is consistent with investors naively extrapolating pre-issue earnings without fully adjusting for the potential manipulation of reported earnings. 

*JEL classification:* G14; G24; G32; M41

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## 1. Introduction

Loughran and Ritter (1995) and Spiess and Affleck-Graves (1995) document that firms underperform the stock market in the five years after a seasoned equity issue. For example, Loughran and Ritter report average returns of only 7% per year, while comparable non-issuing firms average 15% per year. The return differentials are so large that one wonders why investors buy these issues.

In this paper, we examine whether unusually aggressive management of earnings through income-increasing accounting adjustments leads investors to be overly optimistic about the issuer's prospects. That is, investors may misinterpret high earnings reported at the time of the offering, and consequently overvalue the new issues. When high pre-issue earnings are not sustained, disappointed investors subsequently revalue the firm down to a level justified by fundamentals. This earnings management hypothesis predicts that issuers have unusually high income-increasing accounting adjustments pre-issue and unusually poor earnings and stock return performance post-issue. Further, the hypothesis predicts worse performance for issuers with unusually large income-increasing accounting adjustments prior to the offering.

We report evidence consistent with the earnings management hypothesis. For a sample of seasoned equity issuers from 1976 to 1989, Table 2 documents higher net income growth in the issue year for issuers than for performance-matched non-issuing industry peers. Post-issue, however, issuers significantly underperform their matches. For example, the annual growth in the issuers' asset-scaled net income significantly exceeds that of the matched non-issuers by a median of 1.69% in the issue year, but is significantly less than that of the matched non-issuers by a median of 1.60% and 0.32% in the two subsequent years. Decomposing net income into cash flow from operations and accounting adjustments (hereafter referred to as *accruals*), we find that it is the accruals that cause the at-issue peak and post-issue underperformance in net income. In contrast, cash flow from operations exhibit an opposite profile. Table 2 reports that asset-scaled cash flow from operations are 3.8% *below* the industry median in the issue year, remain below the industry median for the next two years, and only rise to 1% above the industry median three years after the issue.

We decompose accruals into four categories jointly by time period (current and long-term) and manager control (discretionary and nondiscretionary). Table 3 reports that of the four categories, discretionary current accruals (the component most subject to managerial manipulation) drive the post-issue earnings underperformance. In the offering year, the asset-scaled discretionary current accruals of issuers exceed their pre-issue performance-matched industry peers by 2.9%. For each of the three subsequent years, the issuers' discretionary current accruals decline by more than those of their matches. Ranking issuers by discretionary current accruals, Table 4 reports that issuers in the most *aggressive* quartile (i.e. with the largest discretionary current accruals in the pre-issue year) underperform their matched non-issuers by 7.50% in asset-scaled net income in the three years after the issue year. In contrast, issuers in the *conservative* quartile outperform their matches by 0.99%. Table 5 reports that the Spearman rank correlations between pre-issue discretionary current accruals and post-issue net income changes (all asset-scaled) are approximately − 20% and statistically significant in all three post-issue years. In sum, the evidence suggests that discretionary current accruals predict post-issue earnings underperformance.

Most interestingly, we find evidence that discretionary current accruals also predict underperformance in post-issue stock returns. For 48 months after the offering, issuers in the aggressive quartile underperform conservative issuers by a raw return differential of about 40%, a market-adjusted return differential of about 25%, and a Fama–French adjusted return differential of about 35% (see Table 6). These differences are remarkable considering that the earnings management proxy is based on public information available four to 16 months before the period over which returns are measured. Finally, in Table 7, we use a Fama–Macbeth type procedure in a sample containing issuing and non-issuing firms. We test whether post-issue abnormal stock returns are negatively related to lagged accruals, and whether this relation is stronger for pre-issue accruals. The results indicate that discretionary current accruals have a stronger and more persistent influence on subsequent returns for seasoned equity issuers. Therefore, consistent with earnings management, we find evidence that high discretionary current accruals predict post-issue long-run earnings and stock return underperformance.

## 2. Accruals-based earnings management proxies

To evaluate the role of earnings management, we construct a proxy for the amount of accounting adjustments undertaken by management. Reported earnings in the financial statement consist of cash flow from operations plus total accruals:

$$\text{Net Income} = \text{Total Accruals} + \text{Cash Flow from Operations}. \tag{1}$$

The accrual adjustments reflect business transactions that affect future cash flows even though cash has not currently changed hands. Under generally accepted accounting principles (GAAP), firms have discretion to recognize these transactions as economic events, so that reported earnings reflect the true underlying business conditions of the firm more accurately. With the accrual system of accounting, reported earnings are supposed to be invariant to the timing of cash receipts and payments. However, managerial flexibility in the accruals system also opens opportunities for earnings management.[2] By taking income-increasing accrual adjustments now, managers can raise current reported earnings, but future reported earnings will be lower. However, accounting regulations, such as the requirement of an independent audit, limit the manager's discretion over the timing and magnitude of accruals.

Accruals can be classified into categories based on time period and managerial control. *Current accruals* are adjustments involving short-term assets and liabilities that support the day-to-day operations of the firm. For example, managers can alter current accruals by advancing recognition of revenues with credit sales (before cash is received), by delaying recognition of expenses after cash is advanced to suppliers, and by assuming a low provision for bad debts. In contrast, *long-term accruals* are adjustments involving long-term net assets. These accruals can be altered by decelerating depreciation, decreasing deferred taxes (the difference between tax expense recognized for financial reporting and actual taxes paid), and realizing unusual gains. We consider current accruals and long-term accruals separately because accounting researchers (e.g., Guenther, 1994) have argued that managers have greater discretion over current accruals than over long-term accruals.

Although investors can observe accruals, they cannot infer perfectly what portion of accruals is *discretionary*, i.e., 'managed'. Given industry-related and firm-specific business conditions, some accrual adjustments are necessary, and indeed expected by investors; for example, asset-intensive firms have high depreciation, and rapidly growing firms have revenues that exceed cash sales.

To extract these nondiscretionary accruals that are dictated by firm conditions and independent of managerial manipulation, we use a cross-sectional adaptation Teoh et al. (forthcoming b) of the modified Jones (1991) model. The details of the procedure are described in the Appendix. In essence, current

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[2] For specific examples of how earnings can be managed in an accrual accounting system, see Davidson et al. (1986), Teoh et al. (forthcoming b), Appendix B in Teoh et al. (forthcoming a), Kellogg and Kellogg's Financial Statement Alert, which is an investor newsletter devoted to ferreting out suspicious accounting adjustments, and media articles such as 'The Sherlock Holmes of Accounting', (Business Week, pp. 48–52; September 5, 1994), and the series of articles in Forbes in the section 'Numbers Game', such as 'Lies of the Bottom Line' (November 12, 1990), 'Silly Pussyfooting' (August 21, 1989), 'Numbers Pumpers' (November 11, 1991), and 'Mystery Profits' (April 20, 1987). These articles detail earnings management within generally accepted accounting principles and not necessarily fraudulent reporting.

We do not consider fraudulent reporting behavior specifically, because the majority of the seasoned equity issuers in our sample appears to comply with generally accepted accounting principles (GAAP). Relatively few firms in the general population are caught not complying with GAAP, and of these, few are seasoned equity issuers. Mike Maher generously provided us the names of 159 SEC-reporting violators from January 1980 to December 1985, and only seven of our SEO firms overlapped with his sample of violators.

accruals are regressed on the change in sales in a cross-sectional regression using all firms in the same two-digit SIC code as the issuer (but excluding the issuer). The cross-sectional regression is performed for each fiscal year, and all variables are scaled by beginning-year firm assets. After adjusting sales growth for the increase in accounts receivable, the issuer's fitted current accruals level, termed *nondiscretionary current accruals* ($NDCA_{-1}$), is considered typical in the industry for the level of sales growth. Since the remaining current accruals are not dictated by firm condition, but are managed, they are termed *discretionary current accruals* ($DCA_{-1}$).

To decompose long-term accruals, we apply an equivalent procedure. We first decompose total accruals into a discretionary and a nondiscretionary component based on sales growth and property, plant, and equipment (to adjust for depreciation). The difference between discretionary total accruals and discretionary current accruals is termed *discretionary long-term accruals* ($DLA_{-1}$); the difference between nondiscretionary total accruals and nondiscretionary current accruals is termed *nondiscretionary long-term accruals* ($NDLA_{-1}$).

The cross-sectional approach automatically adjusts for changing industrywide economic conditions which influence accruals independently of earnings management. Using industry benchmarks to measure discretionary accruals is suggested by the common practice of underwriters, who price new equity issues by comparing market prices and accounting variables of similar firms.

To summarize, accruals are decomposed into four components: discretionary and nondiscretionary current accruals, and discretionary and nondiscretionary long-term accruals. The nondiscretionary accruals are proxies for accrual recognition outside the control of management and the discretionary accruals are proxies for earnings management.[3]

## 3. Sample selection and sample characteristics

Our initial sample consists of 6386 seasoned equity issues between January 1970 and September 1989 from the Securities Data Corporation. Of these, only 3032 issues are available on the primary, full coverage, and research Compustat 1993 tapes and on the Center for Research in Security Prices (CRSP) 1993 tapes. For inclusion in the final sample, we require available stock returns data and

[3] The robustness of models of earnings management measures has been discussed by Dechow et al. (1995), Guay et al. (1996), and Healy (1996). Dechow, Sloan, and Sweeney conclude superiority of the modified Jones model over all other currently available models, though the Jones model remains imperfect.

sufficient data to compute discretionary accounting accruals for the year prior to the offering. To avoid survivorship bias, we do not require that firms have accruals data for the entire period of three years before to three years after the issue year. Because banking and utilities industries have unique disclosure requirements, we eliminate firms in these industries from our sample. If a firm has multiple issues, we include only the earliest issue to avoid using overlapping data to estimate the returns-accruals relation.

Of the 3032 issuers available on CRSP and Compustat, 2645 have sufficient data to compute accruals in at least one year between the 1974–1993 period covered by Compustat 1993 tapes. Of these, 1285 have at least ten other firms in the same two-digit SIC code industry group to allow estimation of the intra-industry regression to calculate expected accruals. The final sample consists of 1265 issuers with available accruals data in the fiscal year prior to the fiscal year of the new issue. The actual sample size varies depending on the test procedures and accruals measures used. Only 1248 firms have available returns during the issue month.

Table 1 reports the sample statistics and data characteristics for our firms. The earliest data available on Compustat 1993 are for fiscal year 1973. Because we examine the accruals behavior of seasoned issuers from fiscal year $-3$ to $+3$ relative to the fiscal year of the offering, our sample begins in 1976. Seasoned equity issues are clustered by industries and time periods. Four of the sample years (1980, 1982, 1983 and 1986) are very active and contain more than 10% of the sample, with 1983 carrying 22% of the issues. Furthermore, the computer and electronics industries account for a large fraction of the issues with approximately 31% of the sample. Earnings management may be prevalent in these relatively new industries because high information asymmetry and limited past history make it difficult to judge the appropriateness of the accounting choices.

Panel C of Table 1 reports size statistics for the sample in the fiscal year prior to the issue. The mean and median of total book value of assets are \$625 million and \$40 million. The mean and median of market capitalization of equity are \$284 million and \$52 million. Asset size varies considerably in the sample as evidenced by the large standard deviations. The mean and median of sales growth scaled by assets, an explanatory variable in the Jones (1991) model for accruals, are 54% and 28%. Loughran and Ritter (1995) also report high sales growth for new issuers.

## 4. Post-issue predictability of earnings

In this section, we first examine if there is earnings underperformance after a seasoned equity issue. We then examine the time profile of the accrual and cash flow components of net income around the time of the issue to evaluate the

Table 1
Characteristics of 1265 firms conducting seasoned equity offerings from 1976 to 1989

*Panel A: SIC distribution*

| Industry | Codes | Freq | % |
|---|---|---|---|
| Oil and Gas | 13 | 62 | 4.9 |
| Food Products | 20 | 26 | 2.1 |
| Paper and Paper Products | 24, 25, 26, 27 | 57 | 4.5 |
| Chemical Products | 28 | 75 | 5.9 |
| Manufacturing | 30–34 | 97 | 7.7 |
| Computer Equipment and Services | 35, 73 | 245 | 19.4 |
| Electronic Equipment | 36 | 141 | 11.1 |
| Transportation | 37, 39, 40–42, 44, 45 | 98 | 7.7 |
| Scientific Instruments | 38 | 106 | 8.4 |
| Communications | 48 | 30 | 2.4 |
| Durable Goods | 50 | 33 | 2.6 |
| Retail | 53, 54, 56, 57, 59 | 59 | 4.7 |
| Eating and Drinking Establishments | 58 | 39 | 3.1 |
| Financial services | 61, 62, 64, 65 | 35 | 2.8 |
| Entertainment services | 70, 78, 79 | 33 | 2.6 |
| Health | 80 | 34 | 2.7 |
| All others | 10, 15, 16, 22, 23, 51, 87, 99 | 95 | 7.5 |

*Panel B: Time distribution*

| Year | Freq | % | Cum Freq | % |
|---|---|---|---|---|
| 1976 | 2 | 0.2 | 2 | 0.2 |
| 1977 | 35 | 2.8 | 37 | 2.9 |
| 1978 | 51 | 4.0 | 88 | 7.0 |
| 1979 | 48 | 3.8 | 136 | 10.8 |
| 1980 | 144 | 11.4 | 280 | 22.1 |
| 1981 | 100 | 7.9 | 380 | 30.0 |
| 1982 | 131 | 10.4 | 511 | 40.4 |
| 1983 | 276 | 21.8 | 787 | 62.2 |
| 1984 | 53 | 4.2 | 840 | 66.4 |
| 1985 | 101 | 8.0 | 941 | 74.4 |
| 1986 | 145 | 11.5 | 1086 | 85.8 |
| 1987 | 101 | 8.0 | 1187 | 93.8 |
| 1988 | 44 | 3.5 | 1231 | 97.3 |
| 1989 | 34 | 2.7 | 1265 | 100.0 |

*Panel C: Size characteristics*

| | Total assets | Market value | Book value | Sales growth |
|---|---|---|---|---|
| Mean | 625.2 | 284.2 | 207.2 | 0.537 |
| Median | 40.4 | 51.8 | 18.0 | 0.283 |
| Std. dev. | 2,653.9 | 971.6 | 884.8 | 1.107 |

Size characteristics are measured in millions of dollars. Total assets are obtained at the end of the fiscal year prior to the seasoned equity offering, or fiscal year $-1$. Market values are the number of shares outstanding times the stock price at end of fiscal year $-1$. Book value of equity is measured at end of fiscal year $-1$. Sales growth is the change in sales in fiscal year $-1$ deflated by total assets in year $-2$.

relative contribution of cash flows and accruals to the post-issue net income performance. For evidence on the relative magnitude of the earnings underperformance, we compare the post-issue earnings performance of issuers ranked by their discretionary current accruals in the pre-issue year. Finally, we examine the Spearman rank order correlation between pre-issue accruals and post-issue earnings underperformance to test whether pre-issue accruals explain the cross-sectional variation in post-issue earnings underperformance.

### *4.1. Post-Issue earnings underperformance in time series*

Table 2 reports three measures of net income performance in the six years surrounding the issue year: net income as a percentage of prior year total assets, asset-scaled net income minus the industry median asset-scaled net income, and the annual change in asset-scaled net income of the issuer minus the change for a pre-issue performance-matched non-issuer. Net income is Compustat item 172, which is the number reported in an earnings announcement in the Wall Street Journal and which captures more fully the effects of discretionary reporting choices, such as extraordinary items, on the earnings performance. The results using earnings before interest and taxes (item 18) are qualitatively similar, and are not reported here. The second measure adjusts for changing business conditions in the industry. This adjustment could be important given the evidence in Ritter (1991) that some industries experienced significant declines in operating performance in the 1980s. The third measure is recommended by Barber and Lyon (1997) for removing normal mean reversion in net income. The statistical means are obtained after winsorizing the data at the 1% and 99% level to reduce the effect of a few large values. The means without winsorizing are similar, but less statistically significant.

The pattern of unadjusted asset-scaled net income indicates improving pre-issue performance but deteriorating post-issue performance. The median grows from 6.50% in year $-3$ to a peak of 9.00% in year 0, then declines to 3.80% by year $+3$. The equivalent means are 6.33% in year $-3$, 6.63% in year 0, and 0.71% in year $+3$. The industry-adjusted performance measures indicate a similar profile of pre-issue improvement and post-issue decline. The median industry-adjusted asset-scaled net income grows from 1.40% in year $-3$ to 5.00% in year 0, and declines to 1.40% by year $+3$. The equivalent means are 1.23% in year $-3$, 3.01% in year 0, and $-1.42$% in year $+3$.

To match each issuer with a non-issuer of comparable pre-issue performance for the third measure, we first select the non-issuer from the same industry with asset-scaled net income closest to that of the issuer in year $-1$. We begin with the four-digit SIC code; if no match is available, we search among three-digit SIC codes, then two-digit, and finally one-digit. Although we require the asset-scaled net income of the non-issuer to be at least 80% of the asset-scaled net income of the issuer, we do not impose an upper bound. The majority of the

Table 2
Time series profile of asset-scaled net income and cash flow from operations, in percent, from year − 3 to + 3 relative to the seasoned equity offering (year 0)

This table presents three measures of the performance of two accounting variables, *net income* and *cash flow from operations*, from years − 3 to + 3 relative to the seasoned equity offering. The first is the level of the accounting variable scaled by prior total assets, the second is the issuer's asset-scaled accounting variable minus that of the median firm in the same industry, and the third is the issuers' year-to-year change in the asset-scaled accounting variable minus that of a matched non-issuer. The matched non-issuer must be in the same industry and have the closest asset-scaled net income to the issuer in the pre-offering fiscal year. The third net income performance measure is computed as

$$\left(\frac{NI_{i,t}}{TA_{i,t-1}} - \frac{NI_{i,t-1}}{TA_{i,t-2}}\right) - \left(\frac{NI_{m,t}}{TA_{m,t-1}} - \frac{NI_{m,t-1}}{TA_{m,t-2}}\right),$$

where $i$ and $m$ are the issuer and matched firm, $t$ is the fiscal year, and $NI$ is net income (Compustat item 172), and $TA$ is beginning-period total assets. The performance measures for the cash flow from operations is calculated likewise, using cash flow from operations (usually Compustat item 308 except as noted in the Appendix) instead of net income.

| Year | − 3 | − 2 | − 1 | 0 | 1 | 2 | 3 |
|---|---|---|---|---|---|---|---|
| *Panel A: Net income performance* | | | | | | | |
| *Unadjusted net income* | | | | | | | |
| Median | 6.50[a] | 7.40[a] | 8.00[a] | 9.00[a] | 6.10[a] | 4.80[b] | 3.80 |
| Mean | 6.33[a] | 5.49[a] | 6.71[a] | 6.63[a] | 3.33[a] | 0.99[a] | 0.71[a] |
| *N* | 877 | 1038 | 1265 | 1247 | 1200 | 1134 | 1071 |
| *Issuers' net income – Industry median net income* | | | | | | | |
| Median | 1.40[a] | 2.40[a] | 3.70[a] | 5.00[a] | 2.40[a] | 1.70[a] | 1.40[b] |
| Mean | 1.23[a] | 0.80 | 2.82[a] | 3.01[a] | − 0.01 | − 1.56[a] | − 1.42[a] |
| *N* | 877 | 1038 | 1265 | 1247 | 1200 | 1134 | 1071 |
| *Issuers' net income change – Performance-matched non-issuers' net income change* | | | | | | | |
| Median | . | 0.04 | − 0.03 | 1.69[a] | − 1.60[a] | − 0.32[b] | − 0.01 |
| Mean | . | − 0.70 | − 0.69 | 3.15[a] | − 2.16[a] | − 2.00[a] | 1.79[b] |
| *N* | . | 786 | 971 | 1165 | 1028 | 905 | 798 |
| *Panel B: Cash flow from operations* | | | | | | | |
| *Unadjusted cash flow from operations* | | | | | | | |
| Median | 9.25[a] | 8.60[a] | 8.40[a] | 7.70[a] | 6.20[a] | 7.60[a] | 7.70[a] |
| Mean | 8.12[a] | 5.40[a] | 3.94[a] | 2.69[a] | 3.86[a] | 4.82[a] | 6.17[a] |
| *N* | 876 | 1037 | 1265 | 1247 | 1199 | 1128 | 1067 |
| *Issuers' flow from operations – Industry median cash flow from Operations* | | | | | | | |
| Median | 1.50[a] | 0.80 | 1.20 | 0.60 | 0.00[c] | 1.75[a] | 1.70[a] |
| Mean | 0.46 | − 1.97[a] | − 3.05[a] | − 3.84[a] | − 2.20[a] | − 0.78 | 0.98[b] |
| *N* | 876 | 1037 | 1265 | 1247 | 1199 | 1128 | 1067 |

Table 2. Continued.

| Year | − 3 | − 2 | − 1 | 0 | 1 | 2 | 3 |
|---|---|---|---|---|---|---|---|
| *Issuers' cash flow change – Performance-matched non-issuers' cash flow change* | | | | | | | |
| Median | . | − 0.56 | − 0.75 | − 0.76 | − 0.99 | 1.14[b] | 0.51 |
| Mean | . | − 1.85[c] | 1.14 | − 3.60[a] | 1.48 | 1.48 | 2.06[b] |
| *N* | . | 783 | 966 | 1160 | 1021 | 895 | 789 |

[a]represent statistical significance levels at the 1% levels, using *t*-tests for the mean and Wilcoxon *p*-values for the median.
[b]represent statistical significance levels at the 5% levels, using *t*-tests for the mean and Wilcoxon *p*-values for the median.
[c]represent statistical significance levels at the 10% levels, using *t*-tests for the mean and Wilcoxon *p*-values for the median.

firms are matched by three-digit SIC codes, and 94% are matched by at least two-digit codes. The median and mean asset-scaled net income levels for issuers for which matches are available, 8.00% and 5.34%, are slightly smaller than the matched-firm median and mean of 8.39% and 5.96%. By allowing higher incomes for non-issuers, we exaggerate the drop in net income for the matched firm if asset-scaled net income normally mean-reverts. Thus, the performance-matched measure is conservative, because it requires a bigger drop in the issuer's post-offering net income to indicate underperformance.[4]

Matched firms and issuers show similar income performance in the pre-issue years. The net income performance of issuers diverges from their matches beginning in year 0. Issuers grow significantly faster than their matched non-issuers by a median and mean of 1.69% and 3.15% in the issue year, respectively. In each of the two years after the offering, issuers significantly underperform their matches. The growth in the issuers' asset-scaled net income is less than that of the matched non-issuers by a significant median and mean of 1.60% and 2.16% in the first year after the offering and 0.32% and 2.00% in the second year (also significant). Thus, we conclude that the previously documented post-issue stock return underperformance of issuers is accompanied by unusually poor earnings performance.[5]

[4] The measure is also conservative for a second reason. By subtracting all of prior year change, the measure underestimates the earnings underperformance in later post-issue years when accruals borrowed in pre-issue years are paid back over the subsequent years after the issue.

[5] Poor performance following a seasoned offering is also reported by Hansen and Crutchley (1990) and Loughran and Ritter (1997), but not Healy and Palepu (1990). The samples are relatively small in Healy and Palepu (93 issues) and in Hansen and Crutchley (109 issues). Loughran and Ritter (1997) use different measures of performance. Poor post-issue performance has also been documented for initial public offerings by Jain and Kini (1995), Mikkelson et al. (1997), and Teoh et al. (forthcoming b).

Next, we examine which of the two components, cash flow from operations or accruals, induces the observed net income pattern. The results in Panel B of Table 2 indicate that the net income profile is not mirrored by cash flow from operations. The medians of all three measures of asset-scaled cash flows (unadjusted, industry-adjusted, and performance-matched) show a monotonic decline from pre-issue periods to the lowest levels in the issue year before improving in years +2 and +3. The means also show similar patterns, with low levels in years 0 and +1. Therefore, new issues occur when cash flows from operations are declining, not when they are at a peak. Consequently, as the remaining component of earnings, accruals must be driving the observed net income profile for new issues.

We now evaluate which of the four accrual measures is the primary contributor to the net income profile. Table 3 presents the profiles of the four accrual measures, with levels of asset-scaled accruals shown in Panel A and year-to-year changes in Panel B. The profile of discretionary current accruals shows the most dramatic change, suggesting manipulation of current accruals during a new issue. Discretionary current accruals are significantly positive, monotonically rising to a peak in the offering year before decreasing significantly in years +2 and +3. (The year-to-year changes cannot be derived from the mean levels in Panel A because the number of issuers varies in our sample each year.) The year 0 peak in asset-scaled discretionary current accruals is statistically significant at a mean and median of 5.59% and 2.50%.[6] In post-issue years +1 through +3, the discretionary accruals decline monotonically until year +3, when they are no longer statistically significantly different from zero.

The nondiscretionary current accruals show a somewhat similar profile. The nondiscretionary current accruals peak in the issue year and decline significantly in year +1. Nondiscretionary current accruals are a positive linear function of sales growth (see the Appendix), so the evidence is consistent with new issuers timing offerings for when sales growth peaks. The pre-issue mean and median changes in Panel B, however, are usually negative, and so do not suggest a monotonic improvement prior to the offering. As reported later in Table 7, pre-issue nondiscretionary current accruals do not predict post-issue underperformance.

[6] The level of accruals do not turn negative immediately after the offering, suggesting that issuers avoid immediate reversals in accruals. A similar peak in year 0 was reported for initial public offerings by Teoh et al. (forthcoming b). They suggest institutional explanations such as the threat of lawsuits if reversals occur immediately, commitment by underwriters to stabilize price near the offering price, and the existence of lock-up periods when insiders commit not to sell. Interestingly, Loughran and Ritter (1995) and Section 5 of this paper document that the decline in stock return performance also does not occur immediately after the offering.

Table 3
Time-series profile of asset-scaled accruals, in percent, from year − 3 to + 3 relative to the seasonal equity offering (year 0).

This table presents the discretionary and nondiscretionary current and long-term accruals of firms offering seasoned equity offerings from the three years before to three years after the offering. The nondiscretionary accruals reflect accruals choices largely dictated by economic conditions, whereas the discretionary accruals are designed to pick up reporting choices that are largely controlled ('managed') by the firm. The accruals measures are scaled by beginning-period total assets, and reported in percent. In the last three rows of Panels A and B, an alternative matched-pair method is used. The discretionary current accruals are calculated as the modified Jones model discretionary current accruals of the issuer minus the modified Jones model discretionary current accruals of the matched non-issuing industry peer. The matched non-issuer has similar net income performance as the issuer in year − 1 and is selected using the matching procedure as described for the third net income performance measure in Table 2. See the Appendix for details of the model to decompose accruals into discretionary and non-discretionary components.

| Fiscal Year | − 3 | − 2 | − 1 | 0 | + 1 | + 2 | + 3 |
|---|---|---|---|---|---|---|---|
| *Panel A: Accruals (levels)* | | | | | | | |
| *Discretionary current accruals (DCA)* | | | | | | | |
| Median | 0.90[a] | 1.30[a] | 2.05[a] | 2.50[a] | 2.20[a] | 0.70[a] | 0.10 |
| Mean | 2.21[b] | 3.32[a] | 5.37[a] | 5.59[a] | 4.18[a] | 1.59[c] | − 0.24 |
| *N* | 863 | 1020 | 1248 | 1234 | 1183 | 1122 | 1064 |
| *Discretionary long-term accruals (DLA)* | | | | | | | |
| Median | − 1.10[a] | − 1.00[a] | − 1.00[b] | − 1.20[a] | − 1.00[a] | − 1.30[a] | − 1.50[a] |
| Mean | − 1.00 | − 1.70[a] | − 0.83 | − 1.33[a] | − 1.51[a] | − 3.33[a] | − 1.86[a] |
| *N* | 857 | 1012 | 1241 | 1218 | 1175 | 1103 | 1054 |
| *Nondiscretionary current accruals (NDCA)* | | | | | | | |
| Median | 0.90[a] | 1.40[a] | 1.50[a] | 2.20[a] | 1.20[a] | 0.70[a] | 0.80[a] |
| Mean | 2.59[a] | 3.80[a] | 4.95[a] | 5.98[a] | 2.24[a] | 1.76[a] | 2.06[a] |
| *N* | 863 | 1020 | 1248 | 1234 | 1183 | 1122 | 1064 |
| *Nondiscretionary long-term accruals (NDLA)* | | | | | | | |
| Median | − 3.70[a] | − 4.20[a] | − 4.70[a] | − 4.60[a] | − 4.30[a] | − 4.20[a] | − 4.10[a] |
| Mean | − 4.49[a] | − 5.15[a] | − 6.80[a] | − 6.32[a] | − 5.54[a] | − 4.52[a] | − 5.24[a] |
| *N* | 857 | 1012 | 1241 | 1218 | 1175 | 1103 | 1054 |
| *Discretionary current accruals (DCA) of Issuer – DCA of matched non-issuer* | | | | | | | |
| Median | 0.41 | 0.86[b] | 1.64[b] | 2.85[b] | 1.42 | 0.18 | 0.26 |
| Mean | 0.60 | 1.83[c] | 3.90[b] | 4.90[b] | 2.01[b] | − 0.61 | − 0.89 |
| *N* | 773 | 954 | 1248 | 1154 | 1017 | 900 | 797 |

*Panel B: Accruals (changes)*

| Fiscal Year | − 2 | − 1 | 0 | + 1 | + 2 | + 3 |
|---|---|---|---|---|---|---|
| *Discretionary current accruals (DCA)* | | | | | | |
| Median | 0.25 | 0.40 | 0.70 | − 0.45[c] | − 1.20[a] | − 1.10[a] |
| Mean | 0.89 | 0.62 | 0.30 | − 1.37 | − 2.62[a] | − 1.98[b] |
| *N* | 862 | 1017 | 1228 | 1176 | 1111 | 1057 |

Table 3. Continued.

| Fiscal Year | − 2 | − 1 | 0 | + 1 | + 2 | + 3 |
|---|---|---|---|---|---|---|
| *Discretionary long-term accruals (DLA)* | | | | | | |
| Median | 0.00 | 0.20 | 0.20 | 0.00 | − 0.30[b] | 0.10 |
| Mean | − 0.78 | 0.86 | − 0.61 | − 0.21 | − 1.82[a] | 1.23 |
| *N* | 853 | 1005 | 1206 | 1163 | 1097 | 1040 |
| *Nondiscretionary current accruals (NDCA)* | | | | | | |
| Median | 0.15 | − 0.30[b] | 0.20[b] | − 0.60[a] | − 0.50[a] | 0.00 |
| Mean | − 0.08 | − 0.30 | 1.00 | − 3.85[a] | − 0.50 | 0.14 |
| *N* | 862 | 1017 | 1228 | 1176 | 1111 | 1057 |
| *Nondiscretionary long-term accruals (NDLA)* | | | | | | |
| Median | − 0.20 | − 0.40[a] | − 0.40[b] | 0.30[a] | 0.00[b] | − 0.20 |
| Mean | − 0.48 | − 0.96 | 0.37 | 0.69 | 1.07[a] | − 0.51 |
| *N* | 853 | 1005 | 1206 | 1163 | 1097 | 1040 |
| *Change in Issuer's DCA - Change in Matched Non-Issuer's DCA* | | | | | | |
| Median | − 0.01 | − 0.00 | 0.89[c] | − 0.58 | − 0.98[b] | − 0.57 |
| Mean | 0.78 | 1.01 | 2.13[c] | − 2.36[b] | − 1.96[c] | − 1.23 |
| *N* | 772 | 951 | 1148 | 1011 | 886 | 785 |

[a]represent statistical significance levels at the 1% levels, using *t*-tests for the mean and Wilcoxon *p*-values for the median.
[b]represent statistical significance levels at the 5% levels, using *t*-tests for the mean and Wilcoxon *p*-values for the median.
[c]represent statistical significance levels at the 10% levels, using *t*-tests for the mean and Wilcoxon *p*-values for the median.

Neither Panel A nor Panel B shows a time-series pattern fully consistent with management of discretionary long-term accruals. Prior research by Kreutzfeldt and Wallace (1986) and Guenther (1994) has also found that long-term accruals are less subject to manipulation by managers. Perhaps more lead time is required to change long-term accruals than is available before an equity offering. In addition, issuers may be more reluctant to manipulate long-term accruals because they are more visible than current accruals. Finally, the mean and median nondiscretionary long-term accruals are negative in all years, a result consistent with a large depreciation component. The year-to-year changes do not show any remarkable pattern, and so do not contribute to the hump pattern for net income.

Because discretionary current accruals appear to be managed, we report an alternative measure for discretionary current accruals as a robustness check. In the bottom panel entries in Panels A and B of Table 3, the discretionary current accruals of matched firms are subtracted from the issuer's discretionary current accruals to remove potential bias in the Jones model for high-performance firms. (The matched firms are selected as discussed in Section 3.1 for Table 2.) The previously reported hump shape is robust with respect to this alternative measure. As before, the medians and means show a peak in year 0 and significant post-issue declines by year + 2. This evidence suggests that the hump shape (rising discretionary current accruals up to a peak in year 0 followed by a subsequent decline) is more exaggerated for issuers than for comparable non-issuers. Overall, the evidence suggests that net income performance during a new issue is driven largely by discretionary current accruals, and not cash flow from operations.

### *4.2. Predicting post-issue net income underperformance with discretionary accruals in cross-section*

To evaluate whether pre-issue discretionary accruals predict post-issue net income underperformance, we rank issuers by their pre-issue discretionary current accruals to examine differences in their post-issue net income performance in cross-section. Table 4 examines the performance of the 'aggressive' quartile with the highest discretionary current accruals and the 'conservative' quartile with the lowest discretionary current accruals. Both extreme quartiles of issuers perform well immediately prior to the issue year and poorly immediately after. However, differences between quartiles emerge by year + 3 when conservative quartile issuers but not aggressive quartile issuers report significant improvement. In the issue year, the median and mean growth in net income is 1.53% and 4.72% for the aggressive issuers and 1.56% and 3.26% for the conservative issuers. By year + 3, the median and mean growth is − 1.52% and − 1.39% for the aggressive quartile but is a significant 0.50% and 13.24% for the conservative quartile.

For a summary measure of long-term performance, we compute an abnormal cumulative net income over the three post-issue years relative to base year − 1, as follows:

$$\sum_{t=1}^{3}\left(\frac{NI_{i,t}}{TA_{i,t-1}}-\frac{NI_{i,-1}}{TA_{i,-2}}\right)-\left(\frac{NI_{m,t}}{TA_{m,t-1}}-\frac{NI_{m,-1}}{TA_{m,-2}}\right),$$

where $NI_{i,t}$ is net income in fiscal year $t$, $TA_{i,t}$ is total assets in fiscal year $t$, and $i$ and $m$ denote the issuer and matched firm. The bottom panel of Table 4 reports that aggressive quartile issuers underperform matched non-issuers by a median and mean of − 7.50% and − 6.29% over the three-year post-issue period, whereas conservative issuers outperform their matches by a total median and mean of 0.99% and 5.27% in the same period. Thus, discretionary current accruals predict post-issue performance; aggressive quartile issuers underperform conservative issuers by as much as a median and mean of 8.49% and 11.56% over the three years after the issue year.

Table 4
Asset-scaled changes in net income and cash flow from operations, in percent, of aggressive and conservative pre-issue accruer quartiles from year − 3 to + 3 relative to the seasoned equity offering (year 0)

This table presents the accounting performance of the extreme quartiles of issuers from year − 3 to year + 3 relative to the offering year. Aggressive and conservative quartiles contain firms with the largest and smallest year − 1 discretionary current accruals, respectively. The top panel reports the issuers' year-to-year change in asset-scaled net income or cash flow from operations relative to a sample of matched non-issuing industry peers with the closest asset-scaled net income to the issuer in the pre-offering fiscal year. See description for the third performance measure in Table 2. The bottom panel reports the cumulative abnormal performance-matched net income relative to base year − 1, calculated as

$$\sum_{t=1}^{3}\left(\frac{NI_{i,t}}{TA_{i,t-1}}-\frac{NI_{i,-1}}{TA_{i,-2}}\right)-\left(\frac{NI_{m,t}}{TA_{m,t-1}}-\frac{NI_{m,-1}}{TA_{m,-2}}\right),$$

where $NI_{i,t}$ is net income in fiscal year $t$, $TA_{i,t}$ is total assets in fiscal year $t$ and $i$ and $m$ denote the issuer and matched firm respectively.

| Event period | $\Delta_{t-1,t}NIA_i - \Delta_{t-1,t}NIA_m$ Median/mean/observations | | $\Delta_{t-1,t}CFA_i - \Delta_{t-1,t}CFA_m$ Median/mean/observations | |
|---|---|---|---|---|
| | Aggressive | Conservative | Aggressive | Conservative |
| (− 3, − 2) | 1.74[c] | 0.46 | − 1.19 | − 1.20 |
| | 1.72 | − 2.03 | − 0.61 | − 2.37 |
| | 159 | 173 | 159 | 173 |
| (− 2, − 1) | − 1.40[c] | 0.53 | − 11.73[a] | 12.02[a] |
| | − 2.34 | − 0.91 | − 11.61[a] | 14.73[a] |
| | 218 | 222 | 218 | 222 |
| (− 1, 0) | 1.53[a] | 1.56[a] | 9.56[a] | − 8.31[a] |
| | 4.72[a] | 3.26[c] | 8.16[c] | − 16.18[a] |
| | 284 | 284 | 283 | 284 |
| (0, 1) | − 2.36[a] | − 3.39[b] | 1.99 | − 2.54 |
| | − 4.53[a] | − 3.42[a] | 9.91[a] | − 1.07 |
| | 253 | 253 | 249 | 253 |
| (1, 2) | − 1.25[b] | − 0.62 | − 0.10 | 1.77[c] |
| | − 0.82 | − 1.30 | 1.35 | 3.33 |
| | 230 | 214 | 227 | 213 |
| (2, 3) | − 1.52 | 0.50[a] | 1.14 | 0.22 |
| | − 1.39 | 13.24[a] | 3.25 | 2.47 |
| | 203 | 189 | 201 | 188 |

Performance-matched abnormal cumulative (over years + 1 to + 3) net income levels, in percent

| | Aggressive | Conservative |
|---|---|---|
| Median | − 7.50[b] | 0.99 |
| Mean | − 6.29[c] | 5.27 |

[a]represent statistical significance levels at the 1% levels.
[b]represent statistical significance levels at the 5% levels.
[c]represent statistical significance levels at the 10% levels.

As before, we evaluate the contribution of cash flow changes to the net income underperformance. The evidence suggests that cash flows are not responsible for the poorer post-issue net income performance of aggressive quartiles. In fact, aggressive quartile issuers experience greater cash flow improvement beginning in year $-1$ through year $+3$. Perhaps aggressive pre-issue accrual manipulators also manipulate cash flow from operations through real changes in operations.

In Table 5, we report Spearman rank correlations between discretionary accruals in year $-1$ with changes in net income relative to base year $-1$ for each subsequent year from 0 to $+3$. In these correlations, we consider both industry-adjusted net income and performance-adjusted net income, to check the robustness of our results. Table 5 shows that the correlations of discretionary current accruals with the change in industry-adjusted net income range between $-20\%$ and $-15\%$, and are all negative and statistically significant at the 1% level. The performance-adjusted net income correlations yield similar statistically significant findings, with the results ranging between $-16\%$ and $-6\%$. The correlations using discretionary long-term accruals are also all negative, though smaller in absolute value and less significant than correlations using discretionary current accruals. Thus, only discretionary current accruals, and not discretionary long-term accruals, predict post-issue net income underperformance.

Table 5
Spearman rank order correlations of discretionary current and long-term pre-issue accruals with industry-adjusted and performance-matched post-issue net income performance

Panel A lists the Spearman rank correlations between discretionary current and long-term accruals in year $-1$ relative to the offering year with change in industry-adjusted asset-scaled net income in years 0 through 3 relative to base year $-1$. Panel B lists the Spearman rank correlations with the change in performance-matched net income measure (third earnings performance measure in Table 2) in years 0 through 3 relative to base year $-1$. $DCA_{-1}$ are discretionary current accruals, and $DLA_{-1}$ are discretionary long-term accruals.

| | $\Delta_{-1,0}NI_0$ | $\Delta_{-1,1}NI_1$ | $\Delta_{-1,2}NI_2$ | $\Delta_{-1,3}NI_3$ |
|---|---|---|---|---|
| *Panel A: Spearman correlations with industry-adjusted asset-scaled net income* | | | | |
| $DCA_{-1}$ | $-0.150$[a] | $-0.201$[a] | $-0.196$[a] | $-0.200$[a] |
| $DLA_{-1}$ | $-0.055$ | $-0.051$ | $-0.036$ | $-0.062$[b] |
| *Panel B: Spearman correlations with performance-matched asset-scaled net income* | | | | |
| $DCA_{-1}$ | $-0.076$[a] | $-0.065$[a] | $-0.166$[a] | $-0.133$[a] |
| $DLA_{-1}$ | $-0.011$ | $-0.081$[a] | $-0.058$ | $-0.065$ |

[a]represent statistical significance levels at the 1% levels.
[b]represent statistical significance levels at the 5% levels.

Overall, our results are consistent with the following scenario. Although cash flows from operations are declining prior to the offering, managers of issuing firms report high and improving earnings by managing discretionary current accruals. In the year of the offering, reported earnings peak despite relatively weak cash flow from operations because managers continue to take large positive discretionary current accruals. Post-offering, high net income cannot be sustained because cash flows from operations do not improve sufficiently and issuers can no longer continue to take large discretionary accruals. Issuers with the highest discretionary current accruals in year $-1$ experience the largest drop in net income after the issue.

## 5. Predicting post-issue stock returns with pre-issue accruals

We next examine whether pre-issue discretionary accruals predict post-issue stock return underperformance. Addressing this topic requires an appropriate measure for expected long-run returns, an issue that is debated in the asset pricing literature. We use three long-run return measures: raw returns, returns net of the returns to the value-weighted market portfolio, and returns net of the Fama and French (1997) three-factor model for expected returns (described in the Appendix).

### *5.1. Post-issue returns by pre-issue accrual quartiles*

We study the relation between pre-issue accruals and post-issue returns by first examining differences in stock return performance among four quartile portfolios grouped by levels of pre-issue discretionary current accruals. Each quartile portfolio contains about 200 firms. We then track each portfolio's return performance relative to month 0, which is either the month of the issue or four months after the previous fiscal year end, *whichever is later*. The four-month lag represents a tradeoff: using accounting information with shorter lags might mean that financial statements are not yet available to investors, while longer lags might not capture the period when investors react to the report containing manipulated earnings. To check the robustness of our results, the panel regressions in Section 6 extend the waiting period to six months.

The long-run return performance reported in Table 6 is measured in the following way. For each firm and year, we first compound monthly returns into an annual return. We then average these returns across all sample firms in the portfolio to compute the overall annual raw returns. For the adjusted returns, we subtract the compound annual return on a benchmark portfolio (either the market portfolio or a Fama and French equivalent portfolio, described in the Appendix) from the compound annual raw return for each firm. When a sample firm disappears during the year, the remaining monthly raw or adjusted returns

Table 6
Post-issue long-run stock returns, in percent, by pre-issue discretionary current accruals ($DCA_{-1}$) quartiles

Annual Returns are computed as

$$\frac{1}{N}\sum_{i=1}^{N}\left[\prod_{t=m_1}^{m_f}(1+r_{i,t})-\prod_{t=m_1}^{m_f}(1+a_{i,t})\right],$$

where $N$ is the number of firms in each quartile with valid return data in the first month of each year, $r_{i,t}$ is the monthly return on security $i$ in month $t$, $a_{i,t}$ is an equivalent adjustment return (identically 0 in the raw returns part), and $m_1$ is the first month and $m_{\rm f}$ (not to exceed $m_{\rm e}$) is the last month with valid return data. For inclusion, return data must be available in the first month $m_1$. When a sample firm drops from CRSP, the remaining months' excess returns are presumed to be zero. Compound returns are computed from the reported annual returns in the column to the immediate left. Thus, in effect, each portfolio is assumed to be rebalanced once a year. All returns are reported in percent.

| $m_1$ | $m_e$ | Raw returns | | | | Market-adjusted returns | | | | Fama–French adjusted returns | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Conservative | | Aggressive | | Conservative | | Aggressive | | Conservative | | Aggressive | |
| | | Annual | Compound | Annual | Compound | Annual | Compound | Annual | Compound | Annual | Compound | Annual | Compound |
| – 12 | – 1 | 79.50 | | 76.07 | | 57.25 | | 53.46 | | – 6.66 | | 48.25 | |
| 0 | 11 | 13.25 | 13.25 | 6.56 | 6.56 | 0.90 | 0.90 | – 6.08 | – 6.08 | 5.56 | 5.56 | – 6.95 | – 6.95 |
| 12 | 23 | 3.46 | 17.17 | 0.95 | 7.57 | – 10.99 | – 10.19 | – 13.47 | – 18.73 | – 8.20 | – 3.10 | – 8.75 | – 15.09 |
| 24 | 35 | 17.03 | 37.12 | 6.93 | 15.03 | – 0.94 | – 11.03 | – 10.90 | – 27.59 | 3.58 | 0.37 | – 10.04 | – 23.62 |
| 36 | 47 | 9.72 | 50.45 | – 4.60 | 9.74 | – 4.66 | – 15.18 | – 17.93 | – 40.57 | 2.90 | 3.28 | – 11.80 | – 32.63 |
| 48 | 59 | 10.15 | 65.72 | 7.41 | 17.87 | – 2.12 | – 16.98 | – 5.65 | – 43.93 | 3.73 | 7.14 | – 4.16 | – 35.43 |

are assumed to be zero until the end of the year. (Such firms drop from our portfolio in the following year.) Finally, we compound the annual raw and adjusted return averages into five-year cumulative returns. This procedure mimicks a trading strategy that rebalances the portfolio annually, assigning equal weight to those stocks still in existence.

Table 6 shows that our strategy nets about a 66% raw return over five years for firms in the conservative earnings management quartile, and 18% for firms in the aggressive quartile. When the equivalent market-returns are subtracted, the conservative quartile portfolio earns −17% excess returns and the aggressive quartile portfolio earns −44%. Among firms with sufficient pre-issue return data to compute Fama–French exposures, the conservative quartile portfolio earns a +7% Fama–French adjusted return and the aggressive quartile portfolio earns −35%.

Long-run returns are sensitive to the computation method (Barber and Lyon, 1997; Kothari and Warner, 1997). When we first compute an across-firm average return in each month and then compound over five years, the conservative and aggressive quartiles net 83% and 26%, respectively. (The equivalent market returns are about 115%, indicating excess returns of −30% and −90%, respectively; the equivalent Fama–French returns are 103% and 158%, respectively, indicating excess returns of −20% and −130%, respectively.) When we compute an across-firm excess return each month and either compound or average this over five years, we find five-year excess returns of −5% to −15% for the conservative quartile and −45% to −65% for the aggressive quartile. The returns in Fig. 1 are computed using this last method, which is equivalent to monthly rebalancing the portfolio.

Annual or even longer-horizon rebalancing suffers from the presence of many stale firms (without returns). In our sample, although portfolios that are never rebalanced perform considerably worse than portfolios that are rebalanced, the difference between aggressive and conservative quartile firms is not sensitive to rebalancing. The results in Fig. 1 show that the aggressive quartile firms have marginally higher pre-offering return performance than conservative issuers. The small difference indicates that it is unlikely that our results are driven by the winner/loser reversal phenomenon. After the offering, conservative issuers underperform only marginally (−7%), while aggressive issuers underperform dramatically (−48%).

Because overlapping multiyear firm returns are jointly exposed to contemporaneous industry shocks, we cannot compute cross-sectional standard errors to assess the statistical significance of these returns. Instead, we compute the standard deviation from the time-series realizations of each quartile's portfolio. This assumes that there is no cross-sectional predictability across time, i.e., the return realization of firm X in month $t$ does not help predict the stock return realization of firm Y in months $t+1$, $t+2$, etc. On average, the conservative quartile portfolio shows an average monthly return of −0.165%, with a

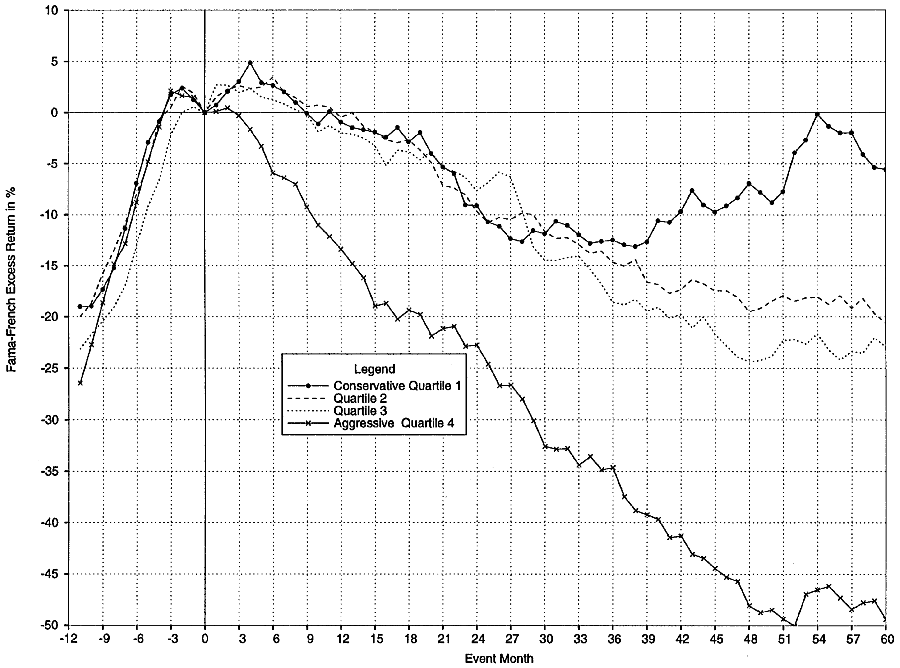


Fig. 1. Time-series graph of Fama–French adjusted returns classified by pre-issue discretionary current accruals ($DCA_{-1}$) quartiles. An average monthly excess return is constructed by first subtracting an equivalent Fama–French benchmark return from each issuer's monthly return and then averaging these individual firm excess returns across all firms in the portfolio. The graphed returns are the logged cumulative sum of these monthly portfolio excess returns. The returns are normalized so that the event-month return is zero. Firms are classified into the four quartile portfolios using $DCA_{-1}$, the discretionary current accruals in the fiscal year prior to the seasoned equity offering. Time is measured from the date of the seasoned equity offering or four months after the prior fiscal yearend (where $DCA_{-1}$ was reported), whichever comes later.

$t$-statistic of $-0.96$. The aggressive quartile portfolio shows an average monthly return of $-1.346\%$, with a $t$-statistic of $-7.00$. The average return difference of 1.18% per month has a $t$-statistic of 4.60, indicating that more aggressive earnings management predicts poorer post-issue return performance.

In sum, the partitioned univariate evidence suggests a large long-run return difference between conservative and aggressive firms. It thus appears that poor post-issue performance can be explained partially by the pre-issue earnings management of seasoned new issuers. By choosing firms with negative or low discretionary current accruals, investors can avoid investing in issuers that dramatically underperform their non-issuing peers.

### 5.2. Regressions of post-issue returns on pre-issue accruals

Table 7 displays the results from ordinary least squares regressions of post-issue firm stock price performance on pre-issue accounting accruals. The dependent variable is the log of the four-year compounded stock return (or compounded excess stock return), beginning either from the issue date or four months after the previous fiscal year, whichever comes later. To avoid influential eccentric observations, we winsorize accruals at the 1% and 99% percentiles. In general, our results are robust to winsorization.

The discretionary accruals components are the key explanatory variables of interest. We include the nondiscretionary accruals components in the regression to evaluate the relative information content for returns between the discretionary and nondiscretionary components. We also include a set of industry and year control dummies (coefficients are not reported). The industry dummies, as outlined in Table 1, account for post-issue performance variance across industries. Intercept dummies for individual years 1978 through 1989 account for business cycle effects and capture contemporaneous cross-sectional correlation between four-year returns. Log equity-size and log book-to-market variables control for firm characteristics. Multi-year returns of different stocks overlap across firms. (We do not have duplicate returns.) Contemporaneous cross-sectional returns can contain spurious residual correlation, which does not bias coefficient estimates but could bias coefficient standard errors if the induced nonzero off-diagonal covariances correlate with our measure of discretionary current accruals. Section 6 implements a more complex panel data test procedure that takes the cross-sectional correlations in the residuals into account. Finally, we do not report results for Fama–French adjusted returns, because they are similar to the two reported regressions.

We also include a variant of Cheng (1995) measure of use of proceeds. Cheng finds that equity issuers that do not invest underperform after the issue, whereas issuers that invest do not underperform. We use Cheng's measure to examine whether the earnings management proxy in this paper has an incremental effect on returns over the Cheng effect. The capital expenditure growth between pre- and post-issue periods is calculated as

$$\mathrm{DCAPEXP}_{t+1} = \frac{(\mathrm{CAPEXP}_t + \mathrm{CAPEXP}_{t+1}) - (\mathrm{CAPEXP}_{t-1} + \mathrm{CAPEXP}_{t-2})}{2\mathrm{TA}_{t-1}}, \quad (2)$$

where $\mathrm{CAPEXP}_t$ is the issuer's capital expenditure (Compustat item 128) and $\mathrm{TA}_t$ is the firm's total assets in year $t$. Year 0 data are from the financial statements following the issue. Consequently, $\mathrm{DCAPEXP}_{t+1}$ incorporates two numbers not available at the time of the seasoned offering, and so has a two-year timing advantage over our accruals measures.

Table 7
Ordinary least-squares regressions predicting four-year post-issue returns with pre-issue accruals and controls

The dependent variable is a four-year aftermarket log return, beginning at the offering date or four months after the previous fiscal year-end, whichever comes later. For market-adjusted returns, monthly raw returns are first adjusted by subtracting the market return, and then continuously compounded for four years. The independent accrual variables ($DCA_{-1}$ through $NDLA_{-1}$) are computed from regressions (described in the Appendix) and measured in the fiscal year *preceding* the issue (subscript $-1$). $\mathrm{DCAPEXP}_{t+1}$ is the sum of capital expenditures in the (post-issue) event and following fiscal year minus the sum of capital expenditures in the two years prior to the event, divided by twice total assets in the year prior to the seasoned offering. Thus, $\mathrm{DCAPEXP}_{t+1}$ uses information from two financial statements not available to the seasoned issue purchasers, unlike the accruals measures which rely only on information known to investors at the time of the issue. To adjust for some cross-sectional contemporaneous correlations between components of the compounded returns, we include but do not report a complete set of industry and year dummies (two year dummies for 1983), as well as firms' log book-market value and log equity size. Small and large firms are the smallest and largest market capitalization tertials. White-*t* statistics are reported in parentheses.

| Independent variable | | Raw returns | Market-adj. returns | Market-adj. returns | |
|---|---|---|---|---|---|
| | | | | Small firms | Large firms |
| Discretionary current accruals ($DCA_{-1}$) | Coef | − 0.3818[a] | − 0.3954[a] | − 0.5413[a] | − 0.1962 |
| | (*t*) | (− 2.61) | (− 2.68) | (− 2.51) | (− 0.92) |
| Discretionary long-term accruals ($DLA_{-1}$) | Coef | − 0.3620 | − 0.3665 | − 1.485[a] | − 0.1962 |
| | (*t*) | (− 1.28) | (− 1.26) | (− 3.20) | (− 0.33) |
| Nondiscretionary current accruals ($NDCA_{-1}$) | Coef | − 0.1141 | − 0.1200 | − 0.1390 | − 0.1377[a] |
| | (*t*) | (− 0.88) | (− 0.89) | (− 0.39) | (− 3.49) |
| Nondiscretionary long-term accruals ($NDLA_{-1}$) | Coef | − 0.0714 | − 0.0652 | − 0.0516 | − 0.7914 |
| | (*t*) | (− 0.20) | (− 0.18) | (− 0.09) | (− 1.30) |
| Change in capital expenditures ($\mathrm{DCAPEXP}_{t+1}$) | Coef | 0.0829 | 0.0801 | 0.3034[a] | − 0.1206[c] |
| | (*t*) | (1.59) | (1.53) | (3.30) | (− 1.65) |
| Industry dummies | | Full set – not reported | | | |
| Year dummies | | Full set – not reported | | | |
| Book/Market, Market value | | Not reported | | | |
| *N* | | 1,035 | 1,035 | 332 | 355 |
| $R^2$ | | 15.89% | 13.73% | 27.45% | 20.47% |
| $\bar{R}^2$ | | 12.59% | 10.35% | 17.76% | 10.62% |

[a]represent statistical significance levels at the 1% level.
[b]represent statistical significance levels at the 5% level.
[c]represent statistical significance levels at the 10% level.

The regression results indicate that among the four accruals measures, only the discretionary current accrual is statistically significant. Its coefficient is about $-0.4$, its *t*-statistic is about $-2.6$. This implies that issuers with aggressive levels of pre-issue discretionary current accruals perform significantly worse after the offering. The coefficient on discretionary long-term accruals is negative, but not statistically significant. The coefficients on the two nondiscretionary accruals are also insignificant, suggesting that only the actively manageable component of earnings predicts future returns.

As for economic significance, it is not surprising that individual firm long-run stock returns are highly variable and difficult to explain in cross-section. Specifically, the cross-sectional standard-deviation of four-year log returns is 71% for the 1035 firms in our regression. Because the standard deviation of discretionary current accruals in our regressions is 0.200, a coefficient of $-0.4$ indicates that a one-standard-deviation difference in $DCA_{-1}$ explains a four-year log-return differential of about 8%. Thus, one standard deviation in our single $DCA_{-1}$ variable accounts for more than 11% of the four-year cross-sectional standard deviation in log-returns (71%).

A diagnostic check on the linearity of our regression is the fraction of the actual amount of extreme quartile returns that the regression predicted. Dividing the 1035 firms in the regression sample into four $DCA_{-1}$ portfolios, we find that the most aggressive accrual firms have a post-issue mean log-return of $-19.6\%$ (market-adjusted $-44.0\%$). The explanatory variables from our regression predict a $-16.5\%$ ($-41.6\%$) post-issue log return for this group. Thus, the residual unexplained mean is only $-3.1\%$ for raw returns and $-2.4\%$ for market-adjusted returns. Equivalent computations for the most conservative accrual firms indicate a post-issue return of $-0.1\%$ for raw returns and $-25.6\%$ for market-adjusted returns, most of which is captured by the regression.

The two rightmost columns in Table 7 reproduce the market-adjusted regressions run on the two extreme portfolios grouped by market capitalization. We ignore the middle third to maximize differences in firm size between the two extreme groups. If the earnings management hypothesis holds, we expect predictable performance differences to be more pronounced in the regression for small firms than for large firms. Lower transaction costs for large firms allow investors to take advantage of the return anomaly for these firms. The discretionary current and discretionary long-term accrual coefficients are indeed reliably negative only in the small-firm regressions. However, with only 332 observations in each portfolio, the coefficient differences are only suggestive and should be interpreted with caution. Nondiscretionary accruals (both current and long-term), hypothesized to have little predictive power, are insignificant for small firms. A surprise finding is the significance of nondiscretionary current accruals for large firms. The correlation of future returns with pre-issue sales growth might be present only in large firms. Cheng's capital expenditure measure is positive and significant only among small firms and is sensitive to the method used to calculate abnormal returns. The predicted positive relation is not observed in large firms, again confirming that pricing anomalies persist when abnormal profit opportunities cannot be easily arbitraged away.

In sum, our evidence of post-issue return differences in cross-section is consistent with an earnings management scenario. Rangan (1997) confirms this finding using quarterly accruals. Among our four accrual measures, discretionary (i.e., managed) current accruals predict subsequent poor stock price performance the best. The fact that discretionary current accruals are a good predictor is especially surprising in light of the fact that they are an imperfect measure of earnings management and calculated from information available as early as four to sixteen months before the issue.

## 6. A Fama–MacBeth panel procedure

### 6.1. Methodology

In this section, we outline a procedure that addresses two previously neglected issues. First, since the previous regressions use overlapping multiyear returns, the regression errors could be correlated if all risk factors have not been properly accounted for. (The appropriate risk-factor adjustments for expected returns are currently still debated in the asset-pricing literature, and a consensus has yet to emerge.) Second, the significance of the accrual variables in the previous regressions may have been due to the ability of discretionary accruals to explain subsequent returns in *all* firms, not just in periods when there are new issues. Thus, we want to measure the incremental predictive power of post-issue returns by pre-issue accruals pertaining to periods of seasoned equity offerings.

To address the above issues, we run cross-sectional regressions explaining monthly returns from July 1975 through December 1994 with the following lagged variables: (a) the log of the firm's book-to-market value, (b) the log of the firm's market value of equity, (c) the four accrual measures described earlier, and (d) four interaction variables, accrual∗SEO dummy, which are the pre-issue accrual measure during seasoned equity offering-related periods, and zero otherwise. All independent variables are from the same fiscal year and lag the LHS returns they seek to explain. Following the tradition of using logarithms for the Fama–French variables, the book-to-market and size variables are truncated at 0.0001. Accrual measures are winsorized at the 5% and 95% percentiles to avoid undue influence of outliers. The results are robust to winsorizing at more extreme percentiles.

Fig. 2 illustrates the time line, the lag structure for the independent variables, and the algorithm for when the new issue dummy is set to one. We now assume an even more conservative reporting lag of six months (instead of the four-month lag in the previous section). Thus, the regressions relate returns to accruals and controls from fiscal years ending at least six months prior to the

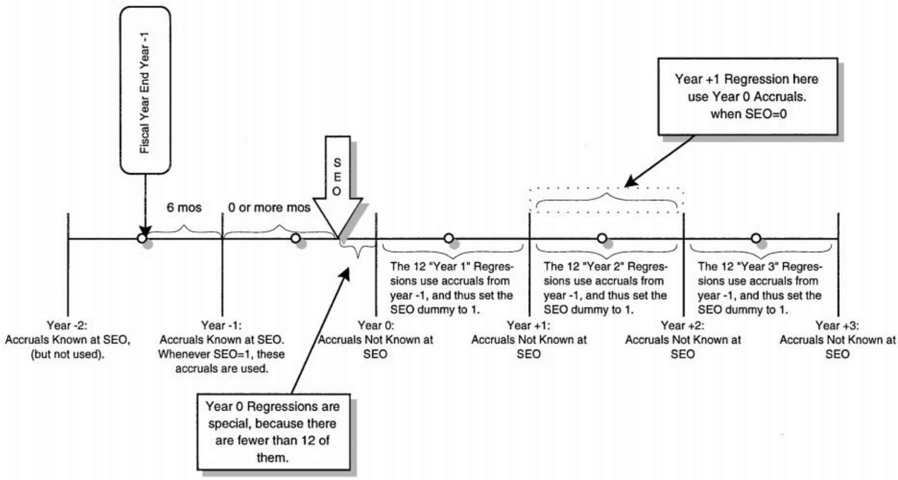


Fig. 2. Illustration of time alignment in panel regressions. This figure illustrates the regression lead-lag structure between the dependent variable, monthly returns, and the key independent variables, the four accrual measures and their interactive dummy variables, accrual*SEO. Regressions are performed in monthly cross-section, and overall statistics are aggregated over all months. We specify and aggregate cross-sectional coefficients for four different sets of regressions. In the 'year 0' regressions, the key independent variables, the four accrual measures, are obtained from the fiscal year ending 7 to 16 months prior to the monthly returns. For 'year 1' regressions, the accruals are from fiscal year ending 17 to 28 months prior, for 'year 2' regressions from 29 to 42 months prior, and for year 3 regressions from 43 to 64 months prior. The interactive accrual*SEO dummy turns on only when the accruals are from the fiscal year before the seasoned issue (and, for 'year 0' regressions, provided the dependent return observation occurs after the seasoned equity issue).

returns.[7] Four alternative lag structures for the independent variables relative to the returns are considered, from one to four fiscal years prior to the returns, after accounting for the reporting lag. Each lag is considered separately in the regressions. The alternative of using only a single set of regressions of monthly returns on the accruals from all four lagged fiscal years has survivorship problems.

The naming convention for the four sets of regressions is year $n$, where $n = 0$, 1, 2, and 3, with $n = 0$ as the lowest lag. Thus, the year 0 regressions relate returns in a given month to accruals and controls from fiscal years ending at least six months and up to 17 months prior. For example, the regression explaining returns in January 1990 would use accruals and controls from fiscal

[7] Firms are required to file form 10-K reporting on their annual financial statements with the SEC within 90 days of the fiscal year end. Alford, Jones, and Zmijewski 1994 report that 80% of firms file timely reports and only 2% of firms fail to file after 150 days after the fiscal year end.

years ending no later than June 1989. Equivalently, accruals and controls dated June 1989 would be used to explain returns in each month from January 1990 to December 1990. Year 1 regressions relate returns to accruals and controls from fiscal years ending 18 to 29 months earlier, year 2 regressions relate returns to accruals and controls 30 to 41 months earlier, and year 3 regressions relate returns to accruals and controls 42 to 53 months earlier. Thus, we have a total of four regression sets of about 180 monthly regressions each, with each set explaining the predictive power of accruals and controls for various lead-period returns. The year 0 set of regressions predicts returns from July 1975 through May 1991; the year 1 set predicts returns from June 1976 through May 1992, and so on. In each of the 180 regressions, the typical number of firms ranges between 2700 to 3200 observations.

The interaction dummy for the presence of a seasoned equity offering equals one only for the fiscal year data immediately preceding the offering in all regression sets. Consequently, the coefficients on the interaction variable, accrual*SEO dummy, measure the marginal predictive ability of pre-issue accruals for returns between zero and three years after the issue.

The interaction dummy is set to one only after the offering for the year 0 regression set. Suppose, for example, the new issue occurs in February 1990 and the fiscal year ends in June. The issue dummy is set to one in monthly return regressions from March 1990 to December 1990 on June 1989 accruals and other control variables for the year 0 set of regressions. The issue dummy is one also in the other three sets of regressions whenever June 1989 accruals are used. Thus, the issue dummy is one for the following regressions: January 1991 to December 1991 monthly return regressions on June 1989 accruals and controls for the year 1 set, January 1992 to December 1992 monthly return regressions on June 1989 accruals and controls for the year 2 set, and so on. We exclude months in the period from four months after the fiscal year end to the offering date from the regressions. It would be misleading to attribute explanatory power in these months as a 'non-issue' effect, just as it would be misleading to call it 'post-issue' return predictability when the equity offering has not yet occurred. The results are robust to omitting or including these months.

The time series of the estimated coefficients on each independent variable are averaged across the 180 monthly regressions in each set, and an overall $t$-statistic is calculated assuming serial independence. Finally, a grand mean and a grand $t$-statistic are computed across all four sets of regressions to estimate the relation between accruals and four-year returns. Attributing Gaussian unit-normality to the aggregated four-year $t$-statistics in effect assumes zero correlation in the time series of the accruals for the issuers. The observed correlations are of the order of 5–10%, and thus the assumption of uncorrelated accounting variables is unlikely to be problematic. But, to warn the reader, we have bracketed the significance level indicators in the table.

Unlike the approach in the previous section, in which multimonth returns are compounded into long-term holding periods, the cross-sectional regressions are performed monthly, so no overlapping periods exist to induce cross-sectional correlations. Instead of the Fama–French factor coefficients, we now use the firm's own book-to-market and firm size measures to control for cross-sectional variation in expected returns.[8] Because the explanatory variables are known when returns are measured, there is no need to run pre-test-period regressions to estimate ex ante (beta) coefficients or group firms into portfolios to reduce the errors-in-variables problem (as in Fama and MacBeth, 1973). By using this variation of the Fama–French model, we can evaluate the robustness of the relation between accruals and future returns with respect to alternative models of expected returns. Finally, by performing the cross-sectional regression on *all* firms, with accruals∗SEO dummy variables as regressors, we can estimate the incremental predictability of post-issue returns by pre-issue accruals beyond any average predictability of accruals for future returns. This allows us to extend Sloan's (1996) research relating total accruals to future returns to evaluate the relative importance of discretionary versus nondiscretionary accruals and pre-issue period versus non-issue period accruals in predicting future returns.

### 6.2. Results

Table 8 reports aggregate monthly regression results for the four sets of year 0 through year 3 regressions, and overall grand mean results over the four sets of regressions. Panel A regressions include only book-to-market, firm size, and accrual∗SEO dummy as explanatory variables. Panel B regressions include additionally the four accrual measures to compare the pre-issue accruals-return relation with the accruals-return relation in the general population.

Consistent with other research, firm size is only marginally important in the sample period, while the book-to-market ratio is highly significant. Panel A shows that pre-issue discretionary current accruals have a significantly negative relation with stock returns two and three years after the issue ($t$-statistics of $-2.94$ and $-2.36$). In the two years immediately following the issue, the coefficient is also negative and marginally significant($t$-statistics of $-1.82$ and $-1.61$). Aggregating over the four years, the average coefficient is $-3.521$ with

[8] Fama and French (1993, 1997) argue that the book-to-market (HML portfolio returns) and market (SMB portfolio returns) factors describe the cross-sectional variation in returns quite well. However, Daniel and Titman (1997) recommend using the firm's own book-to-market ratios and size measures instead of the Fama–French factor returns. They report that the firm's own variables explain the cross-sectional variation in returns better than the Fama–French factor returns.

Table 8

Time-series averages of monthly cross-sectional regressions of returns on lagged accruals and controls for all firms on CRSP with sufficient data

The independent variables are measured simultaneously and $Y$ years (plus an assumed reporting lag of 6 months) before the monthly return they seek to explain. SEO is an interaction dummy that is one when immediate pre-issue accruals are used (unless the issue has not yet happened) and zero otherwise. Time alignment is illustrated in Fig. 2. Essentially, the year $Y$ regression describes the predictive power of the accounting variable in the left-most column on stock returns $Y$ years after the accounting variable was *reported*. The boldfaced lines contain the statistics of most interest to us: they measure the influence of pre-issue discretionary current accruals on post-issue returns. The other variables are as described in previous tables. Each numerical column represents time-series statistics of about 180 cross-sectional regression coefficients/$t$-statistics. The dependent variables are log stock returns, measured in percent. The printed coefficient is the time-series averages of each month's cross-sectional coefficient. The $t$-statistic is the sum of each month's cross-sectional $t$ statistic divided by the square root of the number of monthly regressions. The aggregated columns report the average of the four average coefficients from columns 2–5, and the sum of the four $t$-statistics from columns 2–5 divided by two. Because the four $t$-statistics may not be independent (although they are not highly correlated), the significance level stars of the $t$ statistics in the last columns are in parentheses.

| Variable name | Monthly returns are in year $Y$: | | | | | | | | Aggregated Year 0 to 3 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Year 0 | | Year 1 | | Year 2 | | Year 3 | | Average Coef | Overall T's |
| | Average Coef | Overall T | Average Coef | Overall T | Average Coef | Overall T | Average Coef | Overall T | | |
| *Panel A: Explaining returns with lagged Fama-French variables and accruals for firms issuing seasoned equity offerings* | | | | | | | | | | |
| Constant | 3.431 | 4.58[a] | 3.503 | 5.05 | 3.622 | 4.96 | 2.920 | 3.97 | 3.369 | 9.28([a]) |
| $\text{Log}(\text{Bk}_{-Y}/\text{Market}_{-Y})$ | 0.162 | 5.39[a] | 0.119 | 4.27[a] | 0.099 | 3.98[a] | 0.059 | 3.04[a] | 0.110 | 8.34([a]) |
| $\text{Log}(\text{Market}_{-Y})$ | – 0.082 | – 1.01 | – 0.104 | – 1.45 | – 0.125 | – 1.46 | – 0.083 | – 0.74 | – 0.099 | – 2.33([b]) |
| $\text{DCA}_{-Y} * \text{SEO}_{-Y}$ | – 5.738 | – 1.82 | – 0.693 | – 1.61 | – 2.894 | – 2.94 | – 4.757 | – 2.36[b] | – 3.521 | – 4.37([a]) |
| $\text{DLA}_{-Y} * \text{SEO}_{-Y}$ | – 15.495 | – 3.22[a] | 8.176 | 0.71 | – 5.817 | – 0.33 | – 0.934 | – 0.14 | – 3.518 | – 1.49 |
| $\text{NDCA}_{-Y} * \text{SEO}_{-Y}$ | 4.509 | 0.94 | – 8.141 | – 2.51[b] | – 5.222 | – 1.49 | 8.403 | – 0.04 | – 0.113 | – 1.55 |
| $\text{NDLA}_{-Y} * \text{SEO}_{-Y}$ | – 1.759 | 0.21 | – 4.693 | 0.12 | 7.500 | 1.91 | 6.917 | 1.98[b] | 1.991 | 2.11([b]) |

*Panel B*: *Explaining returns with lagged Fama-French variables, accruals for firms issuing seasoned equity offerings, and accruals for all firms*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | 3.461 | 4.63[a] | 3.539 | 5.11[a] | 3.546 | 4.85[a] | 2.892 | 3.87[a] | 3.360 | 9.23([a]) |
| Log($Book_{-Y}$/$Market_{-Y}$) | 0.157 | 5.49[a] | 0.115 | 4.34[a] | 0.096 | 4.04[a] | 0.057 | 3.01[a] | 0.106 | 8.44([a]) |
| Log($Market_{-Y}$) | – 0.080 | – 1.00 | – 0.103 | – 1.43 | – 0.123 | – 1.41 | – 0.080 | – 0.68 | – 0.097 | – 2.26([a]) |
| $DCA_{-Y} * SEO_{-Y}$ | – 3.778 | – 0.55 | 0.026 | – 0.30 | – 2.460 | – 2.28[b] | – 4.581 | – 1.92 | – 2.698 | – 2.52([b]) |
| $DLA_{-Y} * SEO_{-Y}$ | – 15.148 | – 3.15[a] | 8.755 | 0.59 | – 3.500 | 0.06 | – 0.239 | – 0.22 | – 2.533 | – 1.36 |
| $NDCA_{-Y} * SEO_{-Y}$ | 5.646 | 1.53 | – 6.299 | – 1.57 | – 2.920 | – 0.54 | 9.119 | 0.55 | 1.387 | – 0.02 |
| $NDLA_{-Y} * SEO_{-Y}$ | – 1.765 | 0.20 | – 4.356 | 0.28 | 8.316 | 2.12[a] | 6.636 | 2.26[a] | 2.208 | 2.43([b]) |
| $DCA_{-Y}$ | – 1.948 | – 6.73[a] | – 0.938 | – 3.78[a] | – 0.347 | – 1.94 | – 0.133 | – 0.99 | – 0.842 | – 6.72([a]) |
| $DLA_{-Y}$ | 0.068 | 0.43 | – 0.442 | – 0.12 | – 2.081 | – 1.61 | – 0.342 | – 0.06 | – 0.699 | – 0.68 |
| $NDCA_{-Y}$ | – 1.297 | – 2.19[a] | – 1.987 | – 2.88 | – 2.188 | – 3.21[a] | – 0.900 | – 1.69 | – 1.593 | – 4.99([a]) |
| $NDLA_{-Y}$ | 0.753 | 0.34 | 0.666 | – 0.10 | – 1.100 | – 1.26 | 0.073 | – 0.20 | 0.098 | – 0.61 |

[a]represent statistical significance levels at the 1% levels.
[b]represent statistical significance levels at the 5% levels.

a $t$-statistic of $-4.37$, indicating that high pre-issue discretionary current accruals predict poor stock returns during the four-year period after the issue. The significance of discretionary current accruals is similar to that of the book-market ratio, and considerably higher than the significance of firm size. In contrast, pre-issue nondiscretionary current accruals are generally not a significant predictor of stock returns, except in year 1. As Panel B below shows, this explanatory power of pre-issue nondiscretionary current accruals is generic to all firms, and not specifically related to seasoned new issues.

For the pre-issue long-term accruals, the coefficient for discretionary long-term accruals is negative and statistically significant at the 1% level only in the months immediately after issue. This coefficient is neither negative nor significant in the remaining three years. On the other hand, nondiscretionary long-term accruals have a more delayed impact on returns; the coefficients for the year 2 and year 3 regressions are actually positive and significant at about the 5% level. These results suggest that firms with positive pre-issue nondiscretionary long-term accruals actually outperform the market after the issue.

Panel B compares the difference in explanatory power of the accrual variables between issue periods and non-issue periods. The coefficients on the four accrual variables without the interactive dummies are for non-issuers in all months and issuers in non-issue months. The coefficients on the four interactive dummy variables now measure the incremental explanatory power of pre-issue accruals *above and beyond* the explanatory power of accruals in the general population.

Discretionary current accruals appear to predict returns for the general population of firms in the short term. The $t$-statistics for the year 0 and year 1 regressions are highly significant at $-6.73$ and $-3.78$, respectively. Of significance to the earnings management hypothesis, the interaction pre-issue discretionary current accrual variable has a significant additional effect in years 2 and 3. The coefficients for the $DCA_{-1}$*SEO variables are one order of magnitude larger than the coefficients of the $DCA_{-1}$ variables ($-2.46$ and $-4.58$, as compared with $-0.35$ and $-0.13$, respectively), and the $t$-statistic ($-2.28$) for the year 2 lagged discretionary current accruals for issuers is statistically significant at the 5% level.

In economic terms, the $-2.5$ to $-4.6$ magnitude of the coefficients on discretionary accruals suggests that a one-standard-deviation difference in discretionary current accruals between two issuers (about 0.2) can explain a 0.5–0.9% monthly return differential. Aggregating over the four-year period, the $DCA_{-1}$*SEO variable is statistically significant at about the 1% level. Thus, the evidence indicates that the negative relation between discretionary current accruals and subsequent long-term stock returns is stronger during issue-related periods.

As for the other three accrual variables, discretionary long-term accruals do not predict future stock returns in either new issuers or in the general population of firms. Nondiscretionary current accruals predict negative subsequent returns in the general population, perhaps from contamination of the variable by the discretionary component that is left in the variable. Nondiscretionary long-term accruals, on the other hand, predict incrementally positive future returns for issuers but are unrelated to stock returns for the general population of firms.

In sum, the simple cross-sectional regressions in the previous section and the panel regressions here document a strong ability of pre-issue discretionary current accruals to predict multiyear post-issue abnormal returns. We also document that discretionary current accruals have a (time-diminishing) ability to predict subsequent returns for *all* firms, although this predictive ability is significantly greater for issuers. In contrast, discretionary long-term accruals predict returns only in the year immediately following the issue (which results in a lower significance in the simple cross-sectional regressions). Finally, nondiscretionary pre-issue accruals have no reliable predictive ability on post-issue stock market performance.

## 7. Summary and conclusion

This paper examines whether pre-issue earnings management, as reflected in discretionary accruals, explains the long-term underperformance of seasoned equity issuers. We document that discretionary current accruals grow before the offering, peak in the offering year, and decline thereafter. This accruals pattern causes net income to grow before, peak in, and decline after the offering year, despite low pre-issue and improved post-issue cash flow from operations. The post-issue net income decline is especially pronounced for issuers that aggressively manage discretionary current accruals before the issue.

Most importantly, we document a negative relation between pre-issue discretionary current accruals and post-issue earnings and stock returns. The negative relation with stock returns remains after controlling for firm size, book-to-market ratio, and post-issue capital expenditures. The negative relation between discretionary current accruals and subsequent returns is common to *all* firms during the 1976 to 1990 test period. These results extend prior research in two ways. First, we show that the discretionary component of current accruals explains future returns as well as the book-to-market ratio does and considerably better than firm size. Second, we show that the negative relation between discretionary current accruals and future returns is stronger and more persistent among firms engaging in new equity offerings.

The relation between discretionary current accruals and post-issue underperformance in stock returns has also been documented by Teoh et al. (forthcoming b) and Teoh et al. (forthcoming a) for initial public offerings. Because seasoned equity issuers are already followed by analysts, offer more public and audited information, have greater market capitalization, and are easier to sell short, it would seem plausible that incentives and opportunities for deceiving investors by managing earnings are more limited for seasoned equity issues than for initial public offerings. Thus, the evidence here of predictable post-issue returns for seasoned issuers based on available discretionary accrual information poses an even stronger challenge to the efficient markets theory than the evidence on initial public offerings.

In sum, the evidence is consistent with the hypothesis that investors naively extrapolate pre-issue earnings, and ignore relevant information contained in pre-issue discretionary current accruals. In this interpretation, an informationally imperfect market is too optimistic when a seasoned equity issue is offered and later on becomes disappointed when the high earnings cannot be sustained. These findings have implications for investors, firms, and accounting standard setters. Investors can use information contained in the pre-offering accounting accruals to discriminate among issuers. Managers can consider permissible accounting choices to reduce the firm's cost of capital or increase their own welfare. And accounting standard setters may want to consider the costs of discretion in accrual choices, especially when investors have considerably less information than do the managers of issuing firms.[9]

## Appendix A.

### A.1. Computation of the accruals measures

This appendix explains the estimation of the four accrual measures. Numbers in parentheses are Compustat item numbers. Total accruals ($TAC$) consist of *current accruals* ($CA$) or working capital accruals, and *long-term accruals* ($LA$). $TAC$ is calculated as

$$TAC = CA + LA$$
$$= \text{Net Income (172)} - \text{Cash Flow from Operations (308)}. \qquad (A.1)$$

Prior to 1987, cash flow from operations is not available as item (308) so it is calculated as the funds flow from operations (item 110) minus current accruals

[9] A current proposal at the Financial Accounting Standards Board (FASB) suggests requiring only a short-form report. Our evidence suggests that this may have adverse consequences for investors. The elimination of price-relevant accounting items (such as items necessary to compute accruals) may result in investors trading in an even less informationally efficient market.

as defined below (see page 111 of the Compustat 1994 manual for further details).[10]

Current accruals are the change in noncash current assets minus the change in operating current liabilities:

$$CA = \Delta[\text{current assets (4)} - \text{cash (1)}] - \Delta[\text{current liabilities (5)} - \text{current maturity of long-term debt (44)}]. \quad \text{(A.2)}$$

To obtain the discretionary and nondiscretionary accruals for a given year, we use the cross-sectional adaptation of the modified Jones (1991) model as in Teoh et al. (forthcoming b). An ordinary least squares regression of current accruals for a given year is regressed on the change in sales for that year using all firms in the same two-digit SIC code as the seasoned new issuer, but excluding the issuer. This intra-industry cross-sectional regression is reestimated for each year in the test period (from years $-3$ to $+3$ relative to the fiscal year of the issue). Consistent with the use of the model in the accounting literature, all variables including the intercept term in the cross-sectional regression are deflated by beginning total assets to reduce heteroskedasticity:

$$\frac{CA_{jt}}{TA_{j,t-1}} = a_0\left(\frac{1}{TA_{j,t-1}}\right) + a_1\left(\frac{\Delta SALES_{jt}}{TA_{j,t-1}}\right) + \varepsilon_{jt}, \quad \text{(A.3)}$$

where $j$ firms belong in the same two-digit SIC code as the issuing firm but excluding the issuer, $TA_{j,t-1}$ is total assets in year $t-1$, and $\Delta SALES_{j,t}$ is the change in sales in year $t$ for firm $j$.

The nondiscretionary current accruals (scaled by beginning assets), $NDCA_{-1}$, represent the portion of current accruals dictated by firm sales growth, and is viewed as independent of managerial control. It is computed as

$$NDCA_{it} = \hat{a}_0\left(\frac{1}{TA_{i,t-1}}\right) + \hat{a}_1\left(\frac{\Delta SALES_{it} - \Delta A/R_{it}}{TA_{i,t-1}}\right), \quad \text{(A.4)}$$

where $\Delta A/R_{it}$ is the change in trade receivables in year $t$ for issuer $i$. We subtract the increase in accounts receivable from sales growth to allow for the possibility of credit sales manipulation by the issuer, who might allow generous credit policies to obtain high sales prior to the offering (see Dechow et al., 1995). The main results of our paper are robust to omitting this adjustment.

[10] Item (110) is used as the cash flow from operations in cases when Compustat already excludes current accruals from item (110). This occurs when funds from operations are reported either as one total or grouped together in the funds flow statement (format code for item 318 is 2) or in the cash by activity statement (format code for item 318 is 3).

The remaining current accruals are the scaled discretionary current accruals ($DCA_{-1}$) and are the portion of current accruals subject to manipulation by management:

$$DCA_{it} = \frac{CA_{it}}{TA_{i,t-1}} - NDCA_{it}. \tag{A.5}$$

For long-term accruals, we first estimate total accruals by using a regression similar to Eq. (A.3). The dependent variable is total accruals. We include property, plant, and equipment as an additional regressor because long-term accruals (e.g. depreciation levels) are affected by the amount of long-term assets as in Jones (1991):

$$\frac{TAC_{jt}}{TA_{j,t-1}} = b_0\left(\frac{1}{TA_{j,t-1}}\right) + b_1\left(\frac{\Delta SALES_{jt}}{TA_{j,t-1}}\right) + b_2\left(\frac{PPE_{jt}}{TA_{j,t-1}}\right) + \varepsilon_{jt}, \tag{A.6}$$

where $j$ firms belong in the same two-digit SIC code as the issuer (excluding the issuer), $TAC_{jt}$ is total accruals, and $PPE_{jt}$ is gross property, plant, and equipment for firm $j$ in year $t$.

The nondiscretionary total accruals scaled by assets ($NDTAC$) and the discretionary total accruals scaled by assets ($DTAC$) are computed as

$$NDTAC_{it} = \hat{b}_0\left(\frac{1}{TA_{i,t-1}}\right) + \hat{b}_1\left(\frac{\Delta SALES_{it} - \Delta A/R_{it}}{TA_{i,t-1}}\right) + \hat{b}_2\left(\frac{PPE_{it}}{TA_{i,t-1}}\right), \tag{A.7}$$

and

$$DTAC_{it} = \left(\frac{TAC_{it}}{TA_{it}}\right) - NDTAC_{it}. \tag{A.8}$$

As in Eq. (A.4), the increase in accounts receivable is subtracted from sales growth to allow for the manipulation of credit sales.

Long-term accruals are total accruals net of current accruals. Thus, nondiscretionary long-term accruals scaled by assets ($NDLA_{-1}$) will be the difference between $NDTAC$ and $NDCA_{-1}$. Discretionary long-term accruals scaled by assets ($DLA_{-1}$) will be the difference between long-term accruals and $NDLA_{-1}$.

To summarize, the four accruals measures are discretionary current accruals ($DCA_{-1}$), discretionary long-term accruals ($DLA_{-1}$), nondiscretionary current accruals ($NDCA_{-1}$) and nondiscretionary long-term accruals ($NDLA_{-1}$). The two discretionary accrual measures are proxies for earnings management whereas the two nondiscretionary accrual measures are proxies for accrual recognition outside the control of management.

Table 9 provides some descriptive statistics on the properties of the estimated regressions (coefficients, $t$-statistics, regression fits, and numbers of observations) from Eqs. (A.3) and (A.6). In general, the regression statistics are comparable with those reported in previous studies (see Perry and Williams, 1994). The median adjusted $R^2$ for the regression for current accruals is 20% and for total accruals is 32%, which is encouraging as an indicator of the explanatory power of the cross-sectional Jones model.

### *A.2. Fama–French returns*[11]

To extract individual firm factor loadings ($\gamma$) on the three Fama–French (1993) factors, we run a time series regression for each firm of the monthly excess return over the risk-free rate on the three Fama–French factors from month $-36$ to month $-12$ relative to the filing date of the offering:

$$R_{i,t} - r_{f,t} = \gamma_1(R_{m,t} - r_{f,t}) + \gamma_2 R_{\text{smb},t} + \gamma_3 R_{\text{hml},t} + \varepsilon_{i,t}, \tag{A.9}$$

where $t$ is a month index, $R_{\text{smb},t}$ is the return on a small-capitalization portfolio minus a large-capitalization portfolio, $R_{\text{hml},t}$ is the return on a high book-to-market portfolio minus a low book-to-market portfolio, $R_{m,t}$ is the return on a value-weighted market index, $r_{f,t}$ is the one-month Treasury bill (risk-free) rate of return, and $R_{i,t}$ is the return for each issuer. A minimum of 12 available months is required to estimate each regression.

The expected return for each month is computed from month $-11$ to $+60$, using the estimated coefficients from the factor regression, the relevant month factor returns, and replacing the intercept with the risk-free rate of return:

$$ER_{i,t} = r_{f,t} + \hat{\gamma}_1(R_{m,t} - r_{f,t}) + \hat{\gamma}_2 R_{\text{smb},t} + \hat{\gamma}_3 R_{\text{hml},t}. \tag{A.10}$$

The abnormal return is the realized return minus the Fama–French expected return. In our sample, the coefficients indicate that the Fama–French variables are unlikely to explain differences in observed returns between the two extreme accrual quartiles. The betas for the market premium and firm equity size differ by 0.06 and 0.03, respectively. The betas for the book-to-market variable differ by a modest 0.35. Furthermore, Table 6 indicates that the two quartiles have similar pre-issue return performance, making it unlikely that our results are driven by the winner/loser reversal phenomenon.

[11] There is some argument as to whether the Fama–French model explains systematic risk (covariance). However, it is known to explain the cross-sectional variation in average returns in the CRSP data set quite well. By including abnormal returns relative to the Fama–French factors for expected returns, we show that the accruals' influence on returns is distinct from that exerted by the market-return, the firm's book-to-market ratio and the firm's size. Loughran and Ritter (1995) follow the same strategy.

Table 9
Descriptive statistics on estimated parameters for the expected accruals model

This table provides descriptive statistics on the parameters from the regressions that estimate expected (current and total) accruals. For each issuing firm, the parameters are estimated from a cross-sectional regression using firms in the same two-digit SIC code as the issuing firm (over 60 two-digit SIC code industries are represented). N is the number of firms in the issuer's two-digit SIC industry used in the cross-sectional regressions. The statistics on the parameters are roughly comparable with those reported in Perry and Williams (1994) who estimate a time series regression firm by firm. (No comparable statistics for the cross-sectional Jones (1991) model have been reported in current published papers.)

| Parameter | Mean | Quartile cutoffs | | |
|---|---|---|---|---|
| | | 1st | 2nd | 3rd |
| *Panel A: Current accruals regression, Eq.* (5) | | | | |
| $a_0$ | 0.05 | − 0.08 | − 0.00 | 0.10 |
| *t*-stat | 0.52 | − 1.37 | − 0.02 | 1.42 |
| $a_1$ | 0.05 | 0.01 | 0.08 | 0.16 |
| *t*-stat | 3.10 | 0.13 | 2.10 | 5.00 |
| Adj. $R^2$ | 27% | 4% | 20% | 41% |
| N | 88 | 27 | 57 | 111 |
| *Panel B: Total accruals regression, Eq.* (8) | | | | |
| $b_0$ | − 0.01 | − 0.11 | − 0.01 | 0.07 |
| *t*-stat | − 0.84 | − 1.75 | − 0.24 | 0.92 |
| $b_1$ | 0.03 | − 0.02 | 0.05 | 0.13 |
| *t*-stat | 2.00 | − 0.33 | 1.40 | 3.66 |
| $b_2$ | − 0.07 | − 0.10 | − 0.07 | − 0.04 |
| *t*-stat | − 3.23 | − 5.12 | − 4.66 | − 1.28 |
| Adj. $R^2$ | 37% | 15% | 32% | 56% |
| N | 87 | 27 | 57 | 105 |

## References

Alford, A, Jones, J, Zmijewski, M, 1994. Extensions and violations of the statutory SEC form 10-K filing requirements. Journal of Accounting and Economics 17, 228–254.

Barber, B, Lyon, J, 1997. Detecting long-run abnormal stock returns: the empirical power and specification of test statistics. Journal of Financial Economics 43 (3), 341–372.

Cheng, L., 1995. Equity issue underperformance and the timing of security issues. Unpublished working paper. Massachusetts Institute of Technology, Cambridge, MA.

Daniel, K, Titman, S, 1997. Evidence on the characteristics of cross sectional variation in stock returns. Journal of Finance 52 (1), 1–33.

Davidson, S, Stickney, C, Weil, R, 1986. Accounting: The Language of Business. Thomas Horton and Daughters, Sun Lakes, AZ.

Dechow, P, Sloan, R, Sweeney, A, 1995. Detecting earnings management. Accounting Review 70 (2), 193–225.
DeFond, M, Jiambalvo, J, 1994. Debt covenant violation and manipulation of accruals. Journal of Accounting and Economics 18 (2), 145–176.
Fama, E, French, K, 1993. Common risk factors in the returns on stocks and bonds. Journal of Financial Economics 33, 3–56.
Fama, E, French, K, 1997. Industry costs of equity. Journal of Financial Economics 43 (2), 153–194.
Fama, E, MacBeth, J, 1973. Risk, return and equilibrium: empirical tests. Journal of Political Economy 81, 607–636.
Guay, W, Kothari, S, Watts, R, 1996. A market-based evaluation of discretionary accrual models. Journal of Accounting Research Supplement 34, 83–105.
Guenther, D, 1994. Measuring earnings management in response to corporate tax rate changes: evidence from the 1986 tax reform act. Accounting Review 69, 230–243.
Hansen, R, Crutchley, C, 1990. Corporate earnings and financing: an empirical analysis. Journal of Business 63, 349–371.
Healy, P, 1996. Discussion of a market-based evaluation of discretionary accrual models. Journal of Accounting Research Supplement 34, 107–115.
Healy, P, Palepu, K, 1990. Earnings and risk changes surrounding primary stock offers. Journal of Accounting Research 28, 25–48.
Jain, B, Kini, O, 1995. The post-issue operating performance of ipo firms. The Journal of Finance 49 (2), 1699–1726.
Jones, J, 1991. Earnings management during import relief investigation. Journal of Accounting Research 29 (2), 193–228.
Kothari, S, Warner, J, 1997. Measuring long-horizon security price performance. Journal of Financial Economics 43 (4), 301–340.
Kreutzfeldt, R, Wallace, W, 1986. Error characteristics in audit populations: their profile and relationship to environmental factors. Auditing: A Journal of Practice and Theory 6, 20–43.
Loughran, T, Ritter, J, 1995. The new issues puzzle. Journal of Finance 50 (1), 23–51.
Loughran T., Ritter, J., 1997. The operating performance of firms conducting seasoned equity offerings. Journal of Finance 52, forthcoming.
Mikkelson, W, Partch, M, Shah, K, 1997. Ownership and operating performance of companies that go public. Journal of Financial Economics 44, 281–307.
Perry, S, Williams, T, 1994. Earnings management preceding management buyout offers. Journal of Accounting and Economics 18, 157–179.
Rangan, S., 1997. Earnings Around Seasoned Equity Offerings: Are they overstated? Journal of Financial Economics, forthcoming.
Ritter, J, 1991. The long-run performance of initial public offerings. Journal of Finance 66, 3–27.
Spiess, K, Affleck-Graves, J, 1995. Underperformance in long-run stock returns following seasoned equity offerings. Journal of Financial Economics 38, 243–267.
Sloan, R, 1996. Do stock prices fully impound information in accruals about future earnings? Accounting Review 71, 289–315.
Teoh, S.H, Welch, I, Wong, T.J, forthcoming a. Earnings management and the long-term market performance of initial public offerings. Journal of Finance.
Teoh S.H., Wong, T.J., Rao, G., forthcoming b. Are accruals during initial public offerings opportunistic? Review of Accounting Studies.