Smoothing income in anticipation of future earnings

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Abstract

Recent theory argues that concern about job security creates an incentive for managers to smooth earnings in consideration of both current and future relative performance. We find support for this theory. Our evidence suggests that when current earnings are 'poor' and expected future earnings are 'good', managers 'borrow' earnings from the future for use in the current period. Conversely, when current earnings are 'good' and expected future earnings are 'poor' managers 'save' current earnings for possible use in the future. However, sensitivity analysis indicates that we cannot rule out selection bias as a potential alternative explanation for our findings.

Keywords: Contracting; Income smoothing; Job security; Accruals
JEL classification: M41; J41

1. Introduction

Conventional wisdom maintains that managers make discretionary accounting choices that 'smooth' reported earnings around some pre-determined target (e.g. Smith et al., 1994; Ronen and Sadan, 1981). Gaver et al. (1995) find a negative association between discretionary accruals and current earnings.
premanaged earnings.\(^1\) However, they do not provide a theoretical explanation of managements' incentives to smooth income, or why current period earnings are expected to be the target of smoothing. In this paper economic theory of managers' incentives is used to identify managements' income smoothing targets.

Recent theory by Fudenberg and Tirole (1995) suggests that concern about job security creates an incentive for managers to smooth earnings in consideration of both current and future relative performance. Key assumptions in this theory are that poor performance increases the likelihood of managements' dismissal and good performance in the current year will not compensate for poor performance in the future. Intuition from the theory suggests that when current performance is poor, managers have an incentive to shift future earnings into the current period in order to reduce the chance of dismissal. Conversely, when future performance is expected to be poor, managers wish to shift current period earnings into the future in order to reduce the likelihood of future dismissal. The implications of this intuition for earnings management are twofold. First, when current earnings are relatively low, but expected future earnings are relatively high, managers will make accounting choices that increase current period discretionary accruals. In effect, managers in this setting are 'borrowing' earnings from the future. Second, when current earnings are relatively high, but expected future earnings are relatively low, managers will make accounting choices that decrease current year discretionary accruals. Managers are effectively 'saving' current earnings for possible use in the future.

We investigate the intuition derived from the Fudenberg–Tirole model by examining the effects of current relative premanaged earnings and expected future relative earnings on the behavior of discretionary accruals. Our sample consists of 13,297 firm-year observations from the Compustat database. We estimate discretionary accruals using a variation of the Jones (1991) model. Current premanaged earnings are measured as current period earnings minus discretionary accruals. Analysts' forecasts of next period's earnings from the I/B/E/S database are used to proxy for managements' expectations of earnings performance in future periods. Relative current earnings are measured in relation to the sample median, by industry and year. Relative future earnings are proxied by analysts' forecasts of next period earnings in relation to the sample median, by industry and year.

We find support for our predictions. Overall, 3,636 (27.3\%) of the sample observations are predicted to have incentives to manage earnings. Of the 1,800

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\(^1\)While Gaver et al. (1995) find this result in a relatively general setting, other papers have documented similar results in more restrictive settings. For example, Hand (1989) finds that managers time debt-equity swaps to smooth transitory decreases in earnings. Chaney et al. (1995), Subramanyam (1997) and Hunt et al. (1996) also find evidence consistent with income smoothing.
observations with predicted incentives to decrease earnings, 92% make income-decreasing discretionary accruals. Similarly, of the 1,836 observations with predicted incentives to increase earnings, 87% make income-increasing discretionary accruals. This compares with the sample base-rate of 50% of our 13,297 sample observations making income-increasing discretionary accruals.

This paper contributes to the literature by using recent economic theory to identify conditions when managers are expected to have incentives to smooth earnings. While previous research identifies current performance to be associated with smoothing, we find that predictions are much more powerful when expected future relative performance is also considered. This is consistent with management concerns about job security motivating income smoothing.

Additional analyses indicate that the results are robust to excluding firms with extreme financial performance, to a matched pairs design that controls for operating performance by industry and year, and to the use of actual future relative earnings as a proxy for expected future earnings. In addition, the results persist in multivariate tests that control the effects of potentially omitted correlated variables. We also investigate whether our results are affected by selection bias that may be induced by using premanaged earnings to partition current relative performance. We approach this by exploring several alternative variables to partition current relative performance. The results of this analysis are mixed. Therefore, we cannot rule out the possibility that selection bias influences our findings.

2. Income smoothing and expected earnings

Fudenberg and Tirole (1995) present a theoretical model that suggests managers consider expected future earnings when making discretionary accounting choices. Their findings are based on three assumptions. First, they assume that 'incumbency rents' accrue to managers. That is, managers receive a non-monetary private benefit from running the firm. The notion that managers are motivated by other than salary and bonus is supported in field study research. Merchant (1989, p. 30) argues that managers who miss financial targets are more concerned with the associated loss of credibility and intervention than with reductions in bonus compensation. Their second assumption is that poor performance may result in managements' dismissal. This assumption is reasonable since it is well documented that non-routine management changes are associated with poor financial performance (e.g. Murphy and Zimmerman, 1993; Warner et al., 1988; Weisbach, 1988). The important implication of these

While this reference pertains to divisional managers, we believe the inference to top management is reasonable.
two assumptions is that during years of 'poor' performance, managers have an incentive to take costly actions to shift reported earnings into the current period in order to avoid dismissal. That is, they have the incentive to smooth reported earnings by increasing current earnings at the expense of future earnings. A method of achieving this is to make accounting choices that increase current year discretionary accruals. Because mean discretionary accruals are expected to be zero over time, this behavior has the effect of shifting future earnings into the current period.

The third assumption made by Fudenberg and Tirole is that current earnings receive more weight than past earnings in evaluating managements' performance. This property is referred to as 'information decay' and the authors refer to casual empiricism to support the validity of this assumption. An implication of information decay is that 'good' performance in the current period will not compensate for 'poor' performance in the future. Therefore, when future performance is expected to be 'poor', managers have an incentive to shift current earnings into the future in order to avoid dismissal. This is an incentive to smooth reported earnings by decreasing current earnings for the benefit of future earnings. This can be achieved by making accounting choices that decrease current year discretionary accruals for possible use in the future.

The purpose of this study is to test the above intuition from Fudenberg and Tirole (1995). We assume that managers consider current period performance to be 'poor' ('good') when current premanaged earnings fall below (lie above) the sample median, by industry and year. Further, we assume that managers anticipate 'poor' ('good') future performance when expected next period earnings fall below (lie above) median expected next period earnings for the sample, by industry and year. These measures implicitly assume that relative performance evaluation is used to determine management termination. This is supported by Morck et al. (1989) and Blackwell et al. (1994) who document that when a firm significantly underperforms its industry, the probability of turnover of top management rises. These measures also assume that managers are able to estimate their own current and expected median industry performance from analyst forecasts and/or industry financial information sources.

Based on our measure of relative performance evaluation we make two predictions. (i) We predict that, ceteris paribus, income-increasing discretionary

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3Costs associated with income smoothing include the managerial time and effort involved in justifying the managed accruals and the potential costs of sanctions, such as loss of reputation, if the manager is judged to be reporting misleading financial statements.

4While not examining the issue of termination, Gibbons and Murphy (1992) model optimal incentive contracts when a worker has concern about the effect of current performance on future compensation.

5We acknowledge, however, that the theory does not assume performance is defined as industry relative performance. An alternative is within-firm longitudinal relative performance.
accruals are associated with firms that have poor current performance and good expected future performance. Managers in these firms are expected to 'borrow' future earnings in order to reduce the threat of dismissal in the current period. (ii) We predict that, ceteris paribus, income-decreasing discretionary accruals are associated with firms that have good current performance and poor expected future performance. Managers in these firms are expected to 'save' current earnings for possible use in reducing the threat of dismissal in the future.

In some cases, our predictions may also be consistent with the bonus hypothesis which predicts that managers make discretionary accruals in response to upper and lower bound incentives provided in their bonus plans (see Healy, 1985). However, prior evidence indicates that only about 30% of firms with bonus plans have upper bound parameters (Healy, 1985; Gaver et al., 1995). Further, while the bonus hypothesis predicts some firms with premanaged earnings below the lower bound will make income-decreasing discretionary accruals, our study predicts that firms with relatively low premanaged earnings will always make income-increasing discretionary accruals. Therefore, it is unlikely that results consistent with our predictions will be driven by the bonus hypothesis.

3. Data and variables estimation

3.1. Estimation of discretionary accruals

We measure discretionary accruals using a variation of the Jones (1991) model. Normal accruals are estimated from the following model

\[
TA_{it}/A_{it-1} = a_0[1/A_{it-1}] + b_1[(\Delta REV_{it} - \Delta AR_{it})/A_{it-1}] \\
+ b_2[PP_{it}/A_{it-1}] + e_{it},
\]

where, for sample firm \( i \) at time \( t \)

- \( TA_{it} \) = total accruals;
- \( A_{it-1} \) = total assets;
- \( REV_{it} \) = total revenues;

\(^6\)Schipper (1989) notes that there may be several reasons why researchers are able to observe earnings management while users of the managed earnings cannot. For example, 'A researcher using large historical data sets might be able to document statistically a pattern of behavior consistent with earnings management within the sample, without being able to say with confidence whether earnings were managed for any particular firm in the sample.' (Schipper, 1989, p. 97).

\(^7\)We note, however, that there is conflicting evidence on the efficacy of the Jones (1991) model's ability to capture discretionary accruals. Dechow et al. (1995) find that the Jones model appears well-specified in a random sample of firms while Guay et al. (1996) suggest it may be deficient.
As in other studies (e.g., Jones, 1991; Dechow et al., 1995), total accruals \( TA_{it} \) are computed as:

\[
TA_{it} = \Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} + \Delta STD_{it} - Dep_{it}
\]

where, for sample firm \( i \) at time \( t \)

\[
\Delta CA_{it} = \text{change in current assets};
\]
\[
\Delta CL_{it} = \text{change in current liabilities};
\]
\[
\Delta Cash_{it} = \text{change in cash and cash equivalents};
\]
\[
\Delta STD_{it} = \text{change in debt included in current liabilities};
\]
\[
Dep_{it} = \text{depreciation and amortization expense}.
\]

We estimate the above model using time-series observations and require at least 10 years of data. All available observations on the 1994 Compustat Industrial, Full Coverage and Research databases are used to estimate the model for each sample firm. Discretionary accruals are estimated as the difference between reported total accruals and the fitted value of total accruals using coefficient estimates from the above model.

3.2. Estimation of expected earnings

The intuition from Fudenberg and Tirole (1995) implies that managers choose current year discretionary accruals partially in anticipation of future earnings. While the time period over which managers anticipate future earnings is unknown, it is likely that the major portion of income shifting occurs over adjacent years. Therefore, we focus on next year’s earnings as a reasonable approximation of management’s anticipated income-shifting horizon.

Empirically, we need to capture managers’ expectations of next period’s earnings during the time discretionary accruals are chosen for the current year. This requires assumptions regarding: (1) when current year’s discretionary

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8 We also estimate discretionary accruals using a cross-sectional model such as that used in DeFond and Jiambalvo (1994). The primary results are qualitatively identical to those obtained using the method described here.

9 For example, if a given firm enters the analysis from 1984–1994, we use all available observations from 1975–1994 to estimate normal accruals. (1975 is the earliest year on the 1994 Compustat database.) Discretionary accruals for 1984–1994 are then estimated using fitted values from the coefficients in this model.
accruals are chosen, and (2) managers’ expectations of next period’s earnings at the time current year’s discretionary accruals are chosen. We assume that current year’s discretionary accruals are chosen sometime just prior to managers’ announcement of current year’s earnings. We further assume that analysts’ forecasts following managers’ announcements of current year’s earnings are reasonable surrogates for managers’ expectations of next period’s premanaged earnings at the time current year’s discretionary accruals are chosen. This assumes that analysts forecast premanaged earnings. This is a reasonable assumption if year $t + 1$ discretionary accruals are not predictable at the end of year $t$. This is consistent with the theory, which suggests that management chooses year $t + 1$ discretionary accruals at the end of year $t + 1$ after considering expected future premanaged earnings for time $t + 2$. However, since analysts may actually predict postmanaged earnings, we also perform sensitivity analyses that considers actual future premanaged earnings as a surrogate for expected future performance. The forecasts following the announcement of current year’s earnings are chosen because they are expected to ‘impound’ information from current year’s earnings. Thus, they should more closely reflect managers’ information at the time of the discretionary accruals choice.

Analysts’ forecasts are chosen from the I/B/E/S database which reports composite analyst forecasts on the Thursday before the third Friday of each month. To estimate expected earnings we use median analysts’ forecasts of next year’s earnings per share multiplied by the number of shares outstanding on the forecast date. We select the forecast that is the earlier of (1) the second median forecast following managers’ announcement of current year earnings, or (2) the median forecast in the fourth month following year end. The second median forecast is used because the first median forecast following the current earnings announcement may actually have been made prior to the announcement of current earnings. This is because there is a delay in the forecasts reaching the database. The second criterion is added because some managers announce current year earnings quite late. 89% of the observations fall in the first group and 11% fall in the second group. To test the sensitivity of this choice of forecast, we also perform our analysis using forecasts made during the first month

10Brown et al. (1985) examine the relation between I/B/E/S earnings forecasts and changes in stock prices. They argue that their findings are consistent with analysts’ year-ahead forecasts conveying expectations about permanent earnings. If discretionary accruals are a part of transitory earnings, then our assumption is consistent with their findings.

11I/B/E/S claims that their staff is in constant contact with analysts in order to insure the quality of their forecast data. However, it is possible that a small proportion of the forecasts in our analysis predate the earnings announcement date. We use the second forecast following the announcement date to minimize this possibility. We also perform sensitivity to the forecast measure by partitioning future expected earnings using the actual realization of future earnings in Section 4.4.
following the current year's earnings announcement and forecasts made during the month preceding the current year's earnings announcement. The results using these alternative specifications are qualitatively invariant to those reported.

3.3. Data

The sample is chosen from the intersection of firms contained in the 1994 Compustat Industrial, Full Coverage and Research databases and the I/B/E/S database. Because our tests classify firms based on relative industry performance (2-digit SIC), we require at least 20 firms per industry for inclusion in the sample.\footnote{In a study of CEO turnover, Weisbach (1988) uses a two-digit SIC industry classification to capture changes in industry relative performance.} Financial institutions (SICs between 5999 and 7000) and unclassified firms (SICs equal to 9999) are deleted because discretionary accruals estimation is problematic for these firms. Firms are also eliminated due to missing data for the accruals estimation model, due to changes in fiscal year end, and when total assets are less than one million dollars. We also eliminate observations with undue influence on the parameters of the accruals estimation model using the criteria proposed in Belsley et al. (1980). Lastly, we trim our sample of observations with discretionary accruals, operating cash flows or nondiscretionary accruals in the extreme 1% of the distribution.

3.4. Descriptive statistics

The selection process described in the previous section yields a sample of 13,297 firm-year observations with year-ends from 1984 through 1994 with sufficient data on both the Compustat and I/B/E/S databases. The earliest year in our analysis is 1984 because this is the first year that I/B/E/S includes information on the number of shares used in their per share calculations. While we could potentially obtain share information from other sources, 11 years of data yields a sufficiently large sample to perform our tests. The frequency of observations across years ranges from a low of 991 in 1994 to a high of 1,404 in 1986 with a median of 1,192. The frequency of observations per firm ranges from once for 175 firms to 11 times for 310 firms.\footnote{We do not adjust the data for inflation since the mean (median) increase in the Producers Price Index (PPI) was only 1.7% (1.5%) per year over the period studied.}

Panel A of Table 1 presents means, standard deviations, medians and upper-and lower-quartile values of several variables representing financial characteristics of the sample. Because these firms are followed by analysts, they are expected to be financially more sound than the population as a whole and the
Table 1
Descriptive statistics ($n = 13,297$)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>$\sigma$</th>
<th>Lower quartile</th>
<th>Median</th>
<th>Upper quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Financial variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net earnings (NE)</td>
<td>0.051</td>
<td>0.077</td>
<td>0.022</td>
<td>0.052</td>
<td>0.089</td>
</tr>
<tr>
<td>Operating cash flows (OCF)</td>
<td>0.090</td>
<td>0.082</td>
<td>0.047</td>
<td>0.090</td>
<td>0.137</td>
</tr>
<tr>
<td>Leverage (LEV)</td>
<td>0.524</td>
<td>0.211</td>
<td>0.388</td>
<td>0.540</td>
<td>0.645</td>
</tr>
<tr>
<td>Assets ($millions)</td>
<td>2,316</td>
<td>6,541</td>
<td>109</td>
<td>357</td>
<td>1,653</td>
</tr>
<tr>
<td>Total accruals (TA)</td>
<td>-0.039</td>
<td>0.066</td>
<td>-0.075</td>
<td>-0.041</td>
<td>-0.006</td>
</tr>
<tr>
<td><strong>Panel B: Test variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discretionary accruals (DA)</td>
<td>-0.001</td>
<td>0.050</td>
<td>-0.024</td>
<td>0.000</td>
<td>0.024</td>
</tr>
<tr>
<td>Premanaged earnings (NDE)</td>
<td>0.052</td>
<td>0.082</td>
<td>0.011</td>
<td>0.051</td>
<td>0.097</td>
</tr>
<tr>
<td>Median net earnings, by industry and year (MNE)</td>
<td>0.054</td>
<td>0.020</td>
<td>0.042</td>
<td>0.054</td>
<td>0.067</td>
</tr>
<tr>
<td>Current premanaged earnings minus sample median earnings, by industry and year (CD)</td>
<td>-0.002</td>
<td>0.080</td>
<td>-0.041</td>
<td>0.000</td>
<td>0.040</td>
</tr>
<tr>
<td>Expected earnings (ENE)</td>
<td>0.070</td>
<td>0.138</td>
<td>0.036</td>
<td>0.058</td>
<td>0.094</td>
</tr>
<tr>
<td>Median expected earnings, by industry and year (MENE)</td>
<td>0.063</td>
<td>0.019</td>
<td>0.047</td>
<td>0.066</td>
<td>0.077</td>
</tr>
<tr>
<td>Earnings forecast errors (FE) ($n = 10,167$)</td>
<td>-0.019</td>
<td>0.056</td>
<td>-0.029</td>
<td>-0.005</td>
<td>0.005</td>
</tr>
<tr>
<td>Expected earnings minus sample median expected earnings, by industry and year (FD)</td>
<td>0.007</td>
<td>0.136</td>
<td>-0.022</td>
<td>0.000</td>
<td>0.025</td>
</tr>
</tbody>
</table>

*The number of observations for earnings forecast errors in panel B is 10,167 due to lack of actual next period earnings for the most recent observations.

bVariables are defined as follows

Net earnings (NE) = Net income before extraordinary items scaled by lagged assets.

Operating cash flows (OCF) = Cash flows from operations scaled by lagged assets.

Leverage (LEV) = Total liabilities divided by total assets.

Assets ($millions) = Total assets.

Total accruals (TA) = Net income before extraordinary items minus operating cash flows, scaled by lagged assets.

Discretionary accruals (DA) are prediction errors from fitted values using the following model to estimate normal accruals:

$$TA_{it}/A_{i,t-1} = a_0[1/A_{i,t-1}] + b_{1t}[(\Delta REV_{it} - \Delta AR_{it})/A_{i,t-1}] + b_{2t}[PPE_{it}/A_{i,t-1}] + e_{it},$$

where, for sample firm $i$ at time $t$: $TA_t$ = total accruals; $A_{i,t-1}$ = total assets; $REV_{it}$ = total revenues; $AR_{it}$ = accounts receivable; $\Delta REV_{it} - \Delta AR_{it}$ = change in cash-basis revenue; $PPE_{it}$ = gross property plant and equipment; $e_{it}$ = error term;

and total accruals (TA) are defined as:

$$TA_{it} = \Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} + \Delta STD_{it} - Dep_{it},$$

where, for sample firm $i$ at time $t$: $\Delta CA_{it}$ = change in current assets; $\Delta CL_{it}$ = change in current liabilities; $\Delta Cash_{it}$ = change in cash and cash equivalents; $\Delta STD_{it}$ = change in debt included in current liabilities; $Dep_{it}$ = depreciation and amortization expense.
Premanaged earnings ($NDE$) = Non-discretionary earnings $= NE - DA$.
Expected future earnings ($ENE$) = I/B/E/S forecast for $NE(t+1)$.
Median net earnings in the sample firm’s industry (2-digit SIC), measured in the year of interest using data from Compustat ($MNE$).
Median expected earnings in the sample firm’s industry (2-digit SIC), measured in the year of interest using data from I/B/E/S ($MENE$).
Current premanaged earnings minus sample median earnings, by industry and year $= \text{Current difference (CD)} = NDE - MNE$.
Earnings forecast errors ($FE$) = Actual next year $NE - ENE$.
Expected future earnings minus sample median earnings, by industry and year $= \text{Future difference (FD)} = EDE - MENE$.

Profile presented in Table 1 supports this. The sample firms tend to be profitable, with mean (median) earnings before extraordinary items of 5.1% (5.2%) of lagged assets, and large, with mean (median) assets of $2.316$ billion ($357$ million).\(^{14}\)

Panel B of Table 1 reports descriptive statistics on the variables used in our tests. The estimate of discretionary accruals (scaled by lagged assets) has a mean that is slightly negative and a median of zero. The upper and lower quartiles indicate this variable lies within a reasonable range. Premanaged earnings represent earnings before extraordinary items minus discretionary accruals (scaled by lagged assets) and has a mean (median) value of 0.052 (0.051). Median earnings in the sample firms’ industries (two-digit SIC), measured during the year of interest, has a mean (median) value of 0.054 (0.054), which is very close to the sample mean (median) net earnings of 0.051 (0.052) from panel A. Current premanaged earnings minus sample median earnings, by year and industry, has a mean (median) value of $-0.002$ (0.000). This variable is used in our tests as the measure of current period relative performance. Firms with negative values of this variable are defined as currently exhibiting poor relative performance, while firms with positive values are defined as currently exhibiting good relative performance.

Expected earnings are next period forecasted earnings taken from the I/B/E/S database. Mean expected earnings are 0.070, somewhat higher than the mean of current net earnings of 0.051 reported in panel A. Median expected earnings are 0.058, close to the median current earnings of 0.052 reported in panel A. (Thus, the distribution of expected earnings is skewed upward relative to current earnings.) Median expected earnings, by year and industry, are also generally higher than current earnings, with a mean (median) value of 0.063 (0.066). This

\(^{14}\)The skewed mean is due, primarily, to the inclusion of extremely large companies such as General Electric.
projected positive earnings trend gives evidence that analysts are optimistic in their forecasts. This is supported by examination of analyst forecast errors, which are presented in the next row. Forecast errors are actual next period earnings minus analysts' forecasted earnings. Mean (median) forecast errors, scaled by assets, are $-0.019 \quad (\quad -0.005)$, with a standard deviation of 0.056 and a lower and upper quartile of $-0.029$ and $0.005$.\textsuperscript{15} Thus, on average, analysts overestimate future expected earnings. The effects of this optimism on our tests are unclear. Because analysts do not appear to systematically include or exclude firms from their optimism, we do not believe it presents a serious bias in our results. However, as a sensitivity test, we also perform our primary tests using actual future earnings as a surrogate for expected future earnings.

The last variable in panel B is expected earnings minus the sample median expected earnings, by industry and year. This variable has a mean (median) value of 0.007 (0.000) and is used in our tests as the measure of expected relative performance. Firms with negative values of this variable are defined as expecting poor relative performance in the future, while firms with positive values are defined as expecting good relative performance in the future.

4. Analysis

4.1. Primary analysis

Panel A of Table 2 presents a two-by-two analysis of discretionary accruals. The columns partition the data by current relative performance and the rows partition the data by expected relative performance. Based on intuition from Fudenberg and Tirole (1995), we make predictions about the signs of discretionary accruals in cells (ii) and (iii).

Cell (ii) contains the sample firms with good current relative performance but poor expected relative performance. These firms are outperforming their peer group in the current period but are expected to underperform their peer group in the future. Managers in these firms are predicted to make income-decreasing discretionary accruals to reduce the threat of dismissal due to poor performance in the future. This prediction is strongly supported, with only 8\% of the 1,800 observations in cell (ii) positive. Mean (median) discretionary accruals are significantly negative among this group at $-4.4\% \quad (\quad -3.2\%)$ of lagged assets.

Cell (iii) contains the sample firms with poor current relative performance but good expected relative performance. These firms are underperforming their peer group in the current period but are expected to outperform their peer group in

\textsuperscript{15}Since we do not have actual next period earnings for the most recent observations, these calculations are based on a reduced sample of 10,167 observations.
Table 2
Discretionary accruals partitioned by current relative performance and expected relative performance

Panel A: Discretionary accruals for full sample

<table>
<thead>
<tr>
<th></th>
<th>'Poor'</th>
<th>'Good'</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(current premanaged earnings</td>
<td>(current premanaged earnings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>below sample median earnings,</td>
<td>above sample median earnings,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>by year and industry)</td>
<td>by year and industry)</td>
<td></td>
</tr>
<tr>
<td><strong>Expected future performance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'Poor'</td>
<td>Mean 0.010***</td>
<td>Mean -0.044***</td>
<td>-0.004***</td>
</tr>
<tr>
<td></td>
<td>Median 0.009***</td>
<td>Median -0.032***</td>
<td>-0.001***</td>
</tr>
<tr>
<td></td>
<td>% positive 63%***</td>
<td>% positive 8%***</td>
<td>48%***</td>
</tr>
<tr>
<td></td>
<td>N 4,831</td>
<td>N 1,800</td>
<td>6,631</td>
</tr>
<tr>
<td>'Good'</td>
<td>Mean 0.038***</td>
<td>Mean -0.011***</td>
<td>0.002***</td>
</tr>
<tr>
<td></td>
<td>Median 0.033***</td>
<td>Median -0.007***</td>
<td>0.002***</td>
</tr>
<tr>
<td></td>
<td>% positive 87%***</td>
<td>% positive 39%***</td>
<td>52%***</td>
</tr>
<tr>
<td></td>
<td>N 1,836</td>
<td>N 4,830</td>
<td>6,666</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>Mean 0.018***</td>
<td>Mean -0.020***</td>
<td>-0.001</td>
</tr>
<tr>
<td></td>
<td>Median 0.015***</td>
<td>Median -0.013***</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>% positive 70%***</td>
<td>% positive 31%***</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>N 6,667</td>
<td>N 6,650</td>
<td>13,297</td>
</tr>
</tbody>
</table>
Panel B: Discretionary accruals after deleting firms in top and bottom decile of net income and operating cash flows

<table>
<thead>
<tr>
<th>Expected future relative performance</th>
<th>Current relative performance</th>
<th>'Poor' (current premanaged earnings below sample median earnings, by year and industry)</th>
<th>'Good' (current premanaged earnings above sample median earnings, by year and industry)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>'Poor'</td>
<td>(expected earnings below the sample median, by year and industry)</td>
<td>(expected earnings above the sample median, by year and industry)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>0.014***</td>
<td>-0.038***</td>
<td>-0.002***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.010***</td>
<td>-0.030***</td>
<td>-0.001***</td>
</tr>
<tr>
<td></td>
<td>% positive</td>
<td>67%**</td>
<td>8%***</td>
<td>49%***</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>3,356</td>
<td>1,510</td>
<td>4,866</td>
</tr>
<tr>
<td></td>
<td>'Good'</td>
<td>(expected earnings above the sample median, by year and industry)</td>
<td>(expected earnings below the sample median, by year and industry)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>0.037***</td>
<td>-0.011***</td>
<td>0.005***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.032***</td>
<td>-0.006***</td>
<td>0.003***</td>
</tr>
<tr>
<td></td>
<td>% positive</td>
<td>90%***</td>
<td>38%***</td>
<td>55%**</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>1,476</td>
<td>2,943</td>
<td>4,419</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>0.021***</td>
<td>-0.020***</td>
<td>0.001***</td>
</tr>
<tr>
<td></td>
<td>% positive</td>
<td>74%***</td>
<td>28%***</td>
<td>52%***</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>4,832</td>
<td>4,453</td>
<td>9,285</td>
</tr>
</tbody>
</table>
Table 2 (continued)

Panel C: Discretionary accruals after matching current relative performance by operating cash flows

<table>
<thead>
<tr>
<th>Current relative performance</th>
<th>'Poor' (current premanaged earnings below sample median earnings, by year and industry)</th>
<th>'Good' (current premanaged earnings above sample median earnings, by year and industry)</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>'Poor' (expected earnings below the sample median, by year and industry)</td>
<td>'Good' (expected earnings above the sample median, by year and industry)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>% positive</td>
</tr>
<tr>
<td>Expected future relative performance</td>
<td>'Poor'</td>
<td>0.007***</td>
<td>0.005***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.005***</td>
<td>0.033***</td>
</tr>
<tr>
<td></td>
<td>% positive</td>
<td>61%***</td>
<td>88%***</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>1,497</td>
<td>1,497</td>
</tr>
<tr>
<td>Matched differences</td>
<td>Mean</td>
<td>0.032***</td>
<td>-0.035***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.032***</td>
<td>-0.035***</td>
</tr>
<tr>
<td></td>
<td>% positive</td>
<td>76%***</td>
<td>22%***</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>2,994</td>
<td>2,994</td>
</tr>
</tbody>
</table>

Notes: ***Significantly different from 0 at less than the 0.01 level (two-tailed); **Significantly different from 0 at the 0.05 level (two-tailed); *Significantly different from 0 at the 0.10 level (two-tailed). Significance levels for means refer to t-tests, for medians refer to Wilcoxon sign-rank tests, and for percentage positive refer to proportions tests.

*See Table 1 for details of discretionary accruals estimation procedure.

Expected future relative performance = \( ENE - MNE \)

Current relative performance = \( NDE - MNE \)

where \( NE \) = Current period net earnings, \( MNE \) = Median net earnings by year and industry, \( NDE \) = Non-discretionary earnings = \( NE - DA \), \( ENE \) = Expected next period (future) earnings = \( 1/B/E/S \) forecast for \( NE(t+1) \), \( MENE \) = Median expected next period (future) earnings by year and industry.
the future. Managers in these firms are predicted to make income-increasing discretionary accruals to reduce the threat of dismissal due to poor performance in the current period. With 87% of the 1,836 observations in cell (iii) positive, this prediction is strongly supported. Mean (median) discretionary accruals are significantly positive among this group at 3.8% (3.3%) of lagged assets.

In contrast to cells (ii) and (iii), managers with firms in cells (i) and (iv) have either conflicting incentives, or no incentives, to manage earnings in order to reduce the threat of dismissal. In cell (i), managers are faced with poor performance in both the current and future periods. While there is pressure to boost current earnings, doing so exacerbates the prospects of poor performance in the future. In cell (iv), managers are faced with good performance in both the current and future periods. In this case there is no expected threat of dismissal. Therefore, we make no predictions with respect to the behavior of discretionary accruals in cells (i) and (iv). The results in these cells are consistent with either mixed or no incentives. While statistically significant, the proportions of positive and negative discretionary accruals in cells (i) and (iv), respectively, are small compared to the proportions in cells (ii) and (iii).

The total row and column values in panel A of Table 2 also provide information on the behavior of discretionary accruals in response to relative performance. The total values in the rows indicate that unconditional expected relative performance provides little power to discriminate between positive and negative discretionary accruals. The proportion of positive observations in the row for poor expected performance is 48% and the proportion in the row for good expected performance is 52%. This is comparable to the overall sample proportion of 50%. In contrast, the column totals indicate that current relative performance does have some power to discriminate. Seventy percent of the observations in the column for poor current performance are positive while only 31% of the observations in the column for good current performance are positive. This is consistent with a general tendency of managers to boost earnings when current relative performance is poor and decrease earnings when current relative performance is good. These findings are somewhat consistent with Gaver et al. (1995). While their research design is quite different, they too note an overall tendency of managers to make income-increasing (decreasing) discretionary accruals when premanaged earnings are relatively low (high). It is also evident, however, that current relative performance does not ‘drive’ the strong results in cells (ii) and (iii). That is, conditioning current relative performance on expected relative performance is much more powerful in discriminating positive and negative discretionary accruals than considering current relative performance alone. The proportion and magnitude of negative observations in cell (ii) are substantially greater than those in cell (iv), and the proportion and magnitude of positive observations in cell (iii) are substantially greater than those in cell (i). While not reported in the table, these differences are significant at less than the 1% level using a t-test, Wilcoxon sign rank test and
a sign test. Thus, it appears to be the combination of both current and expected relative performance that results in the predominance of negative discretionary accruals found in cell (ii) and positive discretionary accruals found in cell (iii).

4.2. Controlling for extreme financial performance

Dechow et al. (1995) report that the Jones model may yield biased estimates of discretionary accruals for firms with extreme values of net income and operating cash flows. Panel B replicates the analysis in panel A of Table 2 after removing observations in the top and bottom deciles (by industry and year) of net earnings and operating cash flows. This reduces the sample to 9,285 observations with cells (i) and (iv) suffering the largest declines in observations. This is intuitive since cell (i) is expected to contain the poorest performing firms (poor current and expected relative performance) and cell (iv) is expected to contain the best performing firms (good current and expected relative performance). Panel B reports that the overall results are effectively invariant to dropping the extreme observations. The proportions of positive observations remain very consistent across all of the cells, with cell (iii) even increasing slightly from 87% to 90%. And, while not reported in the table, the proportion and magnitude of negative (positive) observations in cell (ii) (iii), continues to be significantly greater than in cell (iv) (i). Thus, panel B indicates that the conclusions drawn from panel A are not due to the inclusion of firms with extreme financial performance.

4.3. Matched pairs control for financial performance

In our primary analysis in panel A of Table 2 the sample is partitioned on current relative performance and expected relative performance. An implicit assumption in this analysis is that the only salient difference among firms in the poor (good) current performance column is their expected performance in the next period. However, firms with poor prospects for the future may differ systematically from firms with good prospects for the future and it may be these differences that are responsible for our results. In an attempt to control for these other potential differences, we repeat our primary analysis after matching on operating cash flows, by year and industry.\textsuperscript{16}

The objective of our matched pairs analysis is to make the financial performance of the firms in cell (ii) comparable to that of the firms in cell (iv), and the financial performance of the firms in cell (iii) comparable to that of the firms in cell (i). Each observation in cells (ii) and (iii) is matched, by year and industry, with a corresponding observation in cells (iv) and (i), respectively, such that the

\textsuperscript{16}We also match on premanaged earnings with results that are qualitatively identical to those obtained with operating cash flows.
difference in operating cash flows, scaled by lagged assets, is minimized. Further, in order to obtain a close match, the differences in scaled operating cash flows are required to fall between $-0.01$ and $0.01$.\textsuperscript{17} This procedure results in 1,483 observations in cells (ii) and (iv) and 1,497 observations in cells (i) and (iii).

The results of the matched pairs analysis are presented in panel C of Table 2. The findings are qualitatively identical to our full-sample analysis in panel A. The magnitude and proportion of positive discretionary accruals in each cell is almost unchanged. The bottom row of panel C also reports that the matched differences in discretionary accruals between cells (i) and (iii) and between cells (ii) and (iv) are different at statistically significant levels.\textsuperscript{18} Thus, the evidence suggests that the results in panel A are robust to financial performance differences that may be correlated with expected performance.

4.4. Sensitivity to measure of expected future earnings

We use composite analyst forecasts from the I/B/E/S data base as a surrogate for managements’ expectations of future earnings. An alternative surrogate is actual future premanaged earnings. While the use of actual earnings introduces a bias when expected earnings are appropriate,\textsuperscript{19} an advantage of this alternative is that we avoid sample attrition due to the limited number of firms included in the I/B/E/S database. In addition, it is unclear whether analysts forecast premanaged earnings or whether they are able to provide forecasts that include anticipated earnings management. Therefore, we test the robustness of our results by repeating the primary analysis using actual future premanaged earnings. The results (not reported) are qualitatively identical to the analysis in panel A. The number of observations is increased to 41,855 compared with 13,297 observations using the I/B/E/S forecasts. The mean and median discretionary accruals in cells (ii) and (iii) are virtually identical to those found in panel A. The proportion of positive discretionary accruals in cell (ii) has increased from 8\% to 18\% while the proportion in cell (iii) has decreased from 87\% to 80\%. Although the cell (ii) proportion has increased, it is still much smaller than the 37\% positive discretionary accruals found in cell (iv). Similarly, while the cell (iii) proportion has decreased, it is still much larger than the 66\% positive

\textsuperscript{17}This procedure results in mean (median) matched differences in operating cash flows equal to 0.000 (0.000) across each pair of cells. This difference is insignificant at conventional levels using a $t$-test, a Wilcoxon signed-rank test, and a sign test.

\textsuperscript{18}While row totals are presented in panel C of Table 2, for consistency purposes, they do not have the same interpretation as in the other 2 x 2 tables because cells (i) and (iv) are chosen based upon matching criterion with cells (iii) and (ii), respectively.

\textsuperscript{19}When an independent variable is measured with error, a bias is introduced in the relation between the true independent variable and a variable of interest (Maddala, 1988; Pagan, 1984). This is typically referred to as an errors in variables problem.
discretionary accruals found in cell (i). Thus, the evidence suggests that the results in panel A are robust to our measure of expected future earnings.\(^{20}\)

4.5. Sensitivity to scaling of discretionary accruals

Our estimates of discretionary accruals are derived from data that is scaled by lagged assets. This technique is adopted in Jones (1991) due to concerns about heteroskedastic error terms in a within-firm, time-series regression. However, Gaver et al. (1995) point out that it is unclear whether scaling should be done prior to the decomposition of discretionary accruals, or after their decomposition. We test the sensitivity of our results to this scaling issue using unscaled data in the Jones model, with discretionary accruals scaled after decomposition. The findings (not reported) are qualitatively identical to those presented in panel A. Based on this analysis, our results do not appear sensitive to the order in which we scale discretionary accruals.

4.6. Multivariate analysis with control variables

This section presents multivariate analyses to determine whether the intuition from Fudenberg and Tirole (1995) holds after controlling for other variables expected to affect managers' choice of discretionary accruals. Panel A of Table 3 uses dummy variables to represent firms with good current performance, firms with good expected performance, and the intersection of these two sets. The intercept picks up the effects of the remaining firms, those with both poor current and poor expected performance (cell (i) in Table 2). The coefficient on the dummy for good current performance, combined with the intercept, picks up the effects of firms with good current and poor expected performance (cell (ii)) and the coefficient on the dummy for good expected performance, combined with the intercept, picks up the effects of firms with good expected and poor current performance (cell (iii)). Finally, the summation of all of the dummies combined with the intercept equals the firms with both good current and expected performance (cell (iv)).

Three control variables are included in the regression. Leverage and log of assets are included because they are found to be associated with discretionary accruals behavior in Becker et al. (1997). In addition, while the intuition from Fudenberg and Tirole (1995) focuses on current and expected performance, management's ability to 'borrow' or 'save' earnings in the current period may be affected by its history. That is, past 'borrowing' and 'saving' may affect management's capacity to make positive or negative discretionary accruals in the

\(^{20}\)We also replicated the analysis using actual future earnings (post-managed) with results that are qualitatively identical to those presented here.
current period. Therefore, to control for the possibility that past discretionary accruals are responsible for our primary findings, we include prior year's discretionary accruals (scaled by lagged assets) in the regression.\(^{21}\)

Panel A of Table 3 reports the coefficients on the intercept and the three dummy variables that capture the marginal effects of the cells in our \(2 \times 2\) analysis. These four estimates are used to recreate the partitions of interest adjacent to panel A. Panel A also reports that the coefficients on the control variables are all statistically significant. Leverage, size and past discretionary accruals, as suspected, are all associated with current discretionary accrual choice. The results with respect to our partitions of interest are presented in the \(2 \times 2\) table adjacent to panel A. The \(2 \times 2\) table indicates that discretionary accruals in each cell continue to be significant and have the same general magnitude as in the primary analysis in Table 2, panel A. Thus, the control variables have little effect on the variables of interest.

Dummy variables are used in panel A so that we may recreate the \(2 \times 2\) analyses presented in Table 2 after controlling for potentially confounding variables. However, if the marginal effect of each performance variable on discretionary accruals is of potential interest, we lose information by using dummy variables. Therefore, panel B of Table 3 replaces the dummy variables in panel A with the continuous measures of relative performance that were used to classify firms into the \(2 \times 2\) analysis.\(^{22}\) The coefficients on current performance (CP) and expected performance (FP) in panel B report a significant negative (positive) relation between current (expected) relative premanaged earnings and discretionary accruals. While we cannot recreate cells (ii) and (iii) from this analysis, we can observe that the continuous measures yield results that are generally consistent with the dummy variable findings. Specifically, the continuous results are generally consistent with discretionary accruals decreasing current income in response to good performance in the current year and increasing current performance in response to good expected performance. As with panel A, the control variables are also statistically significant.

4.7. Potential selection bias

In this section we address the issue of selection bias as an alternative explanation for our results. Selection bias is a potential concern because discretionary accruals are used both to compute one of our partitioning variables

\(^{21}\)The sample size is smaller than that used in Table 2 because we can include only the observations with previous year's discretionary accruals included in the sample.

\(^{22}\)Because we now use continuous measures, extreme observations may influence our results. Therefore, as with discretionary accruals, the sample is truncated at the highest and lowest 1% of relative current and expected performance.
Table 3
OLS regressions of discretionary accruals on performance and control variables

Panel A: Performance partitions and controls for leverage, log of total assets and past discretionary accruals (n = 12,506)

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>( t )-statistic</th>
<th>Adj. ( R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>( (' + ' CG) )</td>
<td>( (' + ' FG) )</td>
</tr>
<tr>
<td>( ' - ' CP )</td>
<td>( ' + ' CG )</td>
<td>( ' - ' CP )</td>
</tr>
<tr>
<td>( ' - ' CG )</td>
<td>( 0.017 )</td>
<td>( 0.026 )</td>
</tr>
<tr>
<td>( ' + ' CG )</td>
<td>(-0.054)</td>
<td>(19.25)^{***})</td>
</tr>
</tbody>
</table>
Panel B: Continuous performance measures and controls for leverage, log of total assets and past discretionary accruals (n = 12,097)

<table>
<thead>
<tr>
<th></th>
<th>Intercept</th>
<th>Current performance(^c) (CP)</th>
<th>Expected performance(^c) (FP)</th>
<th>(CP) x (FP)</th>
<th>Leverage</th>
<th>Log of assets</th>
<th>Past discretionary accruals(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>-0.012</td>
<td>-0.612</td>
<td>0.720</td>
<td>-0.434</td>
<td>-0.017</td>
<td>0.003</td>
<td>-0.039</td>
</tr>
<tr>
<td>t-statistic</td>
<td>( -8.00)(^***)</td>
<td>( -60.83)(^***)</td>
<td>(39.93)(^***)</td>
<td>( -2.81)(^***)</td>
<td>( -7.08)(^***)</td>
<td>(13.76)(^***)</td>
<td>( -4.71)(^***)</td>
</tr>
<tr>
<td>Adj. (R^2)</td>
<td>0.52</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: \(^***\)Significantly different from 0 at less than the 0.01 level (two-tailed), \(*\)Significantly different from 0 at the 0.10 level (two-tailed). 

\(t\)-statistics are adjusted for heteroskedasticity following the method suggested in White (1980). Wald statistics are presented to measure the significance of the combined coefficients in each cell on the right side of panel A. Wald statistics are appropriate because we use heteroskedasticity-consistent covariance matrices for the tests of our coefficients.

\(^a\)See table 1 for details of discretionary accruals estimation procedure.

\(^b\)Good Current Performance (' + ' CD) is a dummy variable that equals 1 if \([NDE-\text{MNE}] > 0\).

Good Expected Performance (' + ' FD) is a dummy variable that equals 1 if \([\text{ENE}-\text{MENE}] > 0\).

where \(\text{NE}=\\text{Current period net earnings, MNE = Median net earnings by year and industry, NDE = Non-Discretionary Earnings = NE-DA, ENE = Expected next period (future) earnings = I/B/E/S forecast for NE(}t+1), \text{MENE = Median expected next period (future) earnings by year and industry.}

\(^c\)Past discretionary accruals are discretionary accruals in period \(t-1\) scaled by assets in period \(t-2\).

\(^d\)The cells in each table are created from the coefficients on the dummy variables in the corresponding regressions. The bracketed amounts are Wald statistics measuring the significance level of the combined coefficients. ' + ' FG (future good) refers to cases where \([\text{ENE}-\text{MENE}] > 0\); ' + ' FP (future poor) refers to cases where \([\text{ENE}-\text{MENE}] < 0\); ' + ' CG (current good) refers to cases where \([\text{NDE}-\text{MNE}] > 0\); ' + ' CP (Current Poor) refers to cases where \([\text{NDE}-\text{MNE}] < 0\).

\(^e\)Current and future performance are measured relative to the industry median by year. Specifically

Current performance \((\text{CP}) = \text{NDE} - \text{MNE}\)
Future performance \((\text{FP}) = \text{ENE} - \text{MENE}\)
Selection bias may occur if discretionary accruals and premanaged earnings are mechanically correlated through measurement error. Because we use total accruals to estimate discretionary accruals, errors in the estimation of discretionary accruals will be exactly reflected in our measure of premanaged earnings. This measurement error creates a mechanical relation between discretionary accruals and premanaged earnings that potentially confounds our results. The effects of this potential bias on our findings can be eliminated if we partition the sample using a measure of relative performance that is not mechanically related to our estimate of discretionary accruals. We consider three such alternative measures of current relative performance.

(1) In place of current pre-managed earnings, we use current (post-managed) net earnings to partition current relative performance. Firms with net earnings above and below median net earnings (for their industry and year) are classified as 'good' and 'bad' performers, respectively. A potential limitation of this classification procedure is that a firm's classification based upon premanaged earnings may differ from its cell classification based upon total net earnings. The analysis using this partition (not reported) does not support our predictions. Cells (i) and (iii) report 47% and 45% positive discretionary accruals, respectively, and cells (ii) and (iv) each report 54% positive discretionary accruals, respectively.

(2) We investigate the potential for bias by using analysts' forecasts to partition current relative performance. Specifically, we classify current relative performance based upon analysts' one-year ahead forecasts made during the previous year. The results from this analysis (not reported) also do not support our predictions. Cells (i) and (iii) report 46% and 47% positive discretionary accruals, respectively, while cells (ii) and (iv) report 55% and 52% positive discretionary accruals, respectively. While selection bias is one explanation for this finding, there is at least one limitation to this analysis. Specifically, the use of this variable assumes that analysts accurately predict current period pre-managed earnings one year in advance. Managers, however, are able to use current year's actual realized premanaged earnings (not prior year's predictions) in choosing current period discretionary accruals. To the extent the forecasts diverge from the actual realization, classification error is introduced.

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23We are indebted to the referee for pointing out that selection bias is a potential problem in our design. A similar design issue is raised in Gaver et al. (1995).

24As noted, a limitation of this analysis is that a firm's cell classification based upon premanaged earnings may differ from its cell classification based on total net earnings. We perform a follow-up test to address this issue by repeating the analysis after dropping observations where this is the case. This follow-up analysis supports our original findings reported in Table 2. However, since we use the Jones (1991) model to determine pre- and post-managed cell classifications, this additional test may also introduce a mechanical selection bias.
(3) We use current operating cash flows to partition current relative performance. Operating cash flows are expected to be correlated with relative performance but are measured independently of discretionary accruals and therefore do not contain the measurement error that results from the estimation of discretionary accruals. The results of this analysis (not reported), support our predictions. Cells (i) and (iii) report 61% and 81% positive discretionary accruals, respectively, while cells (ii) and (iv) report 18% and 39% positive discretionary accruals, respectively. However, there are also limitations to the use of this alternative partitioning variable. The magnitude of operating cash flows is inversely related to the magnitude of total accruals, and the magnitude of total accruals is positively correlated with discretionary accruals. Therefore, if the relation between total accruals and cash flows is mechanical, another selection bias may be introduced by using cash flows to partition the data.

In short, the analysis in this section attempts to determine whether our results are likely to be induced by selection bias in our research design. While one test using an alternative measure supports our original findings, tests using post-managed earnings and year-ahead analysts' forecasts do not. Therefore, we cannot rule out the possibility that selection bias influences our findings.

5. Summary

The purpose of this paper is to add to the literature that investigates the phenomenon of income smoothing. We predict that managers smooth income to reduce the threat of job dismissal. These predictions are derived from recent theory in Fudenberg and Tirole (1995). The theory suggests that managers of firms experiencing poor performance in the current period and expected good performance next period, have an incentive to make income-increasing discretionary accruals in order to reduce the threat of being dismissed. Similarly, managers of firms experiencing good performance in the current period and expected poor performance next period, have an incentive to make income-decreasing discretionary accruals in order to reduce the threat of being dismissed next period. In this case, current earnings are ‘saved’ for possible use in the future.

We test these predictions using a variation of the Jones (1991) model to estimate discretionary accruals, and the I/B/E/S database to estimate expected earnings. We find that 3,636 (27.3%) of the firm-year observations in our sample are predicted to smooth earnings in accordance with the implications of the theory. Of these observations, over 89% make discretionary accruals choices consistent with the predictions. Moreover, we find that predictions of discretionary accruals performance based on both current and future performance are much more accurate than predictions based only on current performance. Sensitivity tests indicate that the results are robust to differences in firm
performance, our choice of surrogate for expected future performance and to various potentially omitted correlated variables. In addition, we perform several tests to determine the sensitivity of our results to a potential selection bias in our research design. The results of this analysis are mixed in the sense that we find our results are sensitive to the choice of variables used to partition current relative performance. Therefore, we cannot rule out selection bias as an alternative explanation for our findings.

This paper attempts to contribute to the income-smoothing literature by using recent economic theory to identify conditions when managers are expected to have incentives to smooth earnings. While previous research identifies current performance to be associated with smoothing, our results suggest that expected future relative performance is important. This is consistent with management concerns about job security motivating income smoothing. However, while our results are suggestive, they are not conclusive. Therefore, potentially fruitful areas for future research include refinements of the discretionary accruals estimation model, and further investigation of the links between management’s accounting choices and the issue of job security.

References


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