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The Predictive Content of Earnings Forecasts and Dividends

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ABSTRACT

This paper compares the properties of dividend announcements and management earnings forecasts as predictors of earnings and firm value. First, the two predictors are compared on the basis of their ability to predict earnings. Then the information they convey about firm value is assessed by comparison of the performance of investment strategies based on values of the two predictors. Finally, the effects of dividend announcements on stock prices are considered.

DESPITE MUCH WORK ON the subject, the role of dividends in the theory of finance is not well understood. After deriving their dividend irrelevancy proposition, Miller and Modigliani [21] suggested that dividends may function as predictors of future earnings. According to this "information content of dividends hypothesis," managements of firms set dividend levels on the basis of their assessments of future earnings so that the declaration of dividends reveals those assessments. This rather loosely stated proposition has been presented more formally in the recently developed models of Bhattacharya [4, 5] and Heinkel [15] in which dividends function as *ex ante* signals of future earnings because of the assumed nature of the cost function associated with paying dividends. In these models the signal is just a primitive: any observable which satisfies certain conditions is capable of functioning as a signal. There is no reason *a priori* to expect dividends to be the means of signaling. Indeed, Ross [27] and Leland and Pyle [18] present structurally similar models in which other financial characteristics of firms function as signals. The question of which technology management will choose to communicate information is an empirical one.

This paper compares the information content of dividends with that of management earnings forecasts. These forecasts, which are made voluntarily, are explicit statements of managements' assessments of future earnings and thus immediately suggest themselves as an alternative to dividend signals. In contrast to the conflicting evidence on the information content of dividends,[1] there is consistent evidence that management forecasts do convey information (Patell [24], Jaggi [17], Nichols and Tsay [22], and Penman [25]). Thus, these forecasts

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[1] Compare the results of Watts [28], Pettit [26], Griffin [14], Charest [8], and Aharony and Swary [1]. A discussion on the issue is contained in an exchange between Laub, Watts, and Pettit in the January 1976 *Journal of Business*.

provide a suitable benchmark against which to compare the information content of dividends. If dividends function as signals of firms' values, the information revealed in managements' earnings forecasts should also be reflected in their dividend decisions. The question then is whether or not the earnings forecast provides more information than the dividend signal.

Earnings forecasts and dividend signals are compared in three ways. First, in Section II of the paper, we compare the errors of earnings forecasts with those of predictions of earnings based on dividend announcements. Second, in Section III (which is the heart of the paper), the relative information content of the two predictors is assessed by comparing the performance of investment strategies based on them. The methodology employed in this section provides a means of assessing whether the earnings forecast has more information than the dividend signal. Finally, we report in Section IV the immediate effects of the publication of dividends on stock prices. Section I provides a description of the data, and Section V summarizes the conclusions of the paper.

I. Data Description

2217 management forecasts of annual earnings per share (e.p.s.) were collected from *The Wall Street Journal* for the years 1968–73. All were point or interval estimates (interval estimates were converted to the midpoint of the interval) which were explicitly attributed to the company or to one of its officers. For the analysis in Sections II and III, the sample consists of 541 forecasts which satisfied certain criteria.[2] The requirement that the firm have a 31 December fiscal year caused firms in certain industries (e.g., retailers) to be systematically excluded, while the requirement of the availability of 10 years of accounting data biased the sample towards well-established firms. Cash dividends data for these forecasting firms were taken from COMPUSTAT's *Merged Annual Tape.* Time series of cash dividend and earnings data (to estimate model parameters) were also taken from the COMPUSTAT tape and, in a few cases, *Moody's Manuals* for the period 1946 to the forecast year.[3] As management earnings forecasts are usually

[2] (1) The forecast had to be for primary e.p.s. (2) The forecast had to be the first forecast issued by the firm for the fiscal year, not a revision of a forecast previously published. (3) Sufficient returns data had to be available for the firm on the University of Chicago's *CRSP Daily Returns File* for a period long enough to perform the tests (six years). (4) Firms had to have fiscal years ending 31 December. (5) Firms had to have a history of paying dividends for at least 10 years prior to the forecast year with a maximum of only two years of omitted dividends. (6) The firm had to declare a dividend in both the fiscal year in which the forecast was made and in the previous year. Requirement (2) was imposed because, in collecting forecasts one could never be a sure a revised forecast was the last to be given in a fiscal year and relatively few revisions were uncovered. So, for standardization, only firms' original forecasts were used. The fiscal year requirement (4) was imposed because in the tests security returns are observed over a calendar year and the design is such that dividends (aggregated into an annual dividend) are declared within that period. Requirements (5) and (6) were necessary in order to have sufficient earnings and dividend data to estimate models in Section II and the Appendix.

[3] Data were not available for this full period for all firms. Although the minimum number of years of data was 10, the average was 21.3 years with a standard deviation of 4.4

in per-share form, all data were expressed in per-share form (adjusted for stock splits and stock dividends).

About two-thirds of the forecasts in the sample are point estimates and one-third interval estimates. Approximately one-third of the forecasts were published in each of the second and fourth fiscal quarters with approximately 15% appearing in the first quarter and 20% in the third. The 541 forecasts comprise 246 firms making only one forecast during the six-year period, 83 firms making two, 28 firms making three, 10 making four, and 1 making five. Each firm appears only once in a given calendar year. There are 89 firms in 1968, 96 in 1969, 80 in 1970, 76 in 1971, 104 in 1972, and 96 in 1973. It should be noted that a dividend freeze was in effect during 1972.

II. A Comparison of the Alternative Earnings Forecasts

The earnings forecasts collected from the *Wall Street Journal* were made by managements during a given fiscal year with respect to annual earnings for that year which were announced after the end of the year. We refer to these as "direct forecasts." During the same fiscal year, managements also declared dividends which we interpret as a signal carrying an alternative, implicit forecast of earnings. The signal is assumed to be the annual dividend (defined as the sum of all cash dividends, including specials and extras) *declared* during the fiscal year (and thus also before the announcement of annual earnings). From this dividend we derive an earnings forecast for the year referred to as the "dividend-based forecast." In the absence of a theory specifying the relationship between dividends declared in a fiscal year and final earnings, we consider the following form:

$$\tilde{Y}_{it} = B_{0i} + B_{1i}D_{it} + B_{2i}D_{it-1} + B_{3i}Y_{it-1} + \tilde{e}_{it}$$

where $\tilde{Y}_{it}$ is the annual earnings for firm i in fiscal year t announced after the end of year t; D_{it} is the total dividends declared by firm i during the four fiscal quarters of fiscal year t; and $\tilde{e}_{it}$ is a disturbance term. The parameters of this model were estimated from the historical time-series of earnings and dividend data available for each firm prior to the forecast year. Then, for the forecast year, the dividend-based earnings forecast was estimated as

$$Y^d_{it} = \hat{B}_{0i} + \hat{B}_{1i}D_{it} + \hat{B}_{2i}D_{it-1} + \hat{B}_{3i}Y_{it-1}. \qquad (1)$$

This forecast is a prediction of earnings current to the fiscal year in which the dividend was announced, as is the direct forecast. According to one version of the "information content of dividends hypothesis" (suggested in Lintner [19] and Miller and Modigliani [21], for example), dividends convey information beyond that available in current earnings, and, presumably, forecasts of current earnings. It is argued that managements set their dividends not only on the basis of their assessments of current year's earnings, but also those of future years. In the Appendix, we report on tests using models which attempt to capture this "long-run" forecast. As these tests performed no better against the direct forecast than

Table I

Summary of Cross-Sectional Distributions of Standardized Prediction Errors of Forecasts

Error Distribution Measure	Martingale with Drift	Direct Forecast	Dividend-Based Forecast
Maximum	9.654	6.705	8.973
0.90 fractile	2.875	0.798	0.673
0.75 fractile	1.586	0.308	0.102
0.50 fractile	0.590	0.009	−0.101
0.25 fractile	−0.101	−0.364	−0.360
0.10 fractile	−1.081	−1.207	−0.783
Minimum	−10.245	−10.705	−8.188
Mean	0.716	−0.134	−0.030
S.D.	1.911	1.307	1.067
Mean absolute	1.425	0.684	0.538
Mean square	4.158	1.723	1.137

ones using the model above, we report the results using the (simpler) formulation in (1) here.[4]

Table I summarizes the cross-sectional distributions of standardized prediction errors of the 541 direct forecasts and dividend-based forecasts, and compares them with those yielded by the martingale model (with drift):

$$\tilde{Y}_{it} = Y_{it-1} + \delta_i + \tilde{\nu}_{it}$$

where δ_i is the drift constant (estimated from past changes in earnings per share) and $\tilde{\nu}_{it}$ has an expectation equal to zero. This model, based solely on past earnings, has been shown to perform well relative to competitors, for firms on average (Ball and Watts [3], Gonedes [12], and Watts and Leftwich [29]). The prediction errors (defined as the actual minus predicted annual earnings) are deflated by the standard deviation of the historical time-series of changes in earnings per share. A comparison of the fractile values of forecast errors reveals that the dispersion of the forecast errors of the martingale model is substantially reduced by both the direct forecast and the dividend-based forecast, as summarized by the relative standard deviations of forecast errors. Further, for all mean and median measures of prediction error, the direct and dividend-based forecasts are superior to those of the martingale forecast.[5] This is to be expected of the dividend-based forecast, of course, as it is explicitly conditioned upon past

[4] Two other models predicting current earnings were also used in tests reported in a previous version of the paper, with similar results. The first model forecasted earnings as those which would maintain the payout ratio of the previous year, and the second those earnings which would maintain an average payout over a number of years prior to the forecast year. Both these models can be viewed as constraining the coefficients, B_{2i} and B_{3i} in model (1), but specifying the B_{1i} coefficient as variable.

[5] The mean prediction error of the martingale model is positive, indicating that firms in the sample experienced earnings above the expectation of that model. A similar result was observed when actual earnings were compared with the forecast from a model of the form, $\Delta \tilde{Y}_{it} = a_i + b_i \Delta M_{it} + \tilde{\omega}_{it}$, where Δ denotes changes and M_{it} is an index of corporate earnings. Thus, it appears that firms making forecasts are, on average, those having relatively good earnings compared to previous earnings and the market as a whole.

earnings and also incorporates other information. The significant result is the performance of this forecast relative to the direct forecast. In signaling models, *ex ante* credible signals are *ex post* accurate predictors of the attribute signaled. The dividend-based forecast is more accurate than the direct forecast for all summary measures except the median.

III. Tests of Informational Relationships between Direct and Dividend-Based Forecasts

In the previous section we compared earnings forecasts and dividend signals in terms of their predictive content with respect to earnings. In this section we consider the more robust issue of the relative information content of the two predictors with respect to firms' returns (end-of-period values). The predictors are compared in terms of the performance of portfolios chosen on the basis of information in the earnings forecasts and dividend signals.

In order to obtain measures of superior investment performance, a description of normal performance is required. We assume that expectations of investment returns without the signals are described by the Capital Asset Pricing Model. One form of this is given by

$$E(\tilde{R}_{it}) = E(\tilde{R}_{zt}) + [E(\tilde{R}_{mt}) - E(\tilde{R}_{zt})]\beta_{it}$$

where $\tilde{R}_{it}$ is the rate of return on asset i for period $t-1$ to t; $\tilde{R}_{mt}$ is the rate of return on the market portfolio for the same period; $\beta_{it} = \operatorname{cov}(\tilde{R}_{it}, \tilde{R}_{mt})/\operatorname{var}(\tilde{R}_{mt})$ is the relative risk of asset i in portfolio m; and $\tilde{R}_{zt}$ is the return on an asset such that $\beta_{zt} = 0$. This equilibrium description permits informational inferences (Ohlson [23]). The expected returns given by this model are compared to those conditional upon the earnings forecast and the dividend signal. We define two information variables to be used in the comparisons. The earnings forecast test variable, $\tilde{f}_{it}$, is defined as the standardized difference between the earnings forecast and the martingale forecast based on the past time series of earnings:

$$\tilde{f}_{it} = [\tilde{Y}^f_{it} - (Y_{it-1} + \hat{\delta}_i)]/\hat{\sigma}_i(\Delta\tilde{Y}) \tag{2}$$

where $\tilde{Y}^f_{it}$ is the direct forecast of the management of firm i of earnings per share for year t; $\hat{\delta}_i$ is the estimate of the drift of the martingale model; and $\hat{\sigma}_i(\Delta\tilde{Y})$ is the estimated standard deviation of earnings per share changes for firm i. Note that $\tilde{f}_{it}$ captures only that portion of the forecast which is not available in the martingale forecast. Similarly, the dividend-based forecast test variable is defined as

$$\tilde{d}_{it} = [\tilde{Y}^d_{it} - (Y_{it-1} + \hat{\delta}_i)]/\hat{\sigma}_i(\Delta\tilde{Y}) \tag{3}$$

where $\tilde{Y}^d_{it}$ is the dividend-based forecast from (1). The estimates, $\hat{\sigma}_i(\Delta\tilde{Y})$ and $\hat{\delta}_i$ were made from the time series of earnings per share changes available for each firm up to the forecast year. The variable, $\tilde{f}_{it}$, is considered to possess information if expected returns conditional upon the predictor, $E(\tilde{R}_{it} \mid f_{it}, \cdot) \neq E(\tilde{R}_{it} \mid \cdot)$ for at least one realization of $\tilde{f}_{it}$, where $(\cdot)$ represents the conditioning arguments, $E(\tilde{R}_{zt})$, $E(\tilde{R}_{mt})$, and β_{it}. A similar statement can be made with respect to $\tilde{d}_{it} \cdot \tilde{f}_{it}$ is said to possess information additional to that available in $\tilde{d}_{it}$ if $E(\tilde{R}_{it} \mid d_{it}, f_{it}, \cdot) \neq E(\tilde{R}_{it} \mid d_{it}, \cdot)$ for some realizations of the two variables. Again a similar statement can be made with respect to additional information in $\tilde{d}_{it}$ over that in $\tilde{f}_{it}$. If $E(\tilde{R}_{it} \mid d_{it}, f_{it}, \cdot) = E(\tilde{R}_{it} \mid d_{it}, \cdot) = E(\tilde{R}_{it} \mid f_{it}, \cdot)$ for all realizations of $\tilde{f}_{it}$ and $\tilde{d}_{it}$ then $\tilde{f}_{it}$ and $\tilde{d}_{it}$ can be considered (technical) substitutes.[6]

To estimate expected returns conditional upon the two information variables, firms were assigned to portfolios at the beginning of each of the six years of the sample period, 1968–73, according to the realization of $\tilde{f}_i$ and $\tilde{d}_i$ for that year. Each year firms were ranked in descending order of their values of $\tilde{f}$ and two portfolios were formed corresponding to the upper and lower halves of this ranked array. Then, within each of these two portfolios, firms were ranked on their values of $\tilde{d}$, and two portfolios formed from the upper and lower halves of the ranked arrays within the two original portfolios.[7] Thus, from the cross-sectional joint distribution of the two information variables in each year, four non-overlapping portfolios containing 20 securities each were formed, except in 1971 where the portfolios contained 19 securities.[8] These four portfolios were designated HH, HL, LH, and LL, where H = "high" and L = "low." The first letter refers to the level of the $\tilde{f}$ variable, the second to the level of $\tilde{d}$ given the level of $\tilde{f}$. Securities were weighted within portfolios so that the estimated relative risk of all portfolios was unity.[9] The mean return for each portfolio was estimated from the 72 monthly returns for the sample period.[10] The four portfolios formed in this way are referred to as (*f-d*) information portfolios. A second set of information portfolios were formed in a similar way but by ranking securities first on values of $\tilde{d}$ and then on values of $\tilde{f}$. We refer to these as the (*d-f*) information portfolios.

Table II presents some descriptive statistics for the four (*f-d*) information portfolios. For all portfolios, the direct forecast is published towards the end of

[6] The market-wide factors, $\tilde{R}_{zt}$ and $\tilde{R}_{mt}$, are assumed to be unrelated to the information variables. In view of this assumption, it would be desirable to define $\tilde{f}$ and $\tilde{d}$ in such a way as to abstract from market-wide earnings—for example, by using a market index model (as in footnote 5) rather than the martingale model in (2) and (3) (Ball [2]). However, a market index is based on information available after the forecast announcement and so the value of $\tilde{f}$ and $\tilde{d}$ would be in part determined by post-forecast information.

[7] The estimated correlation between $\hat{\beta}$ and $\tilde{f}$ is −0.054 and between $\hat{\beta}$ and $\tilde{d}$ is 0.074, so neither of the variables can be considered a strong proxy for risk. Thus, rankings on f and d cannot be regarded as rankings on β.

[8] As the number of firms in the sample varies from year to year, the variance of portfolio returns is likely to vary because of variation in portfolio size. The tests assume equal variances and covariances over time. In an attempt to satisfy this condition, the number of eligible firms in 1968, 1969, 1972, and 1973 was reduced (by random selection) to 80, the number in 1970. The number of firms in 1971 is 76. The results reported here are in respect of the resultant 476 cases of firms making forecasts. Tests were repeated including firms rejected, with little difference in results.

[9] At each portfolio formation date, firms were ranked on the size of their relative risks estimated from the "market model" over 60 months prior to the portfolio formation month. Each portfolio was then divided into two portfolios at the median risk and the risk of these portfolios was assessed as the arithmetic average of component securities estimated risks. These two portfolios were then combined into one portfolio by choosing weights in such a way that estimated risk was equal to unity.

[10] Using mean realized returns as estimates of expected returns assumes that mean returns are stationary over time and that the realized returns are drawn from the distribution assessed at equilibrium. The methodology is an adaptation of that in Gonedes [13] and Penman [25] to deal with the problem of correlated information variables.

Table II

Summary Measures for $(f-d)$ Information Portfolios for Period, 1968–73

Port-folio	Value of $(\tilde{f}, \tilde{d})$	f			d			Fiscal Quarter of Direct Forecast		% Dividend Yield		Direct Forecast Error			Dividend-Based Forecast Error		
		Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	Mean	S.D.	Mean	S.D.	t	Mean	S.D.	t
1	HH	1.956	0.378	11.58	1.649	0.285	12.94	2.67	0.32	3.20	0.66	−0.113	0.143	−1.77	−0.149	0.096	−3.37
2	HL	1.623	0.481	7.54	−1.528	0.594	−5.75	2.64	0.29	3.14	0.61	−0.482	0.680	−1.59	−0.148	0.216	−1.53
3	LH	0.014	0.407	0.08	0.743	0.563	2.95	2.90	0.35	3.64	0.36	−0.046	0.107	−0.95	−0.149	0.259	−1.29
4	LL	−0.081	0.294	−0.62	−1.358	0.353	−8.61	2.84	0.16	3.58	0.49	−0.056	0.352	−0.36	−0.157	0.178	−1.98

Notes:

Values are based on the time-series of portfolio observations at six portfolio formation dates.

Portfolio components are weighted by weights used to form portfolios with estimated relative risk equal to unity.

t denotes the mean divided by the standard error of the sample mean, estimated from the time-series of means.

Forecast errors are defined as actual e.p.s. minus forecasted e.p.s., standardized by the estimated standard deviation of e.p.s. changes.

the third quarter, on average, so that if the timing of these forecasts within the fiscal year is relevant to the information they possess, the portfolios appear to be standardized for this. The dividend yields are also similar across portfolios so that portfolio mean returns should not differ by any tax-related factors. If the dividend signal provides a similar forecast of earnings to the earnings forecast, one would expect to observe, for a given level of f, a similar level of d. The mean values of f for "high" (H) f portfolios (1 and 2) indicate direct forecasts which are significantly above the expectation of the martingale model, while those for the "low" (L) f portfolios (3 and 4) summarize direct forecasts which are, on average, no different from those of the martingale model. While the mean levels of d are, when averaged over portfolios, below those of f for both "high" and "low" portfolios, the difference is particularly striking for the "high" f portfolios: the mean value of f for portfolios 1 and 2 is 1.790 while that of d is only 0.061. This suggests that when managements forecast significant increases in current earnings, they do not on average adjust their dividends accordingly. Note further that when dividend-based forecasts are "high" (portfolios 1 and 3), mean portfolio value of d (1.196 over the two portfolios) is similar to that of f (0.985). However, when the dividend-based forecast is "low" with a mean value over portfolios 2 and 4 of −1.443, the mean direct forecast variable is much higher, 0.771. Hence it appears that it is relatively low dividend-based forecasts which do not reflect the forecast of earnings in the direct forecast.[11] One reason for this may be that the dividend-based forecast does not convey the information in the direct forecast. However, it may also be that some direct forecasts are biased predictions of actual earnings. Indeed, the portfolio values of the two forecasts in predicting actual earnings, given to the right of the table, give a hint of this. These prediction errors are, on average, negative for both the direct forecast and the dividend-based forecast (as observed in Table I). However, whereas the values for the dividend-based forecast are reasonably constant over portfolios, they are inversely related to the level of f: "high" direct forecasts tend to be those overestimating earnings. Under these conditions, the dividend may be the more reliable predictor. For portfolio 1, the mean values of f and d are quite similar and so are the prediction errors for the two forecasts. It is the "low" d portfolio (portfolio 2) which identifies the more (*ex post*) overly optimistic direct forecasts. However, the differences in prediction errors appear to be too small to explain the differences in the mean values of f and d noted above. These relationships are only suggestive, of course. They are meant to give a "feel for the data" and as an aid to the interpretation of the results which follow.

The relative information content of the two predictors was assessed by comparing mean returns of information portfolios with those of selected alternative portfolios of equivalent estimated relative risk. To test whether $E(\tilde{R}_{it} \mid f_{it}, \cdot)$, $E(\tilde{R}_{it} \mid d_{it}, \cdot)$ and $E(\tilde{R}_{it} \mid f_{it}, d_{it}, \cdot)$ differ from $E(\tilde{R}_{it} \mid \cdot)$, the mean returns of the two sets of information portfolios were compared with those of control portfolios chosen without regard to the information variables. The market portfolio, as approximated by the components of Fisher's Arithmetic Monthly Return Index,

[11] These relationships are also evident for the (d-f) information portfolios where the order of ranking on values of $\tilde{f}$ and $\tilde{d}$ was reversed.

was chosen for a control portfolio. The systematic risk of this portfolio is, by definition, unity, equal to the estimated relative risk of each of the information portfolios. To test whether $E(\tilde{R}_{it} \mid f_{it}, d_{it}, \cdot) = E(\tilde{R}_{it} \mid f_{it}, \cdot)$, mean returns of the $(f\text{-}d)$ information portfolios were compared with those of four portfolios formed by ranking securities on values of $\tilde{f}$ alone. To test whether $E(\tilde{R}_{it} \mid d_i, f_{it}, \cdot) = E(\tilde{R}_{it} \mid d_{it}, \cdot)$, the $(d\text{-}f)$ information portfolios were compared with four portfolios formed by ranking on values of $\tilde{d}$ alone. In each case, the portfolios compared differ only with respect to the information used to form them. So a test of differences in mean returns between the matched portfolios is a test of differential mean returns to investing with different information.

Testing the significance of mean return differences poses something of a problem. Standard significance tests assume that returns are independently distributed. As the returns on the four information portfolios are contemporaneous, this is not the case. A test which takes into account the covariance of portfolio returns is Hotelling's T^2 test.[12] Let $\underline{\tilde{R}}_{1t}$ and $\underline{\tilde{R}}_{2t}$ be four-dimensional vectors of returns from $t - 1$ to t on the relevant information portfolios and matched portfolios, respectively. The null hypothesis may be stated as

$$\underline{w}^T[E(\underline{\tilde{R}}_{1t}) - E(\underline{\tilde{R}}_{2t})] = 0$$

for all values of the 4×1 vector $\underline{w}$. The value of the test statistic is

$$T^2 = \max_{\underline{w}} t^2(\underline{w}) = M(\underline{\hat{\mu}}_1 - \underline{\hat{\mu}}_2)^T\, \underline{\underline{S}}^{-1}(\underline{\hat{\mu}}_1 - \underline{\hat{\mu}}_2) \tag{4}$$

where

$$t(\underline{w}) = [\underline{w}^T(\underline{\hat{\mu}}_1 - \underline{\hat{\mu}}_2)\sqrt{M}]/\sqrt{\underline{w}^T \underline{\underline{S}}\underline{w}}.$$

$\underline{\hat{\mu}}_1$ and $\underline{\hat{\mu}}_2$ are the sample estimates of $E(\underline{\tilde{R}}_{1t})$ and $E(\underline{\tilde{R}}_{2t})$, respectively; $\underline{\underline{S}}$ is the sample variance/covariance matrix of $\underline{\tilde{R}}_{1t} - \underline{\tilde{R}}_{2t}$; and M is the number of observed return vectors in the sample. Conditional upon the null hypothesis, the distribution of $\tilde{T}^2 \cdot [(M - N)/(N(M - 1))]$ is that of $\tilde{F}(N, M - N)$, a central "F" random variable with N and $M - N$ degrees of freedom. N is the dimensionality of $\underline{\tilde{R}}_{1t} - \underline{\tilde{R}}_{2t}$ which here is 4. Besides incorporating information on the cross-sectional relationships in security returns, the test permits multiple comparisons of mean portfolio return differences for all possible linear combinations of portfolios. In fact, the test effectively searches for that value of $\underline{w}$ which maximizes the t value associated with the mean return difference, and adjusts significance levels for the multiple comparisons implicit in this "search." As we are concerned with assessing mean returns conditional upon knowledge of the signals, one particular portfolio combination which we are interested in discovering is that which a knowledgeable investor would choose to maximize expected returns. From (4) and the definition of $t(\underline{w})$, it can be seen that the T^2 statistic is based on that set of weights which maximizes mean return differences per unit of variance. In a mean-variance world where investors only hold minimum-variance portfolios, this set of weights are those which the investor would choose

[12] The test assumes normality of returns and stationarity of variances and covariances over time.

Table III

Mean Return Differences between $(f - d)$ Information Portfolios and the Market Portfolio, with Results for Selected Linear Combinations of Portfolio Return Differences

Portfolio	Value of $(\tilde{f}, \tilde{d})$	Mean Return Difference	$t(\underset{\sim}{w})$	$F_{4,68}$
1	HH	0.0126	3.82*	3.49*
2	HL	0.0050	2.10*	1.05
3	LH	0.0035	1.32	.42
4	LL	0.0005	.16	.01
T^2 weights portfolio		0.0121	4.20*	4.22*
$\underset{\sim}{w}^T = (1/2, 1/2, -1/2, -1/2)$		0.0068	2.84**	N.R.
$\underset{\sim}{w}^T = (1/2, -1/2, 1/2, -1/2)$		0.0053	1.97**	N.R.

Notes:

* Denotes value is significant at 0.05 level for a two-tail test.

** Denotes value is significant at 0.05 level for a one-tail test.

N.R. denotes "not relevant."

The normalized weights implied by the value of $\tilde{T}^2$ are 0.783, 0.460, 0.025, and $-$ 0.267, for the four portfolios, respectively. The value of $\tilde{T}^2$ is 17.74.

to form on efficient portfolio.[13] Note that the T^2 test is not relevant when (directional) alternative hypotheses are specified.

Table III gives results of tests of significant differences in mean returns from matching the four $(f\text{-}d)$ information portfolios with the market portfolio. In the top part of the table the mean differences in returns between each of the four information portfolios and the market portfolio are given, together with associated t statistics and F statistics.[14] The mean return differences are positively related to the level of both f and d, suggesting that both may contribute to an (abnormally) profitable investment strategy. The mean return difference for the joint realization of a "high" direct forecast and a "high" dividend-based forecast (portfolio 1) is particularly striking. At the bottom of the table, the mean return differences on portfolios formed by combining the four information portfolios in different ways are given. The way the four portfolios are combined is given by the values of the weight vector, $\underset{\sim}{w}$, indicated in the first column. The first set is that implicitly used in the observed value of $\tilde{T}^2$ (the normalized weights are given

[13] It can be shown that the vector of weights, $\underset{\sim}{w}$, implicit in the observed value of $\tilde{T}^2$ is proportional to $\underset{\approx}{S}^{-1}(\hat{\mu}_1 - \hat{\mu}_2)$. If we multiply the vector $\underset{\sim}{Z} = \underset{\approx}{S}^{-1}(\hat{\mu}_1 - \hat{\mu}_2)$ by the scalar $\sum_{i=1}^{4} Z_i$, where Z_i is the ith component of $\underset{\sim}{Z}$, normalized weights which sum to unity are obtained. These are reported in the footnotes to the tables which follow.

[14] For this and subsequent tests, the estimated standard deviations, Studentized ranges, and estimated first-order serial correlation coefficients were calculated. The estimated standard deviations were reasonably constant over portfolios (as would be expected of well-diversified portfolios) and Studentized ranges and estimated correlation coefficients consistent with normally distributed, serially uncorrelated returns. The test is not particularly sensitive to departures from normality (Ito [16]).

in the notes to the table). This "efficient" investment strategy based on the predictors yields a mean monthly abnormal return of 1.21%. The associated value of $t(\underset{\sim}{w})$ (equal to $\sqrt{T^2}$) and associated F statistic confirm that there is at least one joint realization of $\tilde{f}$ and $\tilde{d}$ which is inconsistent with the null hypothesis. We conclude that $E(\tilde{R}_{it} \mid f_{it}, d_{it}, \cdot) \neq E(\tilde{R}_{it} \mid \cdot)$.

The source of the inconsistency with the null hypothesis is further explored using the last two vectors of weights in the first column of the table. Setting $\underset{\sim}{w}^T = [1/2, 1/2, -1/2, -1/2]$ averages out $\tilde{d}$ and thus provides an assessment of $\tilde{f}$ marginal to $\tilde{d}$. This investment strategy involves going long on "high" f portfolios and short on "low" f portfolios with zero net investment. Setting $\underset{\sim}{w}^T = [1/2, -1/2, 1/2, -1/2]$ averages out $\tilde{f}$ and thus provides an assessment of $\tilde{d}$ marginal to $\tilde{f}$. This strategy involves going long on "high" d portfolios and short on "low" d portfolios with zero net investment. As a directional alternative hypothesis is implied in both cases, the appropriate test statistic is the t statistic, not the F value which has been described as "not relevant" (N.R.)[15] In both cases the t values indicate non-zero mean return differences. We conclude that $E(\tilde{R}_{it} \mid f_{it}, \cdot) \neq E(\tilde{R}_{it} \mid \cdot)$ and $E(\tilde{R}_{it} \mid d_{it}, \cdot) \neq E(\tilde{R}_{it} \mid \cdot)$. Similar results were obtained from matching (d-f) information portfolios against the market portfolio.[16]

Having observed that both $\tilde{f}$ and $\tilde{d}$ provide information about firms' values, the remaining question is whether one predictor contains more information than the other. To assess whether $\tilde{d}$ provides more information over that available in $\tilde{f}$, the (f-d) information portfolios were matched against four portfolios with estimated relative risk equal to unity formed from ranking securities on values of f only. The results are in Table IV. Portfolio 1 of the match portfolios consisted of the top quarter (H) of the ranking on f only, portfolio 2 the upper middle quarter (MH), portfolio 3 the lower middle quarter (ML), and portfolio 4 the bottom quarter (L), as indicated in the table. Note that portfolios 1 and 2 in both rankings (on f and d and on f alone), taken together, are composed of the same securities, as are portfolios 3 and 4. So we are testing whether the $\tilde{d}$ variable sorts firms' realized returns better than the $\tilde{f}$ variable within each half of the ranked array on values of $\tilde{f}$. The mean return differences for the four portfolios are related to the level of d. However, none is significantly different from zero and the overall return difference from investing in portfolios using the weights implied by the value of $\tilde{T}^2$ (given in the first line of the second part of the table),

[15] Inferences on the basis of F statistics are biased towards nonrejection of null hypothesis. Gabriel [11] has compared a number of hypothesis testing techniques under general alternatives according to their power functions and has found that, for tests involving alternative linear combinations of parameters, the use of many Student t-tests is a better procedure than any that has been suggested. As there are only two comparisons with a given variance-covariance matrix, we feel comfortable in making inferences on the basis of the t values. Note (from (4)) that the t values take into account the covariance of portfolios returns.

[16] The result of one other linear combination of portfolios is of incidental interest. Setting $w^T = [1/4, 1/4, 1/4, 1/4]$ averages out the signals to assess whether the information sample as a whole exhibits returns which are different from the market as a whole. The mean return difference between the portfolios weighted this way and the market portfolio was 0.0054, with an associated t statistic of 3.24 and an F statistic of 2.52. As suggested in footnote 5, the sample of forecasting firms is not representative of all firms in the market, earning returns which, on average, are higher than those observed on the market portfolio.

Table IV

Mean Return Differences between $(f - d)$ Information Portfolios and Portfolios Formed by Ranking on Values of $\tilde{f}$ Alone, with Results for Selected Linear Combinations of Portfolio Return Differences

Portfolio	Value of $(\tilde{f}, \tilde{d})$	Value of $(\tilde{f})$	Mean Return Difference	$t(\underset{\sim}{w})$	$F_{4,68}$
1	HH	H	0.0018	0.76	0.14
2	HL	MH	−0.0012	−0.52	0.06
3	LH	ML	0.0009	0.43	0.04
4	LL	L	0.0000	0.02	0.00
T^2 weights portfolio			0.0009	0.95	0.21
$\underset{\sim}{w}^T = (1, -1, 0, 0)$			0.0029	0.70	N.R.
$\underset{\sim}{w}^T = (0, 0, 1, -1)$			0.0008	0.64	N.R.
$\underset{\sim}{w}^T = (½, -½, ½, -½)$			0.0019	0.62	N.R.

Notes:

N.R. denotes "not relevant."

The normalized weights implied by the value of $\tilde{T}^2$ are 0.312, 0.051, 0.387, and 0.250. The value of $\tilde{T}^2$ is 0.90.

although positive, is not significantly different from zero. The second set of weights in the second part of the table takes a long position on the "high" d portfolio and a short position on the "low" d portfolio within the "high" f portfolios (portfolios 1 and 2). This weighting assesses whether, given "high" values of $\tilde{f}$, there is further information in knowledge of the values of $\tilde{d}$. Similarly, the next set of weights assesses whether, given "low" values of $\tilde{f}$, $\tilde{d}$ provides further information. The last set of weights takes cancelling long and short positions on the basis of d over all values of $\tilde{f}$. Although each strategy produces a positive mean difference in returns, these are not significantly different from zero. We conclude that $E(\tilde{R}_{it} \mid f_{it}, d_{it}, \cdot) = E(\tilde{R}_{it} \mid f_{it}, \cdot)$, that is, the dividend-based forecast does not provide information over that available in the direct forecast.

Table V presents results of a similar test on matching $(d\text{-}f)$ information portfolios against those formed by ranking on values of $\tilde{d}$ only. Here we test whether the ranking on values of $\tilde{f}$ partitions returns better than on values of $\tilde{d}$. The mean return differences for the four portfolios are related to the level of f. The mean return difference from investing in the portfolios according to the T^2 weights is 0.24% per month, quite a bit larger than the corresponding figure in Table IV. However, the associated F statistic indicates this is not significantly different from zero. But, while for "high" d portfolios the direct forecast does not perform any better than the dividend-based forecast (see the second set of weights), investing on the basis of the direct forecast outperforms investment on the basis of the dividend-based forecast for "low" d portfolios. The mean return difference associated with the third set of weights is 0.81% per month, significant at the 0.10 level (and marginally not significant at the 0.05 level) for (appropriate) one-tail test. We conclude that there is one realization of $\tilde{f}$ and $\tilde{d}$ for which $E(\tilde{R}_{it} \mid d_{it}, f_{it}, \cdot) \neq E(\tilde{R}_{it} \mid d_{it}, \cdot)$.

Table V

Mean Return Differences between $(d - f)$ Information Portfolios and Portfolios Formed by Ranking on Values of $\tilde{d}$ Alone, with Results for Selected Linear Combinations of Portfolio Return Differences

Portfolio	Value of $(\tilde{d}, \hat{f})$	Value of $(\tilde{d})$	Mean Return Difference	$t(\underset{\sim}{w})$	$F_{4,68}$
1	HH	H	−0.0008	−0.30	0.02
2	HL	MH	0.0004	0.15	0.01
3	LH	ML	0.0046	1.52	0.55
4	LL	L	−0.0035	−1.13	0.30
T^2 weights portfolio			0.0024	1.72†	0.71
$\underset{\sim}{w}^T = (1, -1, 0, 0)$			−0.0011	−0.28	N.R.
$\underset{\sim}{w}^T = (0, 0, 1, -1)$			0.0081	1.58††	N.R.
$\underset{\sim}{w}^T = (\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, -\frac{1}{2})$			0.0035	1.19	N.R.

Notes:

† Denotes value is significant at 0.10 level for a two-tail test.

†† Denotes value is significant at 0.10 level for a one-tail test.

N.R. denotes "not relevant."

The normalized weights implied by the value of $\hat{T}^2$ are 0.211, 0.266, 0.536, and −0.012. The value of $\hat{T}^2$ is 2.96.

To sum up, these results indicate that both the direct forecast and the dividend-based forecast possess information. However, there does appear to be more information in the direct forecast than in the dividend-based forecast. It seems that for firms which adjust their dividends to reflect relatively high earnings, the two forecasts may be regarded as substitutes: the information in the direct forecast is also expressed in dividend announcements, and *vice versa.* For firms with relatively low adjustment of dividends, it appears the dividend does not carry as much information as the direct forecast. This concurs with observations made from Table II. In signaling models, the function of a signal is to sort firms in terms of realized returns (end-of-period values). The tests have ranked firms on the basis of a variable derived from the dividend signal and have compared this sorting of realized returns with that based on the earnings forecast. In the parlance of the signaling models, the results indicate that the earnings forecast sorts firms' realized returns better than the dividend signal. Note that this comparison of the rankings in the tests corresponds to the Blackwell [6, 7] notion of "better" information: $\hat{f}$ dominates $\tilde{d}$ if it is a "less garbled" partition of the outcome (returns) set.[17]

[17] These results are based on data for the whole period 1968–73. This was a time of varying economic conditions and a dividend freeze was in effect during 1972. The tests were repeated for several subperiods, including periods which excluded the freeze period. Results for periods excluding the freeze period were a little more favorable to the dividend-based forecast, but similar to those reported here, while for the freeze period little effect was observed from the dividend announcement. This latter result is expected and provided control in making inferences about the dividend announcement in periods when the dividend freeze was not in effect.

The T^2 test assumes stationarity of the variance and covariances over time. As this assumption is more likely to be violated over a longer time period, confirming results for shorter time periods are comforting.

IV. Tests of Announcement Effects

Penman [25] observed significant stock price changes associated with the publication of management earnings forecasts. If dividends function as signals, one would also expect stock price reactions when dividend announcements are made, reflecting investors' reassessments of firms' values. It is possible that the information in dividend announcements could be conveyed through the earnings forecast (or some other announcement) and that managements merely adjust dividends (after the forecast announcement) to maintain a level of dividend payout or yield (appropriate, say, to a particular clientele). The sample in this paper is a subset of that in the Penman [25] paper. In this section, we examine whether significant price changes are associated with the dividend announcements of these firms which also issued earnings forecasts. Only cases where firms increased their dividends are included in these tests.[18]

Table VI

Summary of Daily Excess Stock Returns Around Announcements of Dividend Increases

Day τ	$\bar{\hat{\xi}}_\tau$	t_τ	$\bar{\hat{\xi}}^*_\tau$
−10	−0.0052	−0.09	−0.18
−5	−0.0171	−0.30	−0.25
−4	0.0428	0.71	0.95
−3	0.0042	0.07	0.26
−2	0.1027	1.83*	1.36
−1	0.3917	5.51*	5.32*
0	0.3319	4.88*	5.08*
+1	0.0441	0.69	0.51
+2	0.1229	1.93*	1.47
+3	0.1276	2.12*	1.58
+4	0.0138	0.22	0.24
+5	0.0114	0.21	−0.03
+10	−0.0441	−0.71	−0.45

Notes:
The number of announcements is 328.
* Denotes values significant at 0.05 level for a one-tail test.
$\bar{\hat{\xi}}^*_\tau$ is defined in footnote 19.

[18] The sample of firms is larger than that used in Section III because selection criteria (4) and (5) in footnote 2 did not have to be applied. Of 1026 dividend announcements in the expanded sample, 523 or 51% were cases of firms increasing dividends on an annual basis; 481 or 47% were cases where firms did not change their dividends; and 22 or 2% were dividend decreases. A change in dividend could occur through a change in a quarterly, semi-annual, or annual dividend, or through a stock dividend which effectively increased the annual cash dividend. If firms announced more than one dividend change in a given year, the date of the first was taken as the announcement date. The analysis was restricted to dividend increases because of the small number of dividend decreases and ambiguity about the expected direction of price changes and effective announcement dates of the annual dividend for cases with no change in dividend. The 523 cases of increased dividends were reduced to 328 because sufficient excess returns data were not available for all firms and because firms were excluded if other announcements about the firm appeared in the *Wall Street Journal Index* within 5 days of the dividend announcement.

For each firm and for each trading day, τ, within 60 days before and after the dividend announcement date, an excess return was obtained from the University of Chicago's CRSP *Daily Excess Returns File.* The announcement date (for which $\tau = 0$) was assumed to be the date the announcement appeared in the *Wall Street Journal.* The daily excess return on day τ was standardized by its estimated standard deviation estimated over the 80 days prior to day -60 relative to the announcement date, after subtracting the mean excess return for that firm estimated over the same period. The estimated mean standardized daily excess return over all firms, $\hat{\xi}_\tau$, is reported in the second column of Table VI for selected values of τ, along with the value of $t_\tau = (\hat{\xi}_\tau / \hat{S}_\tau) \cdot \sqrt{N}$, where $\hat{S}_\tau$ is the estimated cross-sectional standard deviation of standardized excess returns on day τ, and N is the number of announcements. The null hypothesis states that $\hat{\xi}_\tau = 0$ for all τ. Assuming the excess returns are normally distributed and are cross-sectionally independent, t_τ is distributed t with $N - 2$ degrees of freedom, conditional upon the null hypothesis. As dividend announcements for different firms are likely to occur at the same (calendar) time, the independence condition may not be satisfied. The last column of Table VI gives a statistic, $\hat{\xi}^*_\tau$, which incorporates cross-sectional correlation.[19] Under the null hypothesis it has a t distribution with 474 degrees of freedom.

The values of t_τ and $\hat{\xi}^*_\tau$ on dates near to date 0 indicate an inconsistency with the null hypothesis. We conclude that dividend announcements convey information to the market.[20] The tests were repeated using only those dividend increase announcements occurring after the forecast announcement in a given fiscal year. While mean excess returns on days -1 and 0 were lower, they were still significantly different from zero. A similar result was obtained for forecasts occurring after dividend announcements. Hence, both dividend announcements and forecasts are capable of conveying information when the alternative signal has already been given. This is not a means of comparing incremental information of one signal over another, however, because the announcements are made at different times of the year and are thus probably based on different information. For the 545 dividend changes observed in the sample (see footnote 18), only 18 occurred on the same day as the forecast and only 65 in the same calendar month. For this reason, the tests of incremental information were based on the direct

[19] This was calculated as follows. For each of the six calendar years in the sample period, firms making announcements in a given year were formed into a portfolio on the day corresponding to day -140 for the firm with the earliest forecast in the year. Portfolio daily excess returns were estimated for each portfolio and for each date as the arithmetic average of component securities' daily excess returns. The portfolio excess return for each portfolio and each day τ was standardized by dividing by the estimated standard deviation of portfolio excess returns, estimated over day -140 to day -61 for the firm with the earliest forecast in the relevant year. The statistic

$$\hat{\xi}^*_\tau = [\textstyle\sum_{p=1}^{6} \hat{\xi}^*_{p\tau}/6]/[1/\sqrt{6}]$$

where $\hat{\xi}^*_{p\tau}$ is the standardized excess return for portfolio p, $p = 1, \cdots, 6$ on day τ, is reported in the last column of Table VI. This and other statistics used in this section are described more fully in Penman [25].

[20] Table 4 in Penman [25] describes the effects of forecast announcements as a comparison. The tests reported in that paper were repeated using only the firms used in Table VI, with similar results. The value of the mean standardized excess returns on day -1 was 0.3624 with an associated t statistic of 6.54.

forecast and the dividend announcement falling anytime over the fiscal year. If the announcement dates for each are similarly distributed over the year, those tests will have effectively abstracted from timing differences. In fact, an analysis of the distribution of announcement dates revealed the forecasts were made, on the average, 206 days into the fiscal year with a standard deviation of 102 days around this, while the average dividend change date was the 184th day of the fiscal year with a standard deviation of 112 days.

V. Conclusions

The evidence accumulated here indicates that both dividend announcements and managements' earnings forecasts possess information about managements' expectations. However, it appears that not all information in earnings forecasts is available in dividend announcements. For firms whose dividend announcements imply a relatively high earnings prediction, the information conveyed by their dividends is similar to that conveyed by their earnings forecasts. However, many firms do not adjust their dividends to the level of earnings implied by the earnings forecast and so, for these firms with a relatively low adjustment of dividends, the dividend announcement does not predict firms' values as well as the earnings forecast.

In interpreting the results, a few points should be kept in mind. First, the sample consists of firms with a history of paying dividends and does not include firms paying dividends for the first time or firms with omitted dividends in their recent history. So the results are representative of well-established firms only. Second, the firms as a group can be classified as those enjoying good earnings. Firms self-selected themselves into the sample by issuing a forecast. This, of course, is in the nature of signaling. However, it does mean that the empirical properties of dividends observed here apply only to such firms. It would be interesting to investigate the dividend behavior of firms which did not issue a forecast. Unfortunately, it is always difficult in collecting data to ensure that a particular firm did not issue a forecast. Third, the results may be susceptible to possible misspecification of the respective earnings forecasts. When a direct forecast was published as an interval estimate, the forecast was assumed to be the midpoint of the interval. It is hoped that the grouping procedures reduced the error introduced by this. The earnings expectation implicit in the dividend announcements was estimated from an assumed model of the dividend-earnings relationship, which may not be appropriate specification. This issue is dealt with in the Appendix. Further, the dividend was defined as the sum of all dividends declared in a fiscal year rather than the annualized fourth quarter dividend. This was done to abstract from the timing of the signal within the fiscal year. As earnings forecasts are published at various times throughout the year, it was desirable to include in the sample dividend changes occurring at various times during the year so that, at the portfolio level, the implied forecast in the dividend announcement came out at approximately the same time as this forecast. Hence, on average, the two forecasts could be regarded as based on the same information. Note also that forecasts made by managements are sometimes revised later and information on these revisions was not included in the tests, biasing them towards the dividend signal.

Appendix

As management earnings forecasts are predictions of current earnings, the tests in the paper compared these forecasts with predictions of current earnings based on dividends. It has been argued that dividends provide information not only about current earnings, but also about future earnings. If this is so, the dividend forecast variable used in the tests may not reflect all the information in dividends. Here we report on tests using dividend variables which attempt to capture management's long-run forecast.

Based on survey data, Lintner [19] presented a model describing dividend policy. According to this model, managements adjust dividends gradually to a target payout based on their assessments of future earnings. The model finds empirical support in Fama and Babiak [10] and Fama [9]. The partial adjustment of dividends in each period is described by

$$\Delta\tilde{D}_{it} = \lambda_{1i}(D^*_{it} - D_{it-1}) + \tilde{\epsilon}_{it} \tag{A.1}$$

where $\Delta\tilde{D}_{it}$ is the change in dividend of firm i from year $t - 1$ to year t; $\tilde{\epsilon}_{it}$ is a disturbance term; λ_{1i}, is the "speed-of-adjustment" coefficient; and D^*_{it} is the management's target dividend, which is assumed to be proportional to contemporaneous earnings, Y_{it}:

$$D^*_{it} = \lambda_{2i}Y_{it}. \tag{A.2}$$

Combining Equations (A.1) and (A.2),

$$\Delta\tilde{D}_{it} = b_{1i}D_{it-1} + b_{2i}Y_{it} + \tilde{\epsilon}_{it} \tag{A.3}$$

$$b_{1i} = -\lambda_{1i}, \text{ and}$$

$$b_{2i} = \lambda_{1i}\lambda_{2i}$$

The difference between the expected change in annual dividends, $E(\Delta\tilde{D}_{it}) = b_{1i}D_{it-1} + b_{2i}Y_{it}$, and the actual change in dividends is assumed to capture management's change in expectations. Thus, a dividend predictor variable was defined as

$$\tilde{d}_{it} = [\Delta\tilde{D}_{it} - (\hat{b}_{1i}D_{it-1} + \hat{b}_{2i}Y_{it})]/\hat{\sigma}_i(\hat{\epsilon})$$

where $\hat{\sigma}_i(\hat{\epsilon})$ is the estimated standard error of the model. This variable captures the information in the dividend change after subtracting that in current earnings. Tests using this alternative specification did not perform as well (with respect to the dividend) as those reported in the paper. In fact, there appeared to be little relationship between this dividend signal variable and realized returns, a result which is consistent with those of Watts [28] and Gonedes [13]. Adding a lagged earnings term to (A.3) (as in Fama and Babiak [10]) did not change this result. A comparison of this result with that in the main part of the paper suggests that dividends, like the forecast, reveal assessments of current earnings, not future earnings as stated in the traditional form of the "information content of dividends hypothesis." A recent paper by Miller and Rock [20] in fact revises this notion and describes dividends as providing information about current earnings, a description which is an implication of the basic funds flow identity rather than an *ad hoc* hypothesis.

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