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The Impact of Initiating Dividend Payments on Shareholders' Wealth*

This study investigates the impact of dividends on stockholders' wealth by analyzing 168 firms that either pay the first dividend in their corporate history or initiate dividends after a 10-year hiatus. The empirical results exhibit larger positive excess returns than any previous study on dividends. This result does not depend on any other events (such as earnings announcements) and the excess return is positively related to the size of the initial payment. Subsequent dividend increases for the same sample of firms are also investigated. Compared with the initiation of dividends, the results suggest that subsequent increases may produce a larger positive impact on shareholders' wealth. The results also indicate that other studies may have underestimated the effect of dividend increases. The findings for both initial and subsequent dividends are consistent with the view that dividends convey unique, valuable information to investors.

I. Introduction

The objective of this study is to add to the understanding of the effect of dividends on shareholders' wealth. The impact of a firm's dividend policy on its value is an unresolved issue. In their seminal work, Miller and Modigliani (1961) demonstrate that, absent imperfections, dividend policy should not affect shareholders' wealth. As Miller and Scholes (1978) subsequently demonstrate, under U.S. tax code this result may survive even if there is differential taxation of dividends and capital gains. Dividend irrelevance is also supported by the empirical work of Black and Scholes (1974). Alluding to an argument in the Miller-Modigliani paper, Black and Scholes emphasize the ability of firms to adjust dividends to appeal to tax-induced investor clienteles and argue that this supply effect may account for their finding of no significant relationship between dividend yields and stock returns.

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Challenges to the dividend irrelevance proposition have focused on imperfections. Dividend income is taxed at a higher rate than capital gains, and this suggests a negative wealth impact. The existence of tax-induced clienteles is investigated by surveys of investors' holdings by Lewellen et al. (1978) and Blume, Crockett, and Friend (1974) and by the empirical results of Elton and Gruber (1970) concerning the ex-dividend behavior of stock prices. Capital asset pricing models incorporating differential personal taxes have been developed and/or tested by several researchers including Brennan (1970), Litzenberger and Ramaswamy (1979, 1980), Rosenberg and Marathe (1979), and Blume (1980). Empirical results presented in these papers suggest that, if risk (i.e., beta) is held constant, before-tax returns are an increasing function of dividend yield.

These results are criticized by Miller and Scholes (1981) and Hess (1981). The former authors find no support for an after-tax capital asset pricing model. Hess, on the other hand, finds that before-tax expected returns are related to dividend yields. However, he concludes that the nature of this relationship is not consistent with the tax-induced effects hypothesized by an after-tax capital asset pricing model.

Finally, a negative wealth impact may result from other costs associated with paying dividends. In addition to the cost of administering a dividend program, the firm may incur transaction costs associated with issuing new equity. With a given investment policy and capital structure, an increase in dividends must be funded with new equity.

A positive wealth impact has also been suggested by many researchers. A traditional viewpoint is that investors prefer returns in the form of dividends, possibly because of institutional constraints. This position is expressed by Graham and Dodd (1951), Gordon (1959), and Gordon and Bradford (1979) and is supported by Long's (1978) examination of the returns on the dual series common stock of one firm.

A positive wealth impact may also result from a dividend policy that communicates valuable information to investors. Dividends may provide a vehicle for communicating management's superior information concerning their interpretation of the firm's recent performance and their assessment of future performance. This view is consistent with the results of empirical studies examining firms' dividend policies (Lintner 1956; Brittain 1966; Fama and Babiak 1968). Ross (1977) and Bhattacharya (1979, 1980) present asymmetric information models in which dividends serve as signals of the firm's current performance and future prospects. In a general equilibrium analysis, Hakansson (1982) demonstrates that informative dividends improve efficiency when investors are heterogeneous in some respect or financial markets are incomplete. This result can hold even in the presence of deadweight costs associated with dividends. Miller and Rock (1982) show that as a result of information asymmetry between investors and managers, div-

idend changes can result in market price reactions. Kalay (1980) studied dividend reductions and, consistent with his signaling model, he could not reject the hypothesis that dividend reductions contain information.

A number of other empirical studies have examined whether dividends contain information. Pettit (1972) found that dividend announcements do convey valuable information. However, Watts (1973) and Gonedes (1978) came to the opposite conclusion. They contend that unexpected dividend changes communicate no information beyond that reflected in other contemporaneous variables (e.g., earnings). Laub (1976) and Pettit (1976) challenged Watts's findings, and Watts (1976) rebutted these challenges. However, all of these studies are based primarily on monthly stock returns.

Two studies employ daily return data. Charest (1978) found that the announcement of a dividend increase generates an excess return of about 1%.[1] Because his study makes no effort to remove the effect of contemporaneous earnings announcements, Charest concludes that his evidence does not necessarily reveal the presence of information in dividend announcements. Aharony and Swary (1980) document a small but significant dividend announcement effect separate from the information impact of earnings announcements. Their analysis focuses on dividend announcement dates that differ from earnings announcement dates by at least 11 days. For dividend increases they found a significant average excess return of about 1% over the 2-day announcement period. Their study also supports the semistrong form of the efficient capital market hypothesis. There is no leakage of information prior to the dividend announcement, and the full impact of the announcement is concentrated in the 2-day announcement period.

This study investigates the manner in which dividends affect shareholders' wealth. The disagreement among previous empirical studies stems from three sources. The first is inadequate identification and control of other simultaneous sources of information such as earnings announcements. Our analysis, like that of Aharony and Swary, uses daily data to allow explicit identification and control of contemporaneous information.

The second source is the difficulty of isolating and controlling for investors' expectations. To identify unexpected dividend increases most studies either assume a naive dividend expectations model (i.e., any change in dividends is unexpected) or employ some dividend fore-

1. Charest's interest is primarily the efficiency of the stock market with respect to dividend announcements, rather than the precise measurement of the information impact. The result reported above is based on a brief extension of his monthly analysis. No adjustment for risk is incorporated in his analysis of daily excess returns, and Charest apparently assumed the announcement date to be mid-month instead of determining the actual news date.

casting model to capture investors' expectations. The firms in our study paid no dividends either during their entire corporate histories or for at least 10 years. In this case the dividend forecasting models employed in other studies collapse into the naive expectations model. Compared with subsequent dividend changes, we believe that the naive model accurately reflects investors' expectations for initial dividends and that initial dividends are more likely to be unexpected.

This view implies that hypothesized dividends effects should be most visible at initiation. If dividend initiation is unexpected, the market reaction on announcement day should capture the full effect. The excess return should reflect investors' estimates of the present value of factors, such as the tax burden associated with dividends and the benefits of establishing a mechanism for communicating managerial information. Subsequent changes in dividends, explored in other studies, may be more accurately forecast by investors. If so the unexpected portion of a change in dividends is no longer equal to the entire change, and the full effects of the dividend change are not visible in the excess return on announcement day. The portion of the market reaction associated with the expected dividend change is already incorporated in stock prices on announcement day. The market reaction on announcement day is only for the unexpected portion of the change in dividend, not its full impact.

Initiating dividends may also induce a change in investor clienteles. Before the initial dividend, stockholders of our sample firms receive returns solely in the form of capital gains. If tax clienteles are relevant, these firms should be owned by high tax bracket investors. Therefore, the dividend announcement may induce a change in investor clienteles. The present value of any transaction costs and other expenses associated with the expected change in clienteles as well as the present value of any tax burden imposed on this new clientele will appear in the market's reaction.

Thus, if initial dividends are largely unanticipated, examining dividend initiations allows us to purge investors' expectations that may be incorporated in subsequent dividends. The result should be a clearer view of the true impact of dividends on shareholders' wealth.

A final deficiency in much of the previous empirical work is its failure to relate the wealth effect to the magnitude of dividends. The theory suggests that the two may be related. Exploring this relation also helps identify truly unexpected changes in dividends and provides additional insight into the sources of the wealth effect of dividends as well as of the ability of investors to forecast both initial and subsequent dividends.

We find for our sample that initiating cash dividends is associated with a significant positive excess return. The average market response to initiation is larger than the average effect of large subsequent divi-

dend increases analyzed here and in other studies (Charest 1978; Aharony and Swary 1980). However, the size of the initial dividend is also larger than subsequent changes. Adjusting for the magnitude of dividend changes, subsequent dividend increases appear to generate as large or larger an effect on shareholders' wealth. Our results also suggest that previous studies may have underestimated the wealth effect of subsequent dividend increases. The understatement stems from the failure of previous work to (1) capture accurately investors' anticipation of dividends and (2) incorporate the magnitude of dividend increases in their analysis. Our analysis supports the view that dividends convey to investors valuable information in addition to that contained in contemporaneous information sources. Further, the benefits of this information appear to outweigh any costs associated with paying dividends.

II. Issues

The preceding section suggests a number of hypotheses concerning the effect of dividends on shareholders' wealth. Assuming rational investor expectations, an efficient stock market, and no anticipation by investors of the initiation of dividend payments, investors' estimates of the present value of the various hypothesized effects should be incorporated into the stock price on the day a firm announces an initial dividend. These present values may already be incorporated in stock prices when subsequent dividends are announced. If the dividends are partially forecast, the effect of subsequent dividend announcements should reflect only the communication of incremental information plus any unexpected changes in the other hypothesized effects.

The factors responsible for changes in stockholders' wealth can be grouped into those which may have a positive wealth effect and those which may have a negative wealth effect. Factors that increase shareholders' wealth include the present values of (1) establishing a mechanism for communicating managerial information, (2) reducing institutional constraints on investors, and (3) benefits associated with the traditionalists' (e.g., Gordon 1959) view that investors prefer returns in the form of cash dividends. In addition, the initiation impact should include the value of the incremental information communicated by the initial dividend. Factors which decrease shareholders' wealth include the present values of (1) the additional tax burden associated with receiving dividends now and in the future and the adjustment costs incurred by tax-induced changes in clienteles and (2) any other costs (e.g., administrative costs, transaction costs associated with issuing new equity) incurred in paying dividends now and in the future.

If investors anticipate subsequent dividend announcements, the effect of these announcements should reflect only the unexpected

changes in the present values discussed above. Subsequent wealth effects should result primarily from the communication of unexpected incremental information transmitted through an established dividend program.

Obviously, it is not easy to isolate the separate effects of the disparate factors presented above. To provide insight into the effects of dividends we shall explore four issues: (1) the average effect on shareholders' wealth of both initial and subsequent dividend announcements; (2) the relationship between the wealth effect and the magnitude of dividends for both initial and subsequent dividends; (3) the comparative effects of initial and subsequent dividends; and (4) investors' anticipation of initial and subsequent dividends.

The first issue poses a simple question. Which set of factors dominates the announcement effect? On balance, do our sample dividend announcements increase shareholders' wealth? The manner in which the effect is incorporated in stock prices through time also provides a test of the semistrong form of the efficient capital market hypothesis.

The second question is whether the magnitude of the wealth effect is related to the size of the dividend payment. Several of the hypotheses suggest it should be. For example, if dividends signal valuable information, the wealth effect should be related to the size of the signal. Candidates for the size variable include the change in dividend yield and dividend payout.

The third issue involves comparing initial and subsequent dividends. The objective is to compare the effect of establishing a dividend program with its use once established. This comparison should provide insights into the various present-value effects associated primarily with the initiation of dividends.

Finally, we shall examine the possibility of an anticipation effect. When the firm pays no dividends, investors' information sets includes all information available or inferrable from a dividend series constant at zero. Once dividend payments are initiated, investors' information may be augmented by the information contained in a nonconstant series of dividends. As a result, investors may be more successful in forecasting the magnitude and timing of future dividend changes. Unlike episodic stock repurchases with timing at the discretion of management, investors have expectations concerning the frequency of dividend payments. Around the time a subsequent dividend announcement is expected, the stock price should already incorporate investors' expectations of the impending dividend. If dividend increases are good news and investors anticipate an increase, a positive excess return should be observed only if the actual increase exceeds the expected increase.

Some previous empirical studies of dividends have assumed the naive expectations model, that any increase in dividends is unexpected

(e.g., Aharony and Swary 1980). As a result, these studies may underestimate the wealth effect of an increase in dividends. Other studies have employed dividend forecasting models to capture investors' expectations (e.g., Lintner 1956; Watts 1973). The models are estimated by regressing dividends in a given period against past dividends, earnings, and other variables. With a variable series of past dividends, these models may produce forecasts superior to those implicit in the naive model. When confronted with a constant past series of dividends, these models generally collapse into the naive model. Thus, for the initiation of dividends the naive model may be difficult to improve on.[2]

The empirical results help clarify the question of the efficacy of the naive model and the validity of findings based on it. The relation between excess returns and the magnitude of dividend changes provides an insight into the failure of the naive model. The ability of investors to anticipate initial and subsequent dividends provides evidence of the errors in the findings of earlier studies that employ the naive expectations model.

III. Data

This study analyzes a sample of 168 firms that initiate a dividend to common shareholders. The dividend is either the first dividend in a firm's corporate history or the resumption of a dividend after a hiatus of at least 10 years. The initial 10-year screen used was January 1954–December 1963, and therefore all first dividend payments in this study occur after December 1963. The period studied extends to 1980. For all firms, this initial dividend was paid at least 1 year after the firm was listed on either the NYSE or ASE. This requirement guarantees the availability of data.

The set of firms that initiated dividend payments came from several sources, including *Moody's Dividend Record, Standard and Poor's Dividend Record,* the *Center for Research in Security Prices,* and the *Wall Street Journal.* The dividend announcement dates and the amount of dividends paid by these companies were then collected. A dividend announcement date is the date when news of the forthcoming dividend first appears in the *Wall Street Journal.* Neither the ex-dividend day nor the day the dividend is paid is considered to be an announcement day.

2. This statement should be limited. Investors may well expect the firm to initiate dividends sometime in the future. Their estimate should be reflected in the preannouncement stock price, and the announcement effect should reflect only the unexpected component, not the full effects of initiation. It may be possible to gain some insight into investors' estimates of the likelihood of dividend initiation, but we have not pursued this possibility. However, our empirical results provide insight into investors' ability to anticipate dividend initiation.

Dividend announcement dates and dividend amounts were collected not only for the initial dividend but also for the largest dividend increase that occurred during the following 12 quarters. This provides information on the dividend histories of the sample firms for the 3-year period following the initial dividend and also allows a comparison of initial and subsequent dividends. Of the 168 initial firms, 114 increased their dividend within 3 years, seven decreased their dividend and the remaining 47 kept their dividend at the initial level. The results clearly delineate whether the announcement date is for that first or subsequent dividends. To control for other events, all other announcements that occurred within ± 10 days from a dividend announcement were collected from the *Wall Street Journal Index*. The majority of such announcements are earnings statements. Finally, stock prices were collected for the month end before all dividend announcements to calculate changes in dividend yield, and earnings per share information was collected for the previous fiscal year to calculate changes in payout ratios.

IV. Methodology

This study uses daily stock return data to compute excess stockholder returns and to examine dividend announcements for each firm in the data base. The daily excess return for a security is estimated by

$$XR_{it} = R_{it} - E(\tilde{R}_{it}), \tag{1}$$

where t = the day measured relative to an event; XR_{it} = the excess return to security i for day t; R_{it} = the return on security i during day t; $E(\tilde{R}_{it})$ = the expected rate of return on security i for day t. The term $E(\tilde{R}_{it})$ is estimated by grouping annually all securities listed on the NYSE and the ASE into 10 equal control portfolios ranked according to their Scholes-Williams beta estimates. Each security is therefore assigned to one of 10 portfolios. The observed return to the control portfolio which security i is assigned to is then used as the estimate of $E(\tilde{R}_{it})$. The daily returns file of the Center for Research in Security Prices (CRSP) provide the observed returns for each security R_{it}. The excess return for each security, XR_{it}, is then calculated as the difference between the actual return to a security and the return to its control portfolio.

Average excess returns for each relative day are calculated by

$$\overline{XR}_t = \frac{1}{N} \sum_{i=1}^{N} XR_{it}, \tag{2}$$

where N is the number of securities with excess returns during day t. Daily average cumulative excess returns, CERs, are formed by sum-

ming average excess returns over event time as follows:

$$\text{CER} = \sum_{t=K}^{L} \overline{XR}_t, \tag{3}$$

where the CER is for the period from $t = K$ days until $t = L$ days.

In addition, a 2-day average excess return is generated for each dividend announcement examined. A 2-day excess return is necessary to capture the entire impact of a dividend announcement. Day $t = 0$ is the day the news of the dividend is published in the *Wall Street Journal*. In many cases, however, the news is announced on the previous day, $t = -1$, and reported the next day. If a dividend is announced before the market closes, then the market's response to the news actually predates the announcement day by one. If the news is announced after the market closes, the market will respond the next day and the announcement day is indeed zero. Thus in reality there is a 2-day announcement "day," $t = -1$ and $t = 0$. This 2-day return is calculated as

$$\overline{XR}_{(-1,0)} = \frac{1}{N} \sum_{i=1}^{N} XR_{i(-1,0)} \tag{4}$$

where $XR_i(-1,0) = XR_{i-1} + XR_{i0}$; XR_{i-1} = the excess return to security i on the day prior to the published dividend announcement in the *Wall Street Journal*; and XR_{i0} = the excess return to security i on the day the dividend announcement is published in the *Wall Street Journal*.

Finally, a t-statistic is calculated for $\overline{XR}_{(-1,0)}$ by

$$XR_{t_{(-1,0)}} = \overline{XR}_{(-1,0)} / S_{XR_{t(-1,0)}} / \sqrt{N}, \tag{5}$$

where $S_{XR_{t(-1,0)}}$ = the standard deviation of the 2-day excess returns; and N = the number of firms in the sample.

V. Results

This section examines how shareholders' wealth changes with initial and subsequent dividend announcements. Table 1 gives the average daily excess returns and cumulative excess returns for the 20-day period surrounding the initial dividend for 160 firms.[3] The results for the 2-day announcement period are both large and significant. The 2-day

3. There were 168 firms which initiate dividends in the sample. Of these 160 combined their announcement of dividend initiation with the amount of the dividend and are included in tables 1 and 2. Eight firms made a separate dividend initiation announcement followed by a second announcement of the amount of the dividend. Since this was not the customary method of announcing an initial dividend, these eight were kept separate. The average 2-day excess returns for the eight are +4.7% on the first announcement day and +1.8% on the second announcement day. The t-statistics are 2.56 and 1.13.

TABLE 1 **Average Daily Excess Returns and Average Daily Cumulative Excess Returns (CER) 10 Days before and 10 Days after Announcement of First Dividend by 160 Firms Paying No Dividend for 10 Years or More**

Day	Excess Returns (%)	CER (%)	Day	Excess Returns (%)	CER (%)
−10	−.1	−.1	+1	+.2	+4.5
−9	+.2	+.1	+2	−.2	+4.3
−8	−.0	+.1	+3	+.5	+4.8
−7	−.3	−.2	+4	−.0	+4.8
−6	+.1	−.1	+5	+.4	+5.2
−5	+.6	+.5	+6	−.0	+5.2
−4	+.1	+.6	+7	−.0	+5.1
−3	−.2	+.4	+8	+.2	+5.3
−2	+.2	+.6	+9	−.1	+5.2
−1	+2.5	+3.1	+10	−.1	+5.1
0	+1.2	+4.3			

TABLE 2 Cross-sectional Distribution of Excess Returns for 160 Firms on Announcement Date of First Dividend

Size of Excess Return (XR)	Percentage of Firms	Cumulative Percentage of Firms
$XR \leq -.30$	0	0
$-.30 < XR \leq -.24$	0	0
$-.24 < XR \leq -.18$	0	0
$-.18 < XR \leq -.12$	.6	.6
$-.12 < XR \leq -.06$	3.8	4.4
$-.06 < XR \leq -.04$	2.5	6.9
$-.04 < XR \leq -.02$	8.8	15.6
$-.02 < XR \leq .00$	16.3	31.9
$+.00 < XR \leq +.02$	13.1	45.0
$+.02 < XR \leq +.04$	14.4	59.4
$+.04 < XR \leq +.06$	13.1	72.5
$+.06 < XR \leq +.12$	18.8	91.3
$+.12 < XR \leq +.18$	3.8	95.0
$+.18 < XR \leq +.24$	3.2	98.1
$+.24 < XR \leq +.30$	1.3	99.4
$+.30 < XR$	.6	100.0

excess return is +3.7% and the associated t-statistic is 6.59. Table 2 shows the cross-sectional distribution of 2-day announcement excess returns for the firms in table 1. For almost 70% of the firms examined there is a positive market reaction to the announcement of initial dividend.[4]

These results are several times larger than either Charest's (1978) average daily excess return of 1% or Aharony and Swary's (1980) 2-day average excess return of 1%. Most important, the results support the hypothesis that any negative wealth effect dividends generate (either through changes in tax-induced clienteles or through increased future financing costs for the firm) is, on average, more than offset by the positive value investors place on being paid a dividend.

It can be argued that a single dividend payment should not have much impact on tax clienteles or on the future financing needs of the firm. The vast majority of firms in this sample, however, did not pay only a single dividend. Of the 160 firms, 153 continued the payment of dividends after the initial dividends for at least 3 years.[5] In addition, 114 of these 153 firms increased the dividend at least once during the first 12 quarters following the initial dividend. If this establishment of a dividend policy is foreseen by investors when an initial dividend is

4. For the few sample firms with negative excess returns, the result may be due to failure of the naive expectations model rather than to an adverse reaction to dividend initiation.

5. All seven firms that did not continue paying dividends had an announcement to that effect. The average 2-day excess return for this announcement date is −7.9% and the t-statistic is −4.30. All firms that reduce dividends eliminated them entirely during the first 3 years.

paid, the wealth effect on investors should exceed that associated with any single dividend.

A separate and more important issue is whether the strong positive results exhibited in table 1 are due to other information made available to the capital markets at the same time as the dividend announcement. Aharony and Swary's (1980) finding of separate announcement effects for earnings and dividends and Pettit's (1972) finding of large dividend excess returns when there is positive earnings information both suggest that earnings announcements must be separated from dividend announcements. This raises the possibility that the results in tables 1 and 2 might be the result of information other than the announcement of an initial dividend.

To test this possibility, any other events that occurred within ± 10 days of any dividend announcement were identified.[6] For 66 of our 160 initial dividend announcements, there is an earnings announcement within ± 10 days. Thirty-five of these earnings announcements occur within ± 1 day of the dividend announcement. In addition there are other events, such as merger negotiations, divisional spin-offs, legal actions, and the announcement of new products, which contain information and which occur during the 21-day period surrounding the initial dividend announcement. Some of the firms have both earnings announcements and nonearnings events during the 21-day period. For six firms there was only a nonearnings event in this period. The remaining 88 firms had no important information become public within the 21-day period surrounding the announcement of an initial dividend.[7]

The excess return analysis described in equations (1)–(5) was redone for each of these three subsamples and is reported in table 3. The 2-day excess returns and associated t-statistics are $XR = 4.7\%$ and $t = 5.88$ for the 88 firms with no other new information, $XR = 2.5\%$ and $t = 3.08$ for the 66 firms with earnings announcements, and $XR = 1.6\%$

6. Two classification schemes are used to eliminate the influence of other events. One, mentioned above, is to segregate any events which occur within ± 10 days of the dividend announcement. The other scheme segregates any events which occur simultaneously with the dividend announcement. There are no important differences in the results for the two criteria, and only the results for the first classification scheme are reported here.

7. There is the possibility that the *Wall Street Journal* may report a dividend announcement but not an earnings announcement. To test for this, we checked the *Wall Street Journal* for the two quarterly earnings announcements that surrounded any dividend announcement. There were only four quarterly earnings announcements not reported. Three are for regular initial dividend announcements, and one is for an initial dividend announcement that had separate announcements of initiation and amount (see n. 3). The 2-day announcement day excess returns for these four firms are $+3.4\%$, $+7.4\%$, $+0.9\%$ and -2.1%, respectively. None of the subsequent dividend announcements have a missing earnings announcement. Since the lack of a reported quarterly earnings statement does not mean that an earnings report became public in the period ± 10 days of the dividend announcement, these firms were classified as having no earnings information in the period ± 10 days.

TABLE 3 Two-Day Average Excess Returns and *t*-Statistics for Initial Dividend Announcements and Subsequent Dividend Increases

	Excess Return (%)	*t*-statistic	Number of Firms
Initial announcements:			
All initial announcements	3.7	6.59	160
No other events ±10 days	4.7	5.88	88
Earnings announcements ±10 days	2.5	3.08	66
Other events ±10 days	1.6	1.78	6
Subsequent increases:			
Largest absolute increases	1.6	3.07	114
Subsequent increase > initial dividend	1.6	1.84	37
Subsequent increase > 100%	1.7	1.79	30
Largest increase—no other events	1.2	2.07	66
Subsequent increase > initial dividend—no other events	.8	.53	16
Subsequent increase > 100%—no other events	.7	.41	11

and $t = 1.78$ for the six firms with other news. Thus, an initial dividend announcement results in positive excess returns even when there is no other information released simultaneously. These results suggest that the market's positive reaction to the dividend announcement is not due to other events. To the contrary, other information appears to negate the impact at the dividend announcement by reducing the information content of the dividend announcement. Aharony and Swary (1980) examined the differential effect of earnings and dividend announcements and demonstrated that dividend and earnings announcements are not perfect substitutes. Our results suggest that they may be partial substitutes.

The results in this study also support the semistrong form of the efficient market hypothesis. The excess returns in table 1 are large and significant for the 2-day announcement day, $t = -1$ and $t = 0$, but are smaller and insignificant for all other days. There is no subsequent market reaction after the announcement. There also appears to be no leakage of information prior to the dividend announcement. Although consistent with Aharony and Swary's results, this absence of prior market reaction is unusual compared with results of other recent studies using daily data, such as Dodd (1980) and Asquith (1982). Dodd's and Asquith's results show a market reaction to the announcement of a merger bid from 20 days before until the actual bid.

The market's reaction to subsequent dividend announcements is also examined. All firms are followed for 3 years after the initial dividend to determine dividend policy. As mentioned above, 153 of the 160 firms continued to pay dividends over this period; 114 firms increased the dollar amount of their dividend at least once, with many firms doing so

several times. Excess returns and t-statistics are then calculated for several subsets of subsequent dividends. There are 37 subsequent dividend increases where the absolute increase was larger than the initial dividend. The 2-day announcement excess return for this subset is 1.6% and the t-statistic is 1.84. Thirty subsequent increases were greater than 100% of the previous period's dividend. These had a 2-day excess return of 1.7% and a t-statistic of 1.79. There is of course considerable overlap between these two samples. The largest absolute increases in dividends during the 3 years for all 114 firms had an excess return of 1.6% and a t-statistic of 3.07.

Eliminating subsequent increases where there are other events during the period $\pm$ 10 days lowers the average excess returns and the t-statistics for all three of the subsets. The 37 firms with subsequent dividend changes absolutely greater than the initial change are reduced to 16, with an average excess return of 0.8% and a t-statistic of 0.53. There are only 11 remaining subsequent increases greater than 100% of the current dividend, and the average excess return and t-statistic are 0.7% and 0.41, respectively. Finally, 66 firms had subsequent dividend increases with no other event information. The largest subsequent increase for these 66 had an average excess return of 1.2% and a t-statistic of 2.07.

These results for subsequent dividend increases are small compared to the initial increase and are comparable to those found by Charest and by Aharony and Swary. There is a problem, however, in interpreting these results to suggest that initiating a dividend policy has a positive present value over and above that observed with subsequent dividend increases. First, there is no control for the size of the dividend. Presumably if dividends are a signaling device, the size of the dividend is a measure of the magnitude of the signal. Initial dividends may be larger than subsequent increases and thus may explain the larger excess returns.

Second, the expectations model for initial and subsequent dividends may differ. As suggested earlier, the naive expectations model may be a more accurate reflection of investors' expectations at the time of dividend initiation. Once a dividend policy is in place, the past sequence and timing of dividend changes may provide information that allows investors to construct a better forecasting model. Thus, the expected dividend increase may not be zero as assumed in the naive model. If so, the full effects of a dividend increase are no longer reflected in the excess return on announcement day. At that time the effects of the expected dividend are already incorporated in stock prices.

If dividend increases are expected and received as good news, the announcement day excess return reported by earlier studies understates the market reaction to an increase in dividends. Studies em-

ploying the naive expectations model for subsequent increases measure only the average reaction to the unexpected portion of the increase, which is less than the full effect of a partially forecast dividend increase. Examining the magnitude of initial and subsequent dividend changes illustrates the extent to which expected dividend increases are already incorporated in stock prices on announcement day.

This objection, that initial dividends cannot be compared directly with subsequent increases, is supported by the results. The average change in the dividend, measured either by yield or payout ratio, is larger for initial payments than for subsequent ones. For initial dividend payments the average increase in the dividend yield was 3.02% and the average increase in the payout ratio is 17.85%. For the largest subsequent increases the average increase in the dividend yield was 1.07% and the average increase in the payout ratio was 7.34%. Examining the subset of 14 firms where the subsequent increase in dividend yield was greater than it was for the initial dividend, the average 2-day excess return for subsequent increases was 2.9% and the average excess return for initial dividends was 3.3%. Thus it is possible that the average excess returns are larger for initial dividends because the average change in the yield or payout ratios is larger.

To explore the relation between the wealth effect and the size of dividends, the market's reaction to an initial dividend (as measured by each firm's excess return) is regressed against the annualized change in yield.[8] This cross-sectional regression equation is

$$XRET_i = \alpha + \beta\,(\Delta \text{ yield}_i) + \epsilon_i, \tag{6}$$

where $XRET_i$ = the estimated excess return for firm i on the 2-day announcement day as calculated by equation (4); and Δ yield$_i$ = the annualized change in yield for firm i as calculated by the new dividend minus the old dividend divided by the firm's previous-month-end stock price.

Table 4 reports the regression results for equation (6). There is a positive and significant relationship between the size of the initial dividend and the size of the firm's excess return on the announcement day. This relationship holds for the sample of all initial dividends and for the

8. All of the following regressions are estimated for both changes in yield and payout ratios. Changes in payout ratios may be a better signaling mechanism than changes in yield, but payout ratios are unfortunately more subject to measurement errors. Earnings per share data are often imprecise and different firms employ different accounting practices. Furthermore, a large number of the sample firms changed certain accounting procedures during the period studied. Because of this the R^2 for the sample of firms using changes in payout ratios is always less than the R^2 for the same sample using changes in yields. The following reported results use only changes in yield, but the results for changes in payout ratios are all consistent with those reported with respect to both sign and significance. A similar relation is independently derived by Miller and Rock (1982) from an assumption of asymmetric information (see their eq. [22]).

TABLE 4 OLS Estimates of Equation (6) for Initial Dividends and Largest Subsequent Dividend Increases

Sample	α (%)	β	R^2	N
All initial dividends	.38	1.22	.120	160
	(.43)	(4.63)		
Initial dividends—no other events	.34	1.45	.182	88
	(.27)	(4.37)		
Largest subsequent increases	−.96	2.20	.149	114
	(−1.26)	(4.43)		
Largest subsequent decreases—no other events	−1.98	2.94	.258	66
	(−2.35)	(4.71)		

NOTE.—t-statistics are in parentheses.

sample where there is no other information during the period ± 10 days.

The positive slope, which captures the effects of an unexpected dividend increase, demonstrates that increases in dividends are good news. If increases are good news and dividend initiation is largely unforecasted, dividend increases would be expected to produce only positive market reactions. The nonnegative intercept term suggests that, on average, investors were not disappointed by arbitrarily small initial dividends. This finding implies that the naive expectations model may be accurate for dividend initiation. The intercept term should measure the effect of dividend initiation separate from the size of the dividend. The intercept is small and insignificantly different from zero. Finally, the regressions also suggest that the dividend effect may be large enough to offset any investor tax differential.[9]

Equation (6) is used also to regress the excess returns associated with subsequent dividend increases against changes in yields. These results are reported in table 4. The intercept for subsequent dividend increases is negative and the coefficient is much larger. Again, larger dividends are associated with larger excess returns. This negative intercept suggests the failure of the naive expectations model for subsequent increases. The negative intercept may reflect investors' anticipation of subsequent dividend increases already incorporated in stock prices. The excess return on announcement day then captures only the

9. For example, suppose the worst-case investor is subject to a 100% tax on the dividend, with all other investors tax exempt. The stock price would decline by the full amount of the dividend on the ex-dividend day. However, the regressions demonstrate that the excess return on announcement day is at least as large as the dividend yield. Therefore, the capital gain on announcement day is at least as large as any capital loss on the ex-dividend day. An investor would not lose even if the entire dividend is taxed away. Further, the yields employed in the regressions are annualized, while many of the dividends were actually quarterly dividends. This suggests that dividends may produce net gains even for high tax bracket investors.

unexpected component of the dividend increase, rather than its full effects.

The fitted regression line should equate zero excess returns with the expected level of the dividend increase. If the increase is less than expected, the excess return will be negative. Only if the increase is greater than expected will the excess return be positive. Of the excess returns for the largest subsequent dividend increases, 42% are negative. If the model is correctly specified, the negative of the intercept term measures the return associated with the expected portion of the dividend increase. If the firm announced no increase in dividends, this return, which is incorporated in stock prices before the dividend announcement, would be reclaimed through a negative excess return. The intercept is significant for the sample of subsequent dividend increases with no other events.[10] This result supports the proposition that the expectations models for initial and subsequent dividends differ.

The β terms in table 4 show that the market reacts more strongly, as measured by excess returns, to subsequent increases in dividends than to initial dividends. In both instances the β term measures the market's reaction to the magnitude of an unexpected change in dividends. When there are no other events, the 2.94 β for subsequent dividend increases is twice as large as the 1.45 β for initial dividends, and the t-statistic for H_0: $\beta_1 \neq \beta_2$ is 2.11.[11] This raises the possibility that the market reacts less favorably to initial dividends than to subsequent dividend increases.

In summary, the regression results support the hypothesis that part of the larger excess return associated with initial dividends is due to the larger increase in the dividend yield. This result is also consistent with signaling theory in that the market's reaction is significantly related to the size of the dividend change. Finally, the negative intercept for subsequent dividend increases suggests that they are partially forecast. Previous empirical measures of the market's reaction to dividend increases, therefore, may understate the real reaction since only the unforecast portion is captured.

VI. Conclusions

Our results demonstrate that, for this sample of firms, initiating dividends increases shareholders' wealth. The same is true of subsequent

10. If all expected subsequent dividend increases are not equal, then using eq. (6) as an aggregate function introduces possible problems of aggregation. This possibility is not dealt with explicitly here and thus care should be taken in interpreting too strongly the application of eq. (6) to the subsequent dividend increases.

11. Here again there is an assumption that the two samples are independent of each other.

dividend increases. Incorporating the effects of the magnitude of dividends and investors' anticipation of subsequent increases, the wealth effect of subsequent dividend increases appears to be as large if not larger than the effect of initiation. A smaller initiation effect may result from the negative present value of taxes and/or financing costs.

The effects we find are larger than those presented in other studies and do not appear to be caused by contemporaneous announcements such as earnings reports. These results are consistent with the view that dividends convey unique, valuable information to investors. As Lintner (1956) and others have documented, managers' behavior also appears to be consistent with this view.

Many authors have dismissed this information role as unimportant. They suggest that equally efficacious, cheaper alternatives exist through which managers can disseminate information (e.g., Miller and Modigliani 1961; Pettit 1972, Black 1976; Stern 1979). As a purely empirical matter, our results as well as those of Aharony and Swary (1980) demonstrate that dividend announcements convey information over and above that contained in other announcements.

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.

These advantages are not unique to dividends but are shared by stock repurchases. As the study by Vermaelen (1981) demonstrates, stock repurchases may convey information. Furthermore, repurchases may be more attractive to investors because of the tax treatment of capital gains. However, the timing of stock repurchases is irregular and at the discretion of management. An advantage of dividends for investors is the fixed, periodic nature of announcements. Once dividends are initiated, shareholders apparently anticipate a periodic signal by management and management is forced to submit to a periodic review. Finally, tax considerations appear to preclude the replacement of a dividend policy with repurchases of equal magnitude and frequency.[12] Thus, dividend payments are more frequent than repurchases, and investors should benefit from the regular release of valuable information.

12. If repurchases were executed with equal frequency, they would be essentially equivalent to dividends. In this case the tax advantage to repurchases would likely be removed. Repurchases which are essentially dividends are treated as dividends for tax purposes under U.S. tax code.

Despite promising theoretical and empirical work, more research is needed to provide a satisfactory theoretical model, more explicitly specified empirical tests, and guidance to managers concerning optimal dividend policy. The result of this research may be a solution to the dividend puzzle. In conclusion we can say that initiating a dividend policy does matter, probably as an information source, and that the market reaction is strong and positive.

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