

# The Information Content of Concurrently Announced Quarterly Earnings and Dividends

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## Abstract

*This research hypothesizes that concurrently announced earnings and dividends have a multiplicative effect on residual security returns. To test the hypothesis, residual returns are regressed on unexpected earnings and unexpected dividend variables, as well as on dummy variables defined based on their signs. Using a sample of same-day announcements of earnings and dividends over an 80-month period, it is shown that only the dummy variables, which reflect multiplicative effects, are useful in explaining security returns.*

## Introduction

Since the seminal article of Ball and Brown (1968), a large body of research has accumulated that aims to use earnings to explain variations in stock prices. In a recent review article, Lev (1989) observes that, disappointingly, earnings explain no more than an average of 2-7% of the variations in residual stock returns, despite many refinements of the Ball-Brown methodology by recent researchers. Hoskins et al. (1986) have pointed to one possible reason for this low explanatory power of earnings: they show that concurrently announced dividends have incremental explanatory power in the return-earnings relationship, suggesting that existing studies might have suffered from an omitted-variable bias by focusing only on earnings as an explanatory variable of returns.

This study aims to evaluate the price effect of concurrently announced earnings and dividends. Unlike the Hoskins et al. study, which treats unexpected earnings and dividends as separate signals, it assesses the joint effect of the two signals. Because both earnings and dividends are "noisy" signals, investors might want to verify the news content of one signal with the other. For instance, a positive unexpected earning would mean very little if it is accompanied by a dividend cut. On the other hand, a negative unexpected earning may be viewed less negatively if accompanied by an increase in dividend. To test for this joint effect, the magnitudes of both signals are suppressed in favor of their signs. This design can be justified by the fact that the expectations of earnings and dividends are proxies with error. Thus, using merely the signs of the two variables does not necessarily reduce their explanatory power.

A prior study that examines the joint effect of earnings and dividends is Kane et al. (1984), and their results support the hypothesis that investors are interested in the consistency of the stories conveyed by the two signals. Unlike the present study, however, Kane et al. do not restrict their focus to earnings and dividends that are announced concurrently. The earnings and dividend announcements in their sample are as far apart as ten days, resulting in a research design that relies on a wide return window. Patell and Wolfson (1984) show that the market adjusts to earnings and dividend announcements within five to ten minutes of the events. So using a wide return window for a study of this kind potentially introduces noise into the analysis. More specifically, as Lev (1989) observes, using a wide return window to measure abnormal returns associated with earnings announcements is likely to result in an overstatement of information content because the abnormal returns so computed can reflect price effects of pre-earnings announcements that are correlated with positive earnings news.

In this study, we restrict the sample to earnings and dividends that are announced on the same day, between trading hours of the stock market. The associated abnormal returns are calculated for a one-day holding period bracketing the announcements. The sample consists of 249 pairs of quarterly earnings and dividends announced on Fridays. The evidence supports the hypothesis that investors are interested in the consistency of the news conveyed by the two signals.

## Methodology

### Model

The test design is based on that in Pettit (1972), Kane et al. (1984), and Hoskins et al. (1986). Information content is assessed via the following regression model:

$$AR = b_0 + b_1 AFE + b_2 UE + b_3 UD + b_4 I(-0) + b_5 I(-+) + b_6 I(++ ) + b_7 I(+0) + b_8 I(++ ) \quad (1)$$

where AR is risk-adjusted return; AFE is error of analyst earnings forecast; UE is unexpected earnings based on a mechanical prediction model; UD is unexpected dividend; I(-0) is a dummy variable that takes a value of 1 if unexpected earnings is negative and unexpected dividend is neutral, zero otherwise; and so on. Eq. (1) filters out earnings expectations via both AFE and UE, a procedure recommended by Hoskins et al. (1986). If earnings and dividends do not exert a joint effect on returns,  $b_0$  will be zero, and  $b_3$  to  $b_7$  will be jointly insignificant, making the price effects of earnings and dividends additive, the finding in Hoskins et al. (1986). If earnings and dividends jointly affect prices, however,  $b_0$ , which reflects the case where both unexpected earnings and unexpected dividends are negative, will be negative, and  $b_3$  to  $b_7$  will be significantly different from zero.

### Estimation of Variables

AR is measured with the standard market-model methodology using 120 daily returns, from day -180 to day -61, day 0 being the announcement day. UE is measured under the assumption that quarterly earnings evolve as a seasonal random walk. That is,  $UE = (E_q - E_{q-4}) / |E_{q-4}|$ , where  $E_q$  is the  $q$ th quarterly earnings per share.<sup>1</sup> AFE is defined as  $(E_q - AF_q) / |AF_q|$ , where  $AF_q$  is earnings-per-share forecast by Value Line Investment Survey. UD is measured as  $(D_q - D_{q-1}) / D_{q-1}$ , where  $D_q$  is the  $q$ th quarterly dividend. Following previous studies, we classify dividend changes of less than five cents as neutral news. The dummy variables in (1) are coded using the signs of UE and UD. Although one can also interpret AFE as unexpected earnings, AFE and UE do not always agree in sign. We choose to code the dummy variables with the signs of the UE variable for two reasons: It is a commonly used procedure; by estimating (1) without the dummy variables, we find that UE is more correlated with abnormal returns than AFE is.

### Data

The sample consists of 249 Friday announcements of both earnings and dividends, over the period June 1979

through March 1986. From the "Dividend News" section of the Monday issues of the Wall Street Journal, we identified a sample of firms that were reported to have made a dividend announcement the previous Friday. We then searched for the same firms from the "Digest of Earnings Reports" section of the Journal. This resulted in a preliminary sample of firms that had possibly made both an earnings and a dividend announcement the previous Friday. Next, we searched for the original news releases by these firms from the Dow Jones News Retrieval Service. Each Dow Jones news release so extracted ends with a notation of the hour and minute of the corporate release, thus allowing us to select only those announcements that were made on the same day prior to the close of stock trading in New York. In all, these steps produced 1,040 pairs of Friday announcements of earnings and dividends.

This preliminary sample was subsequently reduced to 249 after applying the following criteria: (a) The firm must be in either the daily CRSP tapes or the daily NASDAQ tapes of the University of Chicago, with at least 180 consecutive return observations prior to the event date. (b) The firm must be one of the firms followed by Value Line Investment Survey. (c) The firm must not be a regulated utility company because dividend decisions of such firms are often constrained. (d) Both the earnings and the dividend announcements must be made no later than 3:50 p.m. in New York in order to allow the market 10 minutes to react to the announcements prior to the close of trading at 4 p.m. (e) The dividends announced must not be an initial dividend, in which case unexpected dividend cannot be measured. (f) The absolute value of expected earnings must exceed 20 cents per share in order to prevent moderate news from introducing measurement errors into the test (see Beaver et al., 1979). For this sample, earnings and dividend data were gathered from both the Dow Jones News Retrieval Service and the Wall Street Journal Index. Analyst earnings forecasts were collected from issues of Value Line Investment Survey that were nearest to the announcement dates.

### Results

Model (1) is estimated via ordinary least-squares regression, in which outliers of AFE, UE and UD are "pulled in" by truncating extreme values to the 1.0 and -1.0 range.<sup>2</sup> The results are presented in Table 1 under the heading "Interactive Model." On the basis of an "interaction" F-statistic of 5.59,<sup>3</sup> the null hypothesis of no joint effect can be rejected at the 0.01 level. Also consistent with the joint-effect hypothesis is the result that the intercept term and four of the dummy variables are significant, at no worse than the 0.05 level. We also find that the signs and, on the whole, the magnitudes of the coefficients of the dummy variables indicate the existence of a joint effect. For instance, the intercept

term, which captures the case where unexpected earnings and unexpected dividends are both negative, has a value of -0.035, while the last dummy variable,  $I(++)$ , which denotes the other extreme where both signals are positive, has a value of 0.04. Except for  $I(-+)$ , moreover, the dummy variables' coefficients are non-decreasing as one moves down the column. This is consistent with the fact that, by construction, the dummy variables reflect increasingly positive news as one moves down the column,  $I(-+)$  and  $I(+)$  being the only ambiguities.

## Conclusions

Existing accounting research shows that earnings has a low explanatory power for security returns. Lev (1989) suggests that part of the reason is that earnings is measured with noise. Hoskins et al. (1986) indicate that another possible explanation is that researchers often overlook the incremental information content of items announced concurrently with earnings, dividends being the most important among them. This study hypothesiz-

Table 1  
Ordinary Least Squares Estimates of Equation (1)

Independent Variable	Additive Model	Interactive Model
Constant	-0.004 (-2.28*)	-0.035 (-4.19**)
<i>AFE</i>	0.000 (0.66)	0.000 (0.97)
<i>UE</i>	0.006 (3.93**)	0.003 (1.43)
<i>UD</i>	0.021 (2.91**)	0.005 (0.46)
$I(-0)$		0.026 (2.95**)
$I(-+)$		0.023 (1.72)
$I(+)$		0.039 (1.998*)
$I(+0)$		0.039 (4.33**)
$I(++)$		0.040 (3.85**)
<i>N</i>	249	249
<i>F</i> -statistic <sup>a</sup>	9.69**	
<i>F</i> -statistic, First-Order <sup>b</sup>		1.19
<i>F</i> -statistic, Interaction <sup>c</sup>		5.59**
Adjusted R-square	0.095	0.173

t-statistics are in parentheses. \* denotes 5% and \*\* denotes 1% significance levels.

a. Degrees of freedom are (3,245); critical value at 1% is 3.78.

b. Degrees of freedom are (3,240); critical value at 5% is 2.61.

c. Degree of freedom are (5,240); critical value at 1% is 3.02.

For comparison, the traditional model, which ignores the joint effect, is also estimated and presented under the heading "Additive Model" in Table 1. The F-statistic of this model is 9.69, indicating that the three variables *AFE*, *UE*, and *UD* are jointly significant at the 0.01 level. The related t-statistics also indicate that *UE* and *UD* are significant explanatory variables in the additive model. However, the results change substantially once the dummy variables are inserted into the regression. This is indicated by the first-order F-statistic under the 'Interactive Model', which is 1.19 and insignificant. Likewise, going from the additive model to the interactive model, both *UE* and *UD* lose explanatory power, as suggested by the drop in magnitude of their coefficients and of the related t-statistics. In sum, the results support the hypothesis that investors price concurrently announced earnings and dividends jointly rather than separately.

es that, since both unexpected earnings and unexpected dividends are measured with error, investors are more likely to price the two signals jointly, rather than additively, as Hoskins et al. (1986) have found. Previously, Kane et al. (1984) show that this is likely to be the case, but they do not examine concurrently announced earnings and dividends, a void this research tries to fill. In this study, only simultaneous announcements of earnings and dividends are analyzed, and abnormal returns are computed over a one-day holding period. The test design is a dummy variable regression based on Pettit (1972), Kane et al. (1984), and Hoskins et al. (1986). Based on a sample of 249 pairs of earnings-dividend announcements made on Fridays over a seven-year period, this research produces results that supports the basic hypothesis. Namely, investors seem to price concurrent earnings and dividends jointly, more interested in the consistency of the stories told by the

two signals and less interested in the magnitudes of the two signals separately.

Potentially, this finding has quite a significant bearing on existing research in accounting. A substantial body of literature has accumulated that addresses the information content of earnings. Such research, however, typically focuses on earnings exclusively. To the extent that dividends are also announced concurrently, focusing only on earnings will result in an omitted-variable problem, thus reducing the explanatory power of earnings for security returns. Furthermore, a tract of the earnings research studies the relationship between the size of security price reaction and the size of unexpected earnings. Our results show that such a relationship may not be very meaningful since an inconsistent dividend signal that is released concurrently with the earnings will exert a dominant effect over the magnitude of unexpected earnings. In sum, this study adds to the findings in Hoskins et al. (1986) and offers additional considerations in the design of information content studies.

From a managerial standpoint, this study suggests that it is hard to fool the market with "managed" earnings numbers. Although managers retain some degree of freedom in choosing accounting methods to maximize reported earnings, the market will look for collaborating evidence from the dividend signal, which is more based on cash considerations. Thus, this study also makes a contribution to the literature on managerial discretions regarding choice of accounting methods.

#### Suggestions for Future Research

A potentially fruitful avenue for future research on the price effect of earnings is to evaluate the multiplicative effect due to other concurrently announced corporate items. Items such as accounting changes, extraordinary items, change in management, restructuring, etc. are equally likely to have a price effect. To the extent that they are released concurrently with earnings, ignoring them will likely reduce the explanatory power of earnings. However, including "soft" news items as explanatory variables for residual returns will likely call for innovative statistical designs. Since extant research has paid little attention to such methodological issues, this should also be a worthwhile direction for research.

#### \*\*\*Footnotes\*\*\*

1. This procedure is widely supported by existing research, as discussed in Patell and Wolfson (1982, p. 518).
2. We also tried 150-percent and 200-percent truncations. The overall results are similar to the ones reported here. A rationale for this is given by Brown et al. (1987).

3. This F-statistic was computed as the sums of squared errors from constrained and unconstrained regressions. Specifically,

$$F = \frac{(SSE_{\text{Restricted}} - SSE_{\text{Unrestricted}}) / R}{SSE_{\text{Unrestricted}} / (N - K)}$$

where  $SSE_{\text{restricted}}$  and  $SSE_{\text{unrestricted}}$  are the sums of squared errors in the restricted and unrestricted models, respectively,  $R$  is the number of restrictions,  $N$  is the number of observations, and  $K$  is the number of regressors in the unconstrained regression.

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