Shareholder-Level Capitalization of Dividend Taxes: Additional Evidence from Earnings Announcement Period Returns

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Consistent with the recommendation of Hanlon, Myers, and Shevlin (2002), we provide a short-window analysis of the dividend capitalization hypothesis in order to reduce the influence of confounding factors. Among the alternative environments, we select earnings releases due to a well-developed literature and the availability of specific controls. Our analysis suggests that the association between announcement returns and yield is conditioned on whether investors perceive the earnings announcement to be good news or bad in terms of both unexpected earnings and other information. With regard to either good or bad news announcements, tax considerations imply muted announcement period reactions as dividend yield increases. Consistent with this hypothesis, we document less revaluation when yields are high and a greater reaction to the information when yields are low.

Introduction

An extensive body of literature has developed around the question of whether investor level taxes are capitalized into stock prices and, if so, how. Although no
consensus has been reached, studies on valuation shifts at capital gains/dividend tax change dates suggest that dividend taxes do affect stock prices. For example, Ayers et al. (2002) report that the individual tax rate increases implemented by the Revenue Reconciliation Act of 1993 (RRA of 1993) negatively affected share prices, and that this effect was larger the higher a firm’s dividend yield. Lang and Shackelford (2000) find a consistent result surrounding the reduction in capital gain tax rates in 1997.

Rather than directly examining price changes around tax-related event dates, for which the number of such events is limited, one alternative approach examines the relationship between long-run returns and dividend yield. The shareholder level capitalization hypothesis suggests that investors demand a return premium (i.e., a price discount) for yield when the differential between marginal rates on dividends and capital gains is positive. Interestingly, long-window studies employing annual returns find that dividend yield is positively associated with a price premium, the opposite finding expected from a tax explanation (e.g., Kallapur, 1994; Fama and French, 1998; and Dhaliwal et al., 2005). Hanlon et al. (2003) suggest that a potential explanation for this opposite result is the underlying empirical method. Rather than using an extended calendar period to measure returns, they instead suggest the adoption of short-window studies as a direct means of avoiding confounding factors that may be present within long intervals.

Here we propose a short-window analysis to test the dividend capitalization hypothesis using quarterly earnings announcements as a measurement point. We select the firm announcement period for the following reasons: 1) the availability of a large sample size, 2) the presence of a robust literature examining the impact on equity prices of such announcements, and 3) the availability of forecast data from which to estimate unexpected earnings.

Our study emphasizes important considerations in utilizing earnings announcement dates. Earnings announcements often contain a considerable amount of other information beyond unexpected earnings that is both relevant for current valuation purposes and relates to future periods (Ohlson, 1995; Lundholm and Myers, 2002). Examples include, but are not limited to, forecasts of sales growth, future operating margin projections, and revisions in strategic goals. Because it is difficult to empirically control for such items, this other information may be partly responsible for the existing modest levels of explained variation in extant earnings response coefficient studies. Here our empirical design is chosen to indirectly test dividend capitalization in the presence of information related to future periods.

A second important consideration is motivated by Pettengill, Sundaram, and Mathur (1995) who document the conditional relationship between beta and realized returns as a function of market direction. In a like manner, we suggest that short-window tests of the dividend capitalization hypothesis require conditioning on whether investors interpret the announcement as either good or bad news. With
regard to both announcement types, our hypotheses suggest that tax considerations imply more muted announcement effects as dividend yield increases. Our empirical findings are consistent with this tax explanation. As predicted, and conditioning on the nature of the news released, we document less revaluation when yields are high and a greater reaction to the information when yields are low.

Prior Research

To date, studies have used a variety of methods to examine the dividend capitalization issue with inconclusive results (Hanlon et al., 2003). As discussed by Fama and French (1998) and Hanlon et al. (2003), much of this literature has focused on stock price behavior on ex-dividend days (Elton and Gruber, 1970; Eades et al., 1984) or on exchange offers where debt is exchanged for stock (Masulis, 1980; Vermaelen, 1981; Masulis and Korwar, 1986; Eckbo, 1986). The results have been mixed. Other studies have examined returns of stocks with differing dividend policies (e.g., Black and Scholes, 1974; Litzenberger and Ramaswamy, 1979, 1982; Blume, 1980; Keim, 1985; Han and Khaksari, 1996), again with mixed results.

A branch of more recent work theorizes that investors fully capitalize dividend taxes into the stock price of all firms, regardless of historic dividend yield (Harris et al., 2001; Collins and Kemsley, 2000; Harris and Kemsley, 1999). Both Hanlon et al. (2003) and Dhaliwal et al. (2003) question the basic model employed in these dividend irrelevance studies, suggesting that it does not capture dividend tax capitalization. This work has spurred additional studies utilizing a variety of methodologies.

Stock Price Changes around Statutory Rate Shifts

Ayers et al. (2002) emphasize the importance of designing studies that incorporate various methods in order to explore the complexities of the dividend yield/firm value relationship. As previously mentioned, Hanlon et al. (2003) express the belief that “progress is most likely if short-window event study designs (around, for example, a statutory rate change) are used because this design suffers least from specification errors (other than identification of the event dates).” They identify Ayers et al. (2002) and Lang and Shackelford (2000) as examples of this design. These studies examine stock price changes surrounding statutory tax rate changes and hypothesize that a change in ordinary income or capital gain tax rates should produce a price reaction associated with historic dividend payout. They generally find evidence consistent with this expectation. In addition, Ayers et al. (2002) find that the price reaction is mitigated by the percentage ownership of institutional investors.

Although powerful, an inherent limitation to exploring price changes at tax regime changes is the limited number of event dates and, thus, limited opportunity for replication. Moreover, because tax legislation frequently implements a variety of
changes in tax laws and because recent tax rate changes have been phased in gradually and structured to expire at specified future dates, it is difficult to determine exactly how the market evaluates the impact of the tax rate change. For example, tax rate changes implemented in 2001 and 2002 were phased in over a multi-year period and are scheduled to expire in 2010. Investor evaluation of these changes will depend on a variety of factors beyond firm dividend yields, including an assessment of the likelihood that rate changes actually will be implemented in future years and whether the changes will be allowed to expire.

**Earnings Response Coefficients Levels Associated With Dividend Yield**

In a study employing short-window returns, Butler and Han (1994) examine the mapping of the firm characteristics of earnings retention rate, marginal productivity, and the cost of capital into returns associated with earnings surprise. Their method uses three-day announcement period returns to measure the association of dividend yield, a measure of Tobin’s Q, and beta with both positive and negative earnings surprises. They theorize, in part, that payout policy impacts firm valuation via resource availability to fund internal investment opportunities. An indication of the degree of initial internal investment opportunities is the direction and magnitude of realized unexpected earnings. For positive unexpected earnings, Butler and Han (1994) find a result that is inconsistent with their expectation, but is consistent with a signaling, free cash flow, or a tax effect.

Dhaliwal et al. (2005) utilize an indirect approach to the capitalization issue by examining the association of ERCs with different levels of firm dividend yields and institutional investment. Rather than focusing directly on price changes, their method examines responses to earnings information. This structure raises its own methodological challenges as signaling, free cash flow, and other non-tax considerations can confound a dividend tax impact. ¹

Dhaliwal et al. address this issue by employing an event method analyzing the interaction on firm value of ERC, dividend yield, and institutional investment both before and after the RRA of 1993. They employ a one-year window as the measurement period. The study finds support for a decrease in the positive interactive effect on firm value between dividend yield and ERC associated with an increase in the spread between dividend and capital gain tax rates.

¹Kallapur (1994), using annual returns and earnings, supports the hypothesis that dividend yield is positively related to CAR due to free cash flow effects. This result is in the opposite direction of a dividend tax effect reducing earnings capitalization. Fama and French (1998), using two-year periods, find that the relation between firm value and dividend yield is positive. They interpret this result as an indication that, over time, dividends convey information about profitability beyond their control variables.
The results of these studies raise a question regarding the relationship between dividend yield, ERC, and firm value in the presence of differential dividend and capital gain tax treatment. Is the documented longer-term return positive association between dividend yield and abnormal returns also found in short-return windows? Conversely, is a short-window, earnings announcement period return consistent with a dividend tax explanation? We address this question through an analysis of dividend yield and earnings announcement returns.

Hypothesis Development

Consistent with Ohlson (1995), Lundholm and Myers (2002) find that both current earnings and other information disclosures impact returns. Much of this disclosure occurs at the time of the earnings announcement. The relevance of new information is both to future earnings and the timing and magnitude of future dividend payments. Current unexpected earnings immediately impact the book value of the firm, while related information regarding future business conditions and results ultimately affects the book value of the firm via the clean surplus relationship (Ohlson, 1995). The total impact on the firm’s market value is the discounted value of the revised cash flow stream to shareholders. This relationship is fundamental in traditional ERC research.

A significant implication of dividend capitalization is that the discount rate should be positively related to the dividend yield, assuming the tax rate on dividends exceeds that on capital gains. The higher a firm’s discount rate, the smaller is the present value of a given revision to future expected cash flows. Thus, the valuation impact of new information should be decreasing in the dividend yield. Additionally, it follows that the sign of the observed correlation between the announcement return and yield should be conditional on the direction of the new information. In the presence of good news, we would expect high yield firms to have smaller positive revisions than firms with lower yields, resulting in an observed negative correlation. Similarly, when the news is negative, the moderation effect should result in less of a downward price revision for high yielding firms and an observed positive correlation between yield and return.

A conditional relationship between the sign of a given correlation and the realized sign of one of the variables is not new to the literature. The issue is similar to that faced while examining the association between beta and returns. While these

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2Even when dividends and capital gains are taxed at the same rate, as is currently the case, the present value of the dividend tax likely will exceed the present value of the capital gains tax when averaged across all investors. This result holds because the dividend tax is owed in the taxable year corresponding to the receipt of the dividend, whereas the capital gains tax is deferred until the investor sells the stock. If an individual investor directly holds stock long enough, the capital gains tax becomes zero as the tax basis of the stock is stepped up to its fair market value in the investor’s estate.
variables traditionally are assumed to have a positive relationship as long as the returns used are expectational, the same cannot be said when using realizations. Pettengill et al. (1995) report that, as expected, the correlation is strongly positive during up markets, but the relationship turns negative when markets fall. In a similar manner, it is important to specify the proper direction of revaluation around earnings announcements when performing tests of the tax capitalization hypothesis. Butler and Han (1994), without explicit discussion, also recognize this issue and split their sample into positive and negative earnings surprise groups.

As a general rule, one would assume that positive (negative) unexpected earnings would be associated with positive (negative) announcement returns. To the extent a disproportionate number of exceptions occurs within a given data set, it is natural to assume the fault lies with the expectational earnings model. Here, however, we stress an alternative interpretation. Existing studies of earnings response coefficients typically use empirical models that result in a modest degree of explained variation. Typically, well over 90 percent of the variation in the market response is unexplained by the model. As discussed earlier, we posit that it is the other information contained in the announcement, as suggested by both Ohlson (1995) and Lundholm and Myers (2002), that is the driving force behind this unexplained variation.

Here we provide an indirect test of the tax capitalization hypothesis relying on the assumption that investors require a higher before-tax return the higher is the dividend yield. Thus, controlling for a measure of earnings expectations, we suggest the inclusion of a dividend yield term should capture the potential tax effect in the presence of controls for existing known effects. To provide consistency with the earnings response literature, we explore this relationship both with and without accounting for the implied direction of other information.

We incorporate these expectations in the following hypotheses and the resulting research method. Relevant test variables include the abnormal announcement return, CAR, the dividend yield, dy, and the estimated earnings response coefficient, ERC, as the primary control variable. The distinguishing factor between the two sets of hypotheses is the market’s assessment of the total information event for the announcement period.

When investors interpret the total information event as good news, we hypothesize CAR should be negatively related to dy. Based on the long-established ERC literature, we also expect that the relationship between unexpected earnings and CAR will be positive. Borrowing the notational form used by Butler and Han (1994), we summarize this hypothesis as:

\[ \text{CAR|good news} = f(dy, \text{ERC}). \]
In the presence of bad news, we anticipate the correlation between the return and yield to be positive. Again, we expect a positive relationship between unexpected earnings and CAR. Employing similar notation, the bad news case yields the following testable hypothesis:

\[ \text{CAR}_{\text{bad news}} = f(dy, \text{ERC}). \]

**Research Method**

We analyze two-day announcement period returns to examine whether investors apply a higher discount rate to firms with higher dividend yields. Our method includes a measure of unexpected earnings based upon analysts’ forecasts as well as additional control variables adopted from the literature. We discuss the derivation of these variables below.

**Cumulative Abnormal Returns**

Following Imhoff (1992), we use standard event study methodology employing the single factor model to estimate two-day announcement period abnormal returns. Market model parameters using the value-weighted CRSP index are estimated using a 250-day interval from day -260 through day -11 relative to each announcement. Abnormal returns are calculated for relative days -1 and day 0 by subtracting the daily market model predictions from the realized returns and cumulating to yield the CAR.³

**Unexpected Earnings**

We utilize the I/B/E/S database of quarterly earnings announcements to develop our estimate of unexpected earnings. The estimate is the reported earnings for the current quarter less the mean analyst estimate one month prior to each announcement. Following the convention of the literature, we scale this difference by the stock price two days prior to the earnings announcement. The firm-specific estimate of quarterly earnings takes the following form:

\[ UE_{i,s} = \frac{A_{i,s} - F_{i,s}}{P_{i,s}} \]

where:

\[ A_{i,s} = \text{Actual earnings for firm } i \text{ in period } s; \]
\[ F_{i,s} = \text{Expected earnings for firm } i \text{ in period } s, \text{ measured by mean security analysts’ estimates for the month preceding the earning’s announcement date}; \text{ and} \]

³We also perform our tests using the equal-weighted CRSP index (not reported) with substantially similar results.
\( P_{ls} \) = Stock price for firm \( i \) two days prior to the earnings announcement date.

**Dividend Yield**

Dividend yield is obtained from Compustat using the annual variable, DVYDF. This measure is defined relative to the previous fiscal-year and is constructed as the sum of all dividends with ex-dates occurring within the specific fiscal-year divided by the closing stock price.

**Industry Groupings**

As Dhaliwal et al. (2005) discuss, the ERC can be a function of industry grouping. To control for this effect, we include the identical categories used in Dhaliwal et al. in our model. These categories include: manufacturing (Standard Industrial Classification (SIC) codes 2000 – 3999), utilities (SIC codes 4900 – 4999), wholesale, retail, and services (SIC codes 5000 – 5999 and 7000 – 7999), finance (SIC codes 6000 – 6999), and others.

**Additional Control Variables**

Additional control variables are adopted from those used by Han and Khaksari (1996), Lang and Shackelford (2000), and Ayers et al. (2002). These elements include return on market equity measured as income before extraordinary items divided by market equity; financial leverage defined as total liabilities divided by market equity; market-to-book equity; and size measured as the log of market equity.\(^4\) In addition, we include a dummy variable to indicate negative unexpected earnings as suggested by Hayne (1995).\(^5\)

**Sample Data and Descriptive Statistics**

Sample data are drawn from three sources: 1) Compustat Quarterly and Annual Industrial File (Compustat), 2) the Center for Research in Securities Prices (CRSP) daily files, and 3) the Institutional Brokers Estimate System (I/B/E/S). Dividend yield, announcement date, and financial information used in constructing the control variables come from Compustat, while daily returns used to estimate the CARs come from CRSP. The data cover quarterly earnings announcements made from October 1992 (the beginning of our Compustat Quarterly File) through December 2002 and result in a sample size of 43,805 observations from 1,874 individual firms.

\(^4\)Control variables are measured with respect to the most recent fiscal year prior to each announcement.

\(^5\)Dhaliwal et al. (2005) document that institutional ownership might constitute a worthwhile addition to our model as an additional control variable. Unfortunately, data availability considerations prevent such an inclusion.
Descriptive statistics are provided within Table 1. The mean earnings surprise scaled by price is, as expected, close to zero at -0.003. Average dividend yield for the entire sample is 1.39 percent. This yield is less than the 2.1 percent reported by Ayers et al. (2002) for their 1993 measurement and can be partially explained by the large increase in equity prices observed from the beginning of our sample period through the first quarter of 2000.

Table 1—Sample Descriptive Statistics (Sample Size = 43,805)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>dy</td>
<td>1.3924</td>
<td>1.6628</td>
<td>0.0</td>
<td>7.9580</td>
</tr>
<tr>
<td>UE</td>
<td>-0.0031</td>
<td>0.0185</td>
<td>-0.2068</td>
<td>0.0400</td>
</tr>
<tr>
<td>RMV</td>
<td>0.0209</td>
<td>0.4768</td>
<td>-47.4150</td>
<td>1.3180</td>
</tr>
<tr>
<td>Lev</td>
<td>1.5862</td>
<td>3.0758</td>
<td>0.0030</td>
<td>132.6860</td>
</tr>
<tr>
<td>MB</td>
<td>2.8718</td>
<td>14.8623</td>
<td>-797.2170</td>
<td>655.7070</td>
</tr>
<tr>
<td>Size</td>
<td>6.7416</td>
<td>1.8581</td>
<td>0.1947</td>
<td>13.1390</td>
</tr>
</tbody>
</table>

Table 2 reports the correlation matrix for the independent variables used in our study. It is no surprise that our large sample of 43,805 observations yields statistical significance for even modest levels of correlation. Of greatest interest to our multivariate tests are the positive correlations observed between our primary test variable, dy, and both firm leverage, Lev (rho = 0.17) and Size (rho = 0.23). Fortunately, the result of these associations is that the reported t statistics within our subsequent tests can be interpreted as having a conservative bias.6

Model

We analyze cumulative abnormal returns over a two-day window to examine whether investors, in the aggregate, apply a discount rate that is increasing in the dividend yield. Within our short-window application, quarterly earnings announcements serve as a point of information disbursement and corresponding equity

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6In the presence of multicollinearity concerns, estimated regression parameters will be unbiased, although the corresponding standard errors will be inflated. These conditions create a downward bias in the reported t statistic.
revaluation. If individual investors impose a dividend tax penalty in the form of a higher discount rate, that penalty should be evident in the magnitude of the price reaction to the new information.

Table 2—Pearson Correlation Coefficients for Model Independent Variables (n = 43,805)

<table>
<thead>
<tr>
<th></th>
<th>dy</th>
<th>UE</th>
<th>RMV</th>
<th>Lev</th>
<th>MB</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>dy</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UE</td>
<td>0.0553</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;.0001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMV</td>
<td>0.0572</td>
<td>0.1387</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lev</td>
<td>0.1721</td>
<td>-0.0690</td>
<td>-0.4222</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MB</td>
<td>-0.0233</td>
<td>0.0159</td>
<td>0.0029</td>
<td>-0.0388</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>&lt;.0001</td>
<td></td>
<td></td>
<td></td>
<td>&lt;.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>0.2300</td>
<td>0.1335</td>
<td>0.0856</td>
<td>-0.0486</td>
<td>0.0628</td>
<td>1.0000</td>
</tr>
<tr>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

dy - Dividend Yield = Common stock dividend for the fiscal year ending prior to the earnings announcement deflated by firm market value at December 31 prior to the earnings announcement
UE - Unexpected Earnings = Difference in actual earnings and the mean of analyst forecasts, scaled by stock price two days prior to the earnings announcement
RMV - Return on Market Value = Annual income before extraordinary items divided by market value for the report previous to the earnings announcement
Lev - Leverage = Total liabilities divided by market value for the report previous to the earnings announcement
MB - Market/Book Value = Fiscal year-end price to book ratio for the reporting period ending before the earnings announcement date
Size = Log of fiscal year-end market value preceding the earnings announcement date

As discussed above, we analyze CARs surrounding earnings announcements as a measure of the perceived value of the total information entering the market. Our full model is as follows:

\[
\text{CAR}_{it} = \beta_0 + \beta_1 \text{Loss} + \beta_2 \text{UE} + \beta_3 \text{dy} + \beta_4 \text{Loss} \times \text{UE} + \beta_5 \text{dy} \times \text{UE} + \beta_6 \text{Ind1} \times \text{UE} + \beta_7 \text{Ind2} \times \text{dy} \times \text{UE} + \beta_8 \text{Ind3} \times \text{dy} \times \text{UE} + \beta_9 \text{Ind4} \times \text{dy} \times \text{UE} + \beta_{10} \text{MB} + \beta_{11} \text{Size} + \beta_{12} \text{RMV} + \beta_{13} \text{Lev} + \epsilon
\]

where:

Loss = 1 if UE less than 0; otherwise 0;
Ind1 = 1 if SIC code greater than or equal to 20 and less than 39 (manufacturing);
Ind2 = 1 if SIC code equals 49 (utilities);
Ind3 = 1 if SIC code greater than or equal to 50 and less than 5 or equal to 70 and less than 79 (wholesale, retail, and services);
\[
\begin{align*}
\text{Ind4} &= 1 \text{ if SIC code greater than or equal to 60 and less than 69 (finance);} \\
\text{UE} &= \text{Difference in mean analyst forecast and actual earnings scaled by stock price two days prior to the earnings announcement;} \\
\text{dy} &= \text{Annual dividend yield;} \\
\text{MB} &= \text{Equity market to book ratio;} \\
\text{Size} &= \text{Log of the market value of equity;} \\
\text{RMV} &= \text{Annual income before extraordinary items divided by the market value of equity; \ and} \\
\text{Lev} &= \text{Total liabilities divided by market value of equity.}
\end{align*}
\]

**Tiered Analysis**

We examine the data in two tiers in order to provide a division between good and bad news. In our first tier, we split the overall sample into two components: those with positive unexpected earnings and those with negative unexpected earnings. Our second tier of analysis provides an added degree of refinement that results in a reduced sample. Recall that we view each announcement as containing both current earnings information and other information that may be relevant to future earnings. Also recall that the modest levels of explained variation present in existing ERC studies suggest that this other information may be highly significant. Hence, there is reason to suspect that our tier 1 segmentation between good and bad news may contain substantial classification error. Nevertheless, this analysis is relevant to provide a basis for comparison with the existing literature. The division in tier 2 attempts to minimize this error by requiring both the UE and CAR terms to be of the identical sign.\(^7\)\(^8\)

**Multivariate Findings**

Table 3 details the results of our first tier regression estimation where we segment by the sign of the unexpected earnings. Estimates for our subsample of positive unexpected earnings are presented in the second column, while those for negative unexpected earnings are shown in the third column. Given our design, neither of these subsample regressions contains the loss dummy (in either its intercept or inter-

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\(^7\) If the CAR could be measured without either specification or estimation error, the segmentation between good and bad news would be straightforward and could be defined by the sign of this market reaction.

\(^8\) A further source of classification error motivating our tier 2 division relates to potential errors in variables within the unexpected earnings term. Analysts’ forecasts, even to the extent that they are at most one month old, might differ from the expectation of the marginal investor at the announcement date. Further, it is also possible that the actual reported earnings we use in our estimate may require investor adjustment for valuation purposes. These adjustments may relate to such items as accounting for specific accruals, deferred taxes, and intangibles beyond any consistency modifications to the data already provided by IB\&E\&S.
active form) as specified in our full model. For comparison purposes with the existing literature, we also present estimates for our entire sample in the first column.

Table 3—Parameter Estimates for Full Sample, Positive Unexpected Earnings Observations, and Negative Unexpected Earnings Observations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Overall (n = 43,805)</th>
<th>Positive UE (n = 25,885)</th>
<th>Negative UE (n = 17,920)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.0031 (2.85)***</td>
<td>0.0105 (7.99)***</td>
<td>-0.0183 (-10.82)***</td>
</tr>
<tr>
<td>loss</td>
<td>-0.0107 (-18.01)***</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>dy</td>
<td>-0.0004 (-2.63)***</td>
<td>-0.0005 (-2.19)***</td>
<td>0.0004 (1.24)</td>
</tr>
<tr>
<td>UE</td>
<td>0.9308 (14.22)***</td>
<td>0.9787 (13.34)***</td>
<td>-0.0038 (-0.19)</td>
</tr>
<tr>
<td>loss UE</td>
<td>-0.8855 (-13.17)***</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>dy UE</td>
<td>-0.0423 (-1.66)*</td>
<td>-0.3261 (-3.73)***</td>
<td>0.0078 (0.27)</td>
</tr>
<tr>
<td>ind1 dy UE</td>
<td>0.0426 (1.52)</td>
<td>0.2078 (2.21)**</td>
<td>0.0239 (0.75)</td>
</tr>
<tr>
<td>ind2 dy UE</td>
<td>-0.0437 (-1.32)</td>
<td>0.1576 (1.66)*</td>
<td>-0.0359 (-0.92)</td>
</tr>
<tr>
<td>ind3 dy UE</td>
<td>0.0405 (1.17)</td>
<td>0.3701 (2.66)***</td>
<td>0.0066 (0.17)</td>
</tr>
<tr>
<td>ind4 dy UE</td>
<td>-0.0115 (-0.34)</td>
<td>0.2160 (2.03)**</td>
<td>-0.0225 (-0.57)</td>
</tr>
<tr>
<td>RMV</td>
<td>-0.0003 (-0.49)</td>
<td>0.0006 (0.65)</td>
<td>-0.0007 (-0.84)</td>
</tr>
<tr>
<td>Lev</td>
<td>0.0001 (-2.34)**</td>
<td>-0.0004 (-3.25)***</td>
<td>-0.0000 (-0.27)</td>
</tr>
<tr>
<td>MB</td>
<td>-0.0000 (-0.53)</td>
<td>-0.0000 (-0.69)</td>
<td>-0.0000 (-0.14)</td>
</tr>
<tr>
<td>Size</td>
<td>0.0002 (1.69)*</td>
<td>-0.0007 (-4.16)***</td>
<td>0.0016 (6.63)***</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.0209</td>
<td>0.0118</td>
<td>0.0029</td>
</tr>
</tbody>
</table>

Dependent Variable: CAR

\[
CAR = \text{Cumulative two-day return of the day of and the day preceding the earnings announcement}
\]

\[
\text{Loss} = 1 \text{ if UE less than 0; otherwise, 0}
\]

\[
\text{Ind1} = 1 \text{ if SIC code greater than or equal to 20 and less than 39 (manufacturing)}
\]

\[
\text{Ind2} = 1 \text{ if SIC code equals 49 (utilities)}
\]

\[
\text{Ind3} = 1 \text{ if SIC code greater than or equal to 50 and less than 5 or equal to 70 and less than 79 (wholesale, retail, and services)}
\]

\[
\text{Ind4} = 1 \text{ if SIC code greater than or equal to 60 and less than 69 (finance)}
\]

\[
\text{dy - Dividend Yield} = \text{Common stock dividend for the fiscal year ending prior to the earnings announcement deflated by firm market value at December 31 prior to the earnings announcement}
\]

\[
\text{UE - Unexpected Earnings} = \text{Difference in actual earnings and the mean of analyst forecasts, scaled by stock price two days prior to the earnings announcement}
\]

\[
\text{RMV - Return on Market Value} = \text{Annual income before extraordinary items divided by market value for the report previous to the earnings announcement}
\]

\[
\text{Lev - Leverage} = \text{Total liabilities divided by market value for the report previous to the earnings announcement}
\]

\[
\text{MB - Market/Book Value} = \text{Fiscal year-end price to book ratio for the reporting period ending before the earnings announcement date}
\]

\[
\text{Size} = \log \text{of fiscal year-end market value preceding the earnings announcement date}
\]

Parameter estimates and t-statistics (in parentheses) are presented for each regression. A *, **, *** designates statistical significance at the 0.1, 0.05, and 0.01 levels, two-tailed tests, respectively.

The key estimates relating to the positive earnings sample are fully consistent with the tax capitalization hypothesis. Most importantly, the slope estimate on dy is
strongly negative, indicating that investors likely discount positive cash flow revisions at a higher discount rate for firms with higher dividend yields. Additionally, the estimate on the interactive term, dy\_UE, implies a lower ERC for firms with higher yields. Like Dhaliwal et al. (2005), we observe significant industry effects within this subsample.

In contrast, similar estimates for the negative earnings subsample presented in column 3 do not support the hypothesis for any of our key variables. Of particular interest for this subsample is the lack of statistical significance for the ERC coefficient (the slope of UE) which also can be inferred from the overall regression results (column 1) by examining the loss interactive term with UE.

The overall explanatory power of the model used in Table 3 is modest at best. Despite the significant findings in the positive unexpected earnings column, the explained variation is only 1.18 percent for this subsample and only 0.29 percent for the negative subsample. Even within the combined sample, where the additional dispersion within the UE variable can be expected to boost power, the explained variation is only 2.09 percent. As discussed above, we attribute the modest explanatory power of these regressions to potential classification error. We suspect the major factors involved include errors in the variables for our measure of unexpected earnings and a significant amount of other information within some portion of the announcements.

Our tier 2 classification procedures provide a second level condition that also must be satisfied in addition to those used in tier 1. The announcements with positive (negative) unexpected earnings are only classified as good (bad) news if a confirming market reaction exists. This restriction immediately results in a reduced sample; the sample drops from a total of 43,805 observations to 22,661. The magnitude of this 48 percent reduction suggests substantial classification error when using the more naïve tier 1 procedures.

Table 4 presents our tier 2 results using the same format as Table 3 with estimates for the combined sample presented in column 1, the good news estimates presented in column 2, and the bad news estimates provided in column 3. A total of 12,769 observations derived from 1,701 of the overall 1,874 firms meets the matching positive CAR and UE criteria. A total of 9,892 observations derived from 1,688 of the overall 1,874 firms meets the matching negative CAR and UE criteria.

Using this more precise classification method, estimates for all the key variables are strongly consistent with the dividend capitalization hypothesis. The dividend yield parameter estimate is negative and statistically significant for those firms with both positive unexpected earnings and cumulative abnormal returns. Likewise, the dividend yield parameter estimate is positive and statistically significant for those firms with both negative unexpected earnings and cumulative abnormal returns. These results hold in the presence of controls for firm risk via the CAR methodology and inclusion of the size and book-to-market variables.
Table 4—Parameter Estimates for Sample Observations with Matching CAR and UE Sign; Matching Positive CAR and UE; and Matching Negative CAR and UE

<table>
<thead>
<tr>
<th>Variable</th>
<th>CAR/UE Same Sign</th>
<th>Positive CAR/UE</th>
<th>Negative CAR/UE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.0063 (4.49)***</td>
<td>0.0607 (42.81)***</td>
<td>-0.0669 (-35.11)***</td>
</tr>
<tr>
<td>dy</td>
<td>-0.0028 (-11.90)***</td>
<td>-0.0046 (-16.98)***</td>
<td>0.0047 (14.24)***</td>
</tr>
<tr>
<td>UE</td>
<td>1.1591 (52.07)***</td>
<td>0.8727 (12.21)***</td>
<td>0.1622 (6.98)***</td>
</tr>
<tr>
<td>dy_UE</td>
<td>-0.1616 (-5.20)***</td>
<td>-0.1686 (-1.63)</td>
<td>-0.0257 (-0.89)</td>
</tr>
<tr>
<td>ind1_dy_UE</td>
<td>0.1106 (3.20)***</td>
<td>0.1554 (1.45)</td>
<td>0.0417 (1.31)</td>
</tr>
<tr>
<td>ind2_dy_UE</td>
<td>0.1489 (3.21)***</td>
<td>0.0751 (0.69)</td>
<td>0.0103 (0.22)</td>
</tr>
<tr>
<td>ind3_dy_UE</td>
<td>0.0677 (1.57)</td>
<td>0.1494 (1.11)</td>
<td>0.0101 (0.25)</td>
</tr>
<tr>
<td>ind4_dy_UE</td>
<td>0.2038 (4.59)***</td>
<td>0.1140 (0.97)</td>
<td>0.0575 (1.36)</td>
</tr>
<tr>
<td>RMV</td>
<td>0.0024 (2.01)**</td>
<td>-0.0093 (-3.48)***</td>
<td>0.0040 (3.32)***</td>
</tr>
<tr>
<td>Lev</td>
<td>0.0002 (1.54)</td>
<td>-0.0030 (-7.62)***</td>
<td>0.0006 (3.22)***</td>
</tr>
<tr>
<td>MB</td>
<td>0.0001 (2.64)***</td>
<td>-0.0000 (-0.28)</td>
<td>0.0000 (0.73)</td>
</tr>
<tr>
<td>Size</td>
<td>0.0005 (2.65)***</td>
<td>-0.0028 (-14.60)***</td>
<td>0.0031 (11.27)***</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.1369</td>
<td>0.0998</td>
<td>0.0710</td>
</tr>
</tbody>
</table>

Dependent Variable: CAR

CAR = Cumulative two-day return of the day of and the day preceding the earnings announcement
Loss = 1 if UE less than 0; otherwise, 0
Ind1 = 1 if SIC code greater than or equal to 20 and less than 39 (manufacturing)
Ind2 = 1 if SIC code equals 49 (utilities)
Ind3 = 1 if SIC code greater than or equal to 50 and less than 50, or equal to 70 and less than 79 (wholesale, retail, and services)
Ind4 = 1 if SIC code greater than or equal to 60 and less than 69 (finance)
dy = Dividend Yield = Common stock dividend for the fiscal year ending prior to the earnings announcement deflated by firm market value at December 31 prior to the earnings announcement

Further, given the assumed reduction in classification error, the explanatory power of each regression is greatly magnified. The adjusted R square statistics are now 9.98 percent for the positive news subsample, 7.10 percent for the negative news subsample, and 13.69 percent for the combined sample.

Our research design is chosen to use the most reasonable proxy variable, in our opinion, to capture the potential of a tax effect within announcement-period returns coincident with earnings releases. Nevertheless, it is the nature of empirical research
that any chosen proxy variable may detect unintended effects that might confound the interpretation of the test results.

It is well known that dividend yield and growth are inversely related. Hence, in the absence of adequate controls, a significant finding on the yield term might be attributed incorrectly to a tax effect rather than a revaluation due to growth considerations. In a similar fashion, the same argument may be made substituting informational asymmetry for growth, as these characteristics are closely related. Several of our controls, however, are known to be related to growth and likely will render such an occurrence less probable. In particular, small firms generally face higher growth opportunities than large firms. Second, market-to-book value also is related positively to growth potential as investors, ceteris paribus, bid up the shares of firms facing such opportunities. Nevertheless, it is important to recognize that our use of dividend yield provides only an indirect test; we emphasize caution in the interpretation of our results.

Dividend Yield Relationship Consistency

The above results document a significant relationship between dividend yield and earnings announcement-period returns. Although our findings are consistent with a tax explanation, they are also consistent with variation in growth and information asymmetry.9 In this portion of the analysis, we explore the consistency of the relationship across dividend yields and earnings forecast errors.

We begin by segmenting our sample into six yield categories: 1) zero dividend yield, 2) dividend yield greater than zero but less than one percent, 3) dividend yield greater than or equal to one but less than two percent, 4) dividend yield greater than or equal to two but less than three percent, 5) dividend yield greater than or equal to three percent but less than four percent, and 6) dividend yield greater than or equal to four percent. We then further segment the sample by earnings forecast error as: 1) all observations, 2) observations with the absolute value of the difference between actual and forecast earnings exceeding ten percent of forecast earnings, and 3) observations with the absolute value of the difference between actual and forecast earnings exceeding 50 percent of forecast earnings.

Table 5 presents the results of the above described striation for the positive matching UE/CAR condition. We utilize the same model format as in our tier 2 analysis other than defining dividend yield as a series of dummy variables and including columns for the unexpected earnings classifications. By design, the impact of the zero dividend yield category on the CAR is contained within the intercept

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9For instance, the uncertainties surrounding future cash flows may be low when the dividend yield is high, thereby causing a smaller relative price reaction compared to a low dividend yielding firm that is characterized by high growth potential.
Table 5—Parameter Estimates for Dividend Yield Categories: Matching Positive CAR and UE - All UE; UE > 0.1 of Mean Forecast; UE > 0.5 of Mean Forecast

<table>
<thead>
<tr>
<th>Variable</th>
<th>Positive CAR/UE All (n = 12,769)</th>
<th>Positive CAR/UE Absolute Value (Earn-MF)/MF &gt; 0.1 (n = 8,094)</th>
<th>Positive CAR/UE Absolute Value (Earn-MF)/MF &gt; 0.5 (n = 3,203)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.06021 (42.57)***</td>
<td>0.06534 (33.91)***</td>
<td>0.07077 (20.20)***</td>
</tr>
<tr>
<td>dy1 (2,237;1,425;622)</td>
<td>-0.00766 (-7.83)***</td>
<td>-0.00791 (-6.06)***</td>
<td>-0.01169 (-5.24)***</td>
</tr>
<tr>
<td>dy2 (2,353;1,287;495)</td>
<td>-0.01246 (-12.52)***</td>
<td>-0.01172 (-8.33)***</td>
<td>-0.01372 (-5.33)***</td>
</tr>
<tr>
<td>dy3 (1,705;909;360)</td>
<td>-0.01689 (-14.75)***</td>
<td>-0.01760 (-10.40)***</td>
<td>-0.01915 (-9.97)***</td>
</tr>
<tr>
<td>dy4 (863;488;173)</td>
<td>-0.01989 (-13.39)***</td>
<td>-0.02056 (-9.37)***</td>
<td>-0.01928 (-4.36)***</td>
</tr>
<tr>
<td>dy5 (836;506;155)</td>
<td>-0.02170 (-13.24)***</td>
<td>-0.02239 (-9.12)***</td>
<td>-0.01753 (-3.17)***</td>
</tr>
<tr>
<td>UE</td>
<td>0.84043 (11.79)***</td>
<td>0.66413 (7.83)***</td>
<td>0.70002 (5.69)***</td>
</tr>
<tr>
<td>dy_UE</td>
<td>-0.17557 (-1.70)*</td>
<td>-0.13483 (-1.12)</td>
<td>-0.15458 (-0.98)</td>
</tr>
<tr>
<td>ind1_dy_UE</td>
<td>0.20171 (1.88)*</td>
<td>0.16746 (1.37)</td>
<td>0.11691 (0.76)</td>
</tr>
<tr>
<td>ind2_dy_UE</td>
<td>-0.01776 (-0.16)</td>
<td>-0.03289 (-0.27)</td>
<td>-0.03948 (-0.25)</td>
</tr>
<tr>
<td>ind3_dy_UE</td>
<td>0.17715 (1.32)</td>
<td>0.16748 (1.03)</td>
<td>0.19187 (0.93)</td>
</tr>
<tr>
<td>ind4_dy_UE</td>
<td>0.12050 (1.03)</td>
<td>0.09982 (0.75)</td>
<td>0.12251 (0.73)</td>
</tr>
<tr>
<td>RMV</td>
<td>-0.00707 (-2.65)***</td>
<td>-0.00928 (-2.84)***</td>
<td>-0.01261 (-1.91)***</td>
</tr>
<tr>
<td>Lev</td>
<td>-0.0008 (-6.53)***</td>
<td>-0.00009 (-5.53)***</td>
<td>-0.00106 (-3.16)**</td>
</tr>
<tr>
<td>MB</td>
<td>-0.0000 (-0.30)</td>
<td>0.0000 (-0.21)</td>
<td>0.00000 (0.06)</td>
</tr>
<tr>
<td>Size</td>
<td>-0.00232 (-11.68)***</td>
<td>-0.00275 (-9.88)***</td>
<td>-0.00357 (-7.05)***</td>
</tr>
<tr>
<td>Adj.R²</td>
<td>0.1043</td>
<td>0.0922</td>
<td>0.0988</td>
</tr>
</tbody>
</table>

Dependent variable: CAR

Dividend yield category observation numbers in parentheses

CAR = Cumulative two-day return of the day of and the day preceding the earnings announcement
Loss = 1 if UE less than 0; otherwise, 0
Ind1 = 1 if SIC code greater than or equal to 20 and less than 39 (manufacturing)
Ind2 = 1 if SIC code equals 49 (utilities)
Ind3 = 1 if SIC code greater than or equal to 50 and less than 50, or equal to 70 and less than 79 (wholesale, retail, and services)
Ind4 = 1 if SIC code greater than or equal to 60 and less than 69 (finance)
dy - Dividend Yield = Common stock dividend for the fiscal year ending prior to the earnings announcement deflated by firm market value at December 31 prior to the earnings announcement
UE - Unexpected Earnings = Difference in actual earnings and the mean of analyst forecasts, scaled by stock price two days prior to the earnings announcement
RMV - Return on Market Value = Annual income before extraordinary items divided by market value for the report previous to the earnings announcement
Lev - Leverage = Total liabilities divided by market value for the report previous to the earnings announcement
MB - Market/Book Value = Fiscal year-end price to book ratio for the reporting period ending before the earnings announcement date
Size = Log of fiscal year-end market value preceding the earnings announcement date

Parameter estimates and t-statistics (in parentheses) are presented for each regression. A *, **, *** designates statistical significance at the 0.1, 0.05, and 0.01 levels, two-tailed tests, respectively.

while the marginal effect of a specific dividend level (relative to the zero dividend category) may be inferred from the relevant dummy coefficient slope estimate. Our
findings are, largely, consistent across columns and reinforce our earlier findings that the CAR decreases in dividend yield in the presence of good news. Further, and given the similarity of the results across columns, this effect appears largely invariant to the magnitude of the unexpected earnings.

Table 6 presents a like set of estimations for the negative matching UE/CAR condition. Like Table 5, the results here support the generality of our earlier findings that the CAR increases with yield (i.e., is typically less negative) in the presence of bad news. As in the good news case, a comparison across columns again suggests that the effect is unrelated to the level of the earnings forecast error. The combined results of Tables 5 and 6 are consistent with a tax explanation for the observed variation in announcement-period returns that is robust to the surprise effect of the immediate earnings-related component.10

Summary and Concluding Remarks

Despite decades of study, researchers remain divided on the question of whether the capital markets impose a return premium on dividend-paying firms. Recent work by Ayers et al. (2002) and Dhaliwal et al. (2005), among others, suggests that the market applies higher discount rates to dividend-paying firms. The approaches used in these studies rely on shifts in tax regime as points of analysis. An inherent limitation to exploring price changes at shifts in tax regime is the limited number of event dates and, thus, a limited opportunity for replication. Here we follow the recommendation of Hanlon et al. (2003) and add to the relevant literature by providing a short-window event study investigating the presence of heterogeneous discount rates as a function of the tax code as applied to dividends and capital gains.

We hypothesize that if investors impose a return premium on dividend-paying firms, a pricing effect should be evident within a short-window study. If dividend-paying firms face higher discount rates, then these firms should exhibit smaller valuation revisions controlling for earnings and other factors. In particular, we posit that such firms will have less positive pricing revisions around good news announcements and less negative revisions around bad news announcements than other firms. This hypothesis is tested by examining a sample of 43,805 quarterly earnings releases from October 1992 through December 2002 across 1,874 individual firms. Our empirical findings are consistent with the hypothesis and support the anticipated discounted cash flow valuation relationship in the presence of heterogeneous discount rates.

We also analyze the interaction between unexpected earnings and the levels of dividend yield. The interactions are directionally consistent with the above findings; however, they are not statistically different from one another.
Table 6—Parameter Estimates for Dividend Yield Categories: Matching Negative CAR and UE - All UE; UE > 0.1 of Mean Forecast; UE > 0.5 of Mean Forecast

<table>
<thead>
<tr>
<th>Variable</th>
<th>Negative CAR/UE Absolute Value</th>
<th>Negative CAR/UE Absolute Value</th>
<th>Negative CAR/UE Absolute Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All (n = 9,892)</td>
<td>(Earn-MF)/MF &gt; 0.1 (n = 7,054)</td>
<td>(Earn-MF)/MF &gt; 0.5 (n = 3,472)</td>
</tr>
<tr>
<td>Intercept</td>
<td>-0.06619 (-34.67)***</td>
<td>-0.06926 (-29.70)***</td>
<td>-0.07229 (-20.07)***</td>
</tr>
<tr>
<td>Dy1 (1,048; 639; 254)</td>
<td>0.00803 (4.45)***</td>
<td>0.00847 (3.56)***</td>
<td>0.01012 (2.54)**</td>
</tr>
<tr>
<td>Dy2 (1,499; 954; 389)</td>
<td>0.01423 (8.85)***</td>
<td>0.01378 (6.65)***</td>
<td>0.01618 (4.74)**</td>
</tr>
<tr>
<td>Dy3 (1,421; 893; 343)</td>
<td>0.01830 (10.95)***</td>
<td>0.01633 (7.49)***</td>
<td>0.01505 (4.04)**</td>
</tr>
<tr>
<td>Dy4 (853; 559; 208)</td>
<td>0.01787 (8.90)***</td>
<td>0.01566 (5.99)***</td>
<td>0.01726 (3.71)**</td>
</tr>
<tr>
<td>Dy5 (1,147; 786; 331)</td>
<td>0.02415 (12.65)***</td>
<td>0.02387 (9.55)***</td>
<td>0.02226 (5.04)**</td>
</tr>
<tr>
<td>UE</td>
<td>0.14833 (6.34)***</td>
<td>0.12378 (4.74)***</td>
<td>0.12111 (3.79)**</td>
</tr>
<tr>
<td>dy5_UE</td>
<td>-0.02340 (-0.81)</td>
<td>-0.02251 (-0.72)</td>
<td>-0.02563 (-0.72)</td>
</tr>
<tr>
<td>Ind1_dy5_UE</td>
<td>0.04742 (1.49)</td>
<td>0.04113 (1.20)</td>
<td>0.03342 (0.87)</td>
</tr>
<tr>
<td>Ind2_dy5_UE</td>
<td>-0.04371 (-0.92)</td>
<td>-0.04303 (-0.83)</td>
<td>-0.03091 (-0.52)</td>
</tr>
<tr>
<td>Ind3_dy5_UE</td>
<td>0.01399 (0.35)</td>
<td>0.00985 (0.23)</td>
<td>-0.00370 (-0.08)</td>
</tr>
<tr>
<td>Ind4_dy5_UE</td>
<td>0.05214 (1.24)</td>
<td>0.04321 (0.95)</td>
<td>0.03655 (0.73)</td>
</tr>
<tr>
<td>RMV</td>
<td>0.00357 (2.93)***</td>
<td>0.00351 (2.51)***</td>
<td>0.00251 (1.44)</td>
</tr>
<tr>
<td>Lev</td>
<td>0.00005 (2.77)***</td>
<td>0.0004 (2.04)**</td>
<td>0.0002 (0.95)</td>
</tr>
<tr>
<td>MB</td>
<td>0.00000 (0.57)</td>
<td>0.00000 (0.61)</td>
<td>0.00000 (0.69)</td>
</tr>
<tr>
<td>Size</td>
<td>0.00255 (8.73)***</td>
<td>0.00291 (7.97)***</td>
<td>0.00323 (5.65)***</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.0728</td>
<td>0.0639</td>
<td>0.0586</td>
</tr>
</tbody>
</table>

Dependent variable: CAR

Dividend yield category observation numbers in parentheses

CAR = Cumulative two-day return of the day of and the day preceding the earnings announcement
Loss = 1 if UE less than 0; otherwise, 0
Ind1 = 1 if SIC code greater than or equal to 20 and less than 39 (manufacturing)
Ind2 = 1 if SIC code equals 49 (utilities)
Ind3 = 1 if SIC code greater than or equal to 50 and less than 59 or equal to 70 and less than 79 (wholesale, retail, and services)
Ind4 = 1 if SIC code greater than or equal to 60 and less than 69 (finance)

Our large-sample study provides support for the premise that investors value dividend-paying stocks to compensate for the additional tax burden imposed on
dividends. The higher cost of capital reduces the market’s valuation of future earnings, an effect that can be observed over time and not just around the enactment of legislative changes in tax rates. The results of this study are easily replicable, and the method is adaptable to a variety of refinements for further investigation.

References


