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CORPORATE FINANCIAL DECISIONS AND FUTURE EARNING PERFORMANCE: THE CASE OF INITIATING DIVIDENDS

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March 1986

MIT Sloan School of Management Working Paper: #1762-86

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We are grateful to Paul Asquith and David Mullins for making their data available for this paper.
1. INTRODUCTION

The impact of a firm's dividend policy on its value has been a subject of long-standing debate in the finance literature. In their seminal work, Miller and Modigliani (1961) show that, absent market imperfections, dividend policy should not affect shareholders' wealth. Contrary to this proposition, however, a number of recent empirical studies report a significant positive stock price reaction to corporate dividend announcements. Examples of such studies include Aharoney and Swary (1980), Asquith and Mullins (1983), and Brickley (1982).

To account for the observed dividend announcement effect, Miller and Rock (1985) propose a modification to the Miller-Modigliani assumption that investors and managers possess the same information. Miller and Rock hypothesize that when managers know more than outside investors about the firm's current and future performance, dividends provide a vehicle for communicating management's superior information to the shareholders.

In a world of rational expectations, the firm's dividend (or financing) announcements provide just enough pieces of the firm's sources and uses statements for the market to deduce the unobserved piece, to wit, the firm's current earnings. The market's estimate of current earnings contributes in turn to the estimate of the expected future earnings on which the firm's market value largely hinges. (p.1031)

Ross (1977) and Bhattacharya (1979, 1980) also present asymmetric information models in which dividends serve as signals of the firm's current and future expected performance.1

A number of researchers question the information signaling role of dividends. They suggest that cheaper and equally efficient alternatives exist for managers to communicate information to shareholders (for example, see Miller and Modigliani (1961), Pettit (1972), Black (1976), and Stern (1979)). Asquith and Mullins (1983) counter this suggestion by arguing that:

-1-
Dividend policy has several attractive aspects as an information transmission mechanism. Unlike the detailed focus of other announcements, dividends can be used as a simple, comprehensive signal of management's interpretation of the firm's recent performance and its future prospects. Unlike most announcements, dividend announcements must be backed with hard cold cash. The firm must either generate this cash or convince the capital markets to supply it. In addition to the credibility of cash signals, dividends are also highly visible compared with other announcements. (p. 94)

A second dividend hypothesis proposed in the literature competes with the information signaling hypothesis and also predicts a positive stock price reaction to dividend announcements. Graham and Dodd (1951), Gordon (1959), and Gordon and Bradford (1980), suggest that the investors prefer returns in the form of dividends, possibly because of institutional constraints. This proposition is consistent with a positive wealth impact of dividend announcements and with the results of Long's (1978) examination of the returns on the dual series common stock of a single firm. A key distinction between the information signaling hypothesis and this other explanation of the dividend announcement effect is that, while the signaling hypothesis explicitly links the announcement of dividends and the firm's current and future performance, no such link is implied by the competing explanation.

The objective of this paper is to provide empirical evidence on the validity of the dividend signaling hypothesis. Firms' performance is observable, _ex post_, in the form of accounting earnings. Therefore, if dividends signal "good news" regarding the firm's current and future performance and if the signal is credible, the subsequent earnings of the firm should corroborate the increased performance expectations. To test this proposition, we use Asquith and Mullins' (1983) sample of firms that initiate dividends either for the first time or after a hiatus of 10 years and examine their earnings performance subsequent to the dividend initiation.

Our empirical analysis leads to three major conclusions. First, we find
that the reported earnings of firms that initiate dividends are significantly greater than the earnings forecasted by a time series model of earnings for three years prior to and three years following the dividend initiation.

Second, there is a significant relation between the dividend yield at the time of the initiating dividend and the subsequent increase in earnings. That is, the higher the dividend yield, the higher the subsequent earnings increase. Third, the magnitude of the stock price reactions to earnings announcements following the dividend initiation are significantly less than normal, indicating that these earnings increases are at least in part anticipated by the market at the date of the initiation. Together these three findings provide strong support for the dividend signaling hypothesis.

The remainder of the paper is organized as follows. In the next section, we describe the data employed in our empirical analysis. The third section describes the empirical tests and their results. The paper concludes with a summary and discussion of the results and describes our ongoing work to extend them.

2. DATA

Our sample comprises the firms used by Asquith and Mullins (1983) in their study of the impact of initiating dividend announcements on shareholders' wealth. Asquith and Mullins define an initiating dividend as the first dividend in a firm's history or the resumption of a dividend after a hiatus of at least ten years. Their initial ten-year screen was January 1954 to December 1963. All first dividend payments in the sample therefore occur after 1963, and the period studied extends to 1980. For all sample firms, the initial dividend was paid at least one year after the firm was listed on either the New York or American Stock Exchanges.
Asquith and Mullins' sample of firms is selected from several sources, including Moody's Dividend Record, Standard and Poor's Dividend Record, the Center for Research in Securities Prices, and the Wall Street Journal. The dividend announcement date is defined as the date when news of the forthcoming dividend first appeared in the Wall Street Journal. Asquith and Mullins' final sample comprises 168 firms; the dividend announcement date and the amount of dividend payment are collected for each of these firms.

Our study imposes two additional data requirements: (1) changes in primary earnings per share data are available either on Compustat or in the Wall Street Journal Index for at least seven of the five years before and five years after the dividend announcement date, and (2) earnings announcement dates are available in the Wall Street Journal Index for these same years. We collect the five annual earnings changes announced in the Wall Street Journal prior to the dividend initiation announcement date and the five annual earnings changes released following that date. These additional data requirements reduce our final sample of 127 firms.

Table 1 presents the number of sample firms initiating dividends by year. The most frequent years of dividend initiation in the sample are 1976 (31 firms) and 1977 (25 firms). The dividend initiating year for the remaining 71 firms in the sample ranges from 1970 to 1979.

3. TEST AND RESULTS

Our tests are designed to examine three issues. First, we evaluate whether there is a significant improvement in a firm's earnings performance at the time of, and following, the initiation of dividend payments. Second, we examine whether the earnings improvement, if any, is related to the magnitude of the initiating dividend payment. Finally, we analyze whether there is a difference
in market reaction to earnings announcements of the sample firms before and after the dividend initiation. These test and their results are described in this section.

3.1 Dividend Initiation and Earnings Performance

We examine whether firms that initiate dividend payments have a significant improvement in their earnings performance following the initiation. Results of earlier studies by Ball and Brown (1968), Ball and Watts (1972), and Watts and Leftwich (1977) suggest that annual earnings follow a random walk. We therefore use changes in earnings as a simple proxy for earnings performance. Annual earnings changes are computed for each sample firm for five fiscal years after the date of the dividend initiation (years +1 to +5). The median number of trading days between announcement of the initiating dividend and the first subsequent annual earnings is 171 trading days. For comparison, we also examine earnings changes for five fiscal years before the dividend initiation (years -5 to -1). To facilitate pooling of data across firms, all the annual earnings changes of a firm are standardized by its stock price two days before the announcement of the initiating dividend.2

Table 2 provides summary statistics on the distribution of standardized annual earnings changes during the ten-year period for the 127 companies in the sample. There is some suggestion that the mean results are strongly influenced by several outlier observations. We therefore report nonparametric statistics. A Wilcoxon signed rank test is used to evaluate the statistical significance of the earnings changes (see Siegel (1965) for further discussion of this test). The median standardized earnings changes are 0.006 and 0.009 respectively in year -5 and -4. The Wilcoxon statistics are statistically insignificant for both years at the ten percent level. The sample firms have significant
increases in earnings for the three years prior to the announcement. The median standardized earnings changes are 0.052, 0.016, and 0.031 for years -3, -2, and -1 respectively. The Wilcoxon statistics for these years are highly significant. This growth in earnings continues for three years following the dividend announcement. The standardized median earnings changes in years +1 to +3 are 0.027, 0.016, and 0.019 and the Wilcoxon statistics are statistically significant at the 5 percent level. The standardized earnings changes in years +4 and +5 are not statistically significant. 3

The above analysis indicates that the sample firms have significant increases in earnings for three years before the initiation of dividend payments. This increase in earnings continues for several years after the dividend announcement. While the earnings growth becomes insignificant after year +3, the increased level of earnings is sustained at least until year +5.

3.2 Relation Between Initial Dividend Payments and Earnings Changes

We examine whether the magnitude of firms' earnings changes surrounding their dividend initiation dates is related to the level of their initiating dividend payments. Spearman correlations are estimated for the initiating dividend yield and standardized earnings changes in each of the five years prior and subsequent to the dividend announcement. The dividend yield is the ratio of the initial dividend payment to the stock price of the firm two days prior to announcement of the initial dividend. Earnings changes are also standardized by the equity price at this date.

Table 3 presents results for the full sample of 127 firms. The correlations for years -5 to -1 are not significantly different from zero. The Spearman correlation for one year following the announcement is 0.336 and significant at the one percent level. Correlations in years +2 to +5 are insignificant.
The above results indicate that there is a positive and significant relation between the magnitude of the earnings increase in the year following a dividend initiation, and the magnitude of the initiating dividend. However, these correlation tests do not control for the information in future earnings performance which is reflected in historical earnings. Our results indicate that there is time-series dependence in earnings changes in the three years prior to the dividend initiation. Information contained in historical earnings changes may therefore be used to forecast year +1 earnings more accurately than the random walk model. We estimate the following regression to test whether the initiating dividend provides any information on the change in earnings at year 1 after controlling for the earnings change in year -1:

\[ SE_{1j} = \alpha + \beta SE_{-1j} + \lambda DP_j + u_j \]

\( SE_{-1j} (SE_{-1j}) \) is firm \( j \)'s change in earnings one year after (before) the dividend initiation standardized by the stock price two days prior to the dividend announcement. \( DP_j \) is the initiating dividend also deflated by the stock price two days before the dividend announcement. If the dividend yield provides information on future earnings beyond that reflected in the historical change in earnings, the coefficient \( \lambda \) is positive.

The parameters of the above regression are estimated cross-sectionally using the 127 sample firms. To mitigate the effect of extreme observations, we eliminate all earnings changes that exceed 50 percent of the stock price two days prior to the dividend announcement date. This reduces the number of firms in the sample from 127 to 125. The results of these estimates are reported in Table 4. The estimate of \( \lambda \) is 3.9638 and is significant at the six percent level using a two-tailed test. This implies that the magnitude of the initiating dividend contains information on future earnings after controlling...
for the dependence in earnings changes, evidence consistent with the signaling hypothesis. The coefficient on year -1's standardized earnings change is -0.2776 and statistically significant at the one percent level using a two-tailed test. This indicates that there is negative dependence in standardized earnings changes in the year subsequent to the dividend initiation.

3.3 Market Reaction to Earnings Announcements After Dividend Initiation

The above results suggest that there is a relation between the magnitude of the initial dividend payment and the earnings changes in the year following the announcement of the dividend initiation. If the market reaction to the dividend announcement is in anticipation of this subsequent earnings increase, the market reaction to the actual announcement of the earnings increase should be less than usual. We test this hypothesis by using the following regression equation:

\[ \text{UR}_{jt} = \alpha_j + \beta_j \text{ SE}_{jt} + \delta \text{ D}_{jt} \text{ SE}_{jt} + \epsilon_{jt} \]

\( \text{UR}_{jt} \) is the market-adjusted return for one day prior to and the day of the annual earnings announcement in the Wall Street Journal for firm \( j \) in year \( t \). The market-adjusted return is the difference between the firm's stock return and the return on the CRSP value-weighted market index. \( \text{SE}_{jt} \) is the standardized earnings change for firm \( j \) in year \( t \). The standardized earnings change is the change in the firm's annual earnings deflated by its equity price two days prior to the earnings announcement. \( \text{D}_{jt} \) is a dummy variable that takes the value one for one year following the announcement of an initiating dividend and zero otherwise. The parameters \( \alpha_j \) and \( \beta_j \) are firm-specific parameters which represent the normal market reaction to the announcement of earnings changes. The parameter \( \delta \) captures the average adjustment to the slope of the regression.
equation in the year following the dividend initiation. We expect that $\beta_j$ is positive, consistent with earlier studies. If the market anticipates a subsequent earnings increase at the date of the dividend initiation, $\delta$ is negative.

The sample distribution of estimated t statistics is used to test the significance of the company-specific coefficients for $\alpha$ and $\beta$. For each parameter the following Z-statistic is computed.

$$Z = \frac{1}{\sqrt{N}} \sum_{i=1}^{N} \frac{t_i}{\sqrt{k_j/(k_j-2)}}$$

where, $t_j$ = t statistic for firm $j$ associated with the estimate of the parameter ($\alpha$ or $\beta$);

$k_j$ = degrees of freedom in regression for firm $j$; and

$N$ = number of firms in the sample.

The t statistic for firm $j$ is distributed Student t with variance $k_j/(k_j-2)$. Under the Control Limit Theorem, the sum of the standardized t statistics is normally distributed with a variance of $N$. The Z-statistic for each parameter is therefore a standard normal variate under the null hypothesis that the parameter ($\alpha$ or $\beta$) is not significantly different from zero. A Student t test is used to test the significance of the parameter that is assumed constant across firms ($\delta$).

The parameters of the above regression equation are estimated using the observations for the 127 sample companies over ten years. To mitigate the effect of extreme observations, we eliminate all earnings changes that exceed 50 percent of the stock price two days prior to the earnings announcement date. This reduces the sample by 40 company-years (4 percent of the remaining observations). The distribution of the estimated regression coefficients $\alpha_j$, $\beta_j$, and the estimated value of the coefficient $\delta$ are shown in Table 5. The sample mean value of $\alpha$ is .0047, and is not statistically significant at the ten percent level using a two-tailed test. The sample mean of $\beta$ is 0.1620 and the Z-statistic, which
tests the sample significance of the estimates of $\beta$, is significant at the one percent level. The estimate of $\delta$ is $-0.1386$ and is statistically significant at the five percent level using a two-tailed test. The $R^2$ of the regression is .2527, which is highly statistically significant. These results are consistent with the hypothesis that the magnitude of the market reaction to the earnings change during the one year following the dividend initiation is less than the "normal" market reaction for a given level of earnings change.

4. DISCUSSION OF RESULTS AND CONCLUSIONS

The statistical tests and results presented in Section 3 indicate that: (1) There are significant increases in a firm's annual earnings for the three years prior to initiation of a dividend payment policy. The initiation is also followed by three years of significant earnings increases. (2) The earnings changes in the year following the dividend initiation by a firm are positively related to the magnitude of the initiating dividend (expressed as a dividend yield), even after controlling for time-series dependence in the earnings changes. (3) The market reaction to earnings changes is less than usual in the year following a firm's announcement of initiation of dividends. This finding, combined with the evidence in (2), indicates that the market reaction to a dividend initiation is in part due to anticipation of increases in earnings. Our results thus support the hypothesis that dividend initiations are credible signals of a firm's superior future performance.

Several additional research topics in the signaling area are currently being explored. First, we intend examining revisions in analysts' earnings forecasts at the time of an initiating dividend. If the dividend initiation is a credible signal of superior future performance, analysts are likely to revise upward their forecasts of future accounting earnings. A second extension of this research is to
examine quarterly, rather than annual, earnings changes. While this raises issues of seasonality, it could potentially increase the power of our tests. Finally, we are using the research methodology adopted in this paper to evaluate the signaling hypothesis for another economic event, public equity offerings (see Myers and Majluf (1985) for presentation of a signaling model for equity issues).
Jensen (1986) proposes an agency cost model of dividend policy with implications that are similar to those predicted by the signaling literature. Our test do not discriminate between these models.

Results for unstandardized earnings are also estimated and are consistent with the reported findings.

There is some evidence that the dividend initiations are clustered in time. Forty-four percent of the dividends announcements are in 1976 and 1977. To test whether our findings reflect a time-dependent increase in earnings that is unrelated to the dividend initiations, we estimate standardized earnings changes for two sub-periods, 1970 to 1975 and 1976 to 1979. Fifty-three firms initiate dividend payments in the first period and 74 in the second. The results are consistent with the findings reflected for the full sample in Table 2.

The regression is also estimated substituting the mean standardized earnings change for three years prior to the dividend initiation, for the standardized earnings change one year prior to that event. The estimated coefficients for the dividend yield are not different from those reported, but the estimated coefficients for historical earnings are not significantly different from zero.

See Ball and Brown (1968), Beaver, Clarke and Wright (1979) and Beaver, Lambert and Morse (1980).

For a detailed discussion of this test see Christie (1986). The test is based on the sample distribution of the parameter estimates. It is assumed that the parameters are independent across firms in the sample.
REFERENCES


Table 1

Number of sample firms initiating dividends by year in the period 1970-1979

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of companies initiating dividends</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>2</td>
</tr>
<tr>
<td>1971</td>
<td>2</td>
</tr>
<tr>
<td>1972</td>
<td>8</td>
</tr>
<tr>
<td>1973</td>
<td>15</td>
</tr>
<tr>
<td>1974</td>
<td>13</td>
</tr>
<tr>
<td>1975</td>
<td>13</td>
</tr>
<tr>
<td>1976</td>
<td>31</td>
</tr>
<tr>
<td>1977</td>
<td>25</td>
</tr>
<tr>
<td>1978</td>
<td>15</td>
</tr>
<tr>
<td>1979</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>127</strong></td>
</tr>
</tbody>
</table>
Table 2

Summary statistics for standardized annual earnings changes surrounding announcement of initiation of dividend payments \(^{a,b/}\)

<table>
<thead>
<tr>
<th>Year relative to dividend initiation</th>
<th>First quartile</th>
<th>Median</th>
<th>Third quartile</th>
<th>Wilcoxon Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>-5</td>
<td>-0.017</td>
<td>0.006</td>
<td>0.031</td>
<td>0.330</td>
</tr>
<tr>
<td>-4</td>
<td>-0.042</td>
<td>0.009</td>
<td>0.049</td>
<td>0.154</td>
</tr>
<tr>
<td>-3</td>
<td>-0.019</td>
<td>0.052</td>
<td>0.070</td>
<td>0.036</td>
</tr>
<tr>
<td>-2</td>
<td>-0.019</td>
<td>0.016</td>
<td>0.062</td>
<td>0.031</td>
</tr>
<tr>
<td>-1</td>
<td>-0.005</td>
<td>0.031</td>
<td>0.083</td>
<td>0.000</td>
</tr>
<tr>
<td>1</td>
<td>-0.009</td>
<td>0.027</td>
<td>0.067</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>-0.010</td>
<td>0.016</td>
<td>0.041</td>
<td>0.006</td>
</tr>
<tr>
<td>3</td>
<td>-0.028</td>
<td>0.019</td>
<td>0.045</td>
<td>0.016</td>
</tr>
<tr>
<td>4</td>
<td>-0.036</td>
<td>0.009</td>
<td>0.035</td>
<td>0.704</td>
</tr>
<tr>
<td>5</td>
<td>-0.029</td>
<td>0.013</td>
<td>0.029</td>
<td>0.660</td>
</tr>
</tbody>
</table>

\(^a\) Earnings changes are standardized by the firm's stock price two days prior to the announcement of the dividend initiation.

Table 3

Summary of correlations between the initiating dividend yield and standardized annual earnings changes surrounding announcement of initiation of dividend payments a,b/

<table>
<thead>
<tr>
<th>Year relative to dividend initiation</th>
<th>-5</th>
<th>-4</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spearman correlation coefficient</td>
<td>-.013</td>
<td>.065</td>
<td>.093</td>
<td>.091</td>
<td>.094</td>
<td>.336</td>
<td>.111</td>
<td>.035</td>
<td>-.071</td>
<td>-.045</td>
</tr>
<tr>
<td>p level</td>
<td>.897</td>
<td>.498</td>
<td>.316</td>
<td>.321</td>
<td>.297</td>
<td>.000</td>
<td>.223</td>
<td>.697</td>
<td>.460</td>
<td>-.629</td>
</tr>
</tbody>
</table>

a Earnings changes are standardized by the firm's stock price two days prior to the announcement of the dividend initiation. The dividend yield is the initiating dividend also deflated by the stock price two days prior to the initiation announcement.

b The sample comprises 127 firms that announce dividend initiations in the period 1970 to 1979.
Tests of the relation between standardized changes in earnings one year following an initiating dividend and the dividend yield after controlling for the prior year's standardized earnings change $a$:

$$SE_{1j} = \alpha + \beta SE_{-1j} + \lambda DP_j + u_j \quad b/$n

<table>
<thead>
<tr>
<th></th>
<th>$\hat{\alpha}$</th>
<th>$\hat{\beta}$</th>
<th>$\hat{\lambda}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>0.0291</td>
<td>-0.2776</td>
<td>3.9638</td>
</tr>
<tr>
<td>t statistic</td>
<td>1.597</td>
<td>-3.245 $c$</td>
<td>1.930 $d$</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.0968</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$a$ The sample comprises 127 firms that announce dividend initiations in the period 1970 to 1979.

$b$ $SE_{1j}$ ($SE_{-1j}$) is firm j's change in earnings one year after (before) the dividend initiation standardized by the stock price two days prior to the dividend announcement; and $DP_j$ is the initiating dividend deflated by the stock price two days prior to the dividend announcement.

c Significant at the one percent level using a two-tailed test.

d Significant at the six percent level using a two-tailed test.
<table>
<thead>
<tr>
<th></th>
<th>( \hat{\alpha} )</th>
<th>( \hat{\beta} )</th>
<th>( \hat{\delta} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.0047</td>
<td>0.1620</td>
<td>-0.1383</td>
</tr>
<tr>
<td>Z-statistic c/</td>
<td>-1.27</td>
<td>4.90 ( d/ )</td>
<td></td>
</tr>
<tr>
<td>t statistic</td>
<td>-</td>
<td>-</td>
<td>-2.16 ( e/ )</td>
</tr>
<tr>
<td>First quartile</td>
<td>-0.0083</td>
<td>0.0243</td>
<td>-</td>
</tr>
<tr>
<td>Median</td>
<td>-0.0030</td>
<td>0.1103</td>
<td>-</td>
</tr>
<tr>
<td>Third quartile</td>
<td>0.0196</td>
<td>0.3067</td>
<td>-</td>
</tr>
<tr>
<td>Adjusted ( R^2 )</td>
<td></td>
<td>0.2527</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) The results for coefficients \( \alpha \) and \( \beta \) are for the cross-sectional distribution of time-series regression coefficients for 127 firms that initiate dividends in the period 1970-1979. The coefficient \( \delta \) is assumed to be constant across firms.

\(^b\) \( UR_{jt} \) is the market-adjusted return for one day prior to and the day of the Wall Street Journal annual earnings announcement; \( SE_{jt} \) is the change in earnings per share in year \( t \) standardized by price two days prior to the earnings announcement; and \( D_{jt} \) is a dummy variable that takes the value one for the year following announcement of an initiating dividend and zero otherwise.

\(^c\) Under the null hypothesis each Z-statistic is distributed unit normal.

\(^d\) Significant at the one percent level using a two-tailed test.

\(^e\) Significant at the five percent level using a two-tailed test.