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## The Effects of Initial Dividend Announcements on Security Returns- Further Evidence

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# THE EFFECTS OF INITIAL DIVIDEND ANNOUNCEMENTS ON SECURITY RETURNS — FURTHER EVIDENCE

*Daniel T. Walz and Kalyan K. Roy*

The initial cash dividend differs from subsequent cash dividends in several ways. First, it might be expected that the initial firm dividend is more significant than subsequent dividends. The initial dividend establishes firm dividend yield and the payout ratio, which, it has been shown, tends to be maintained over time (Fama and Babiak (6)). Also, it is widely believed that the initial dividend acts as a signal that a firm has passed from the dangerous "pioneering" phase of the life cycle to a phase of steady expansion of firm income (Henderson (7)). Secondly, it might be expected that the initial dividend is more surprising to the market than subsequent dividends, since neither past firm earnings nor decision making, seemingly, can predict either the timing or the magnitude of the initial dividend announcement.<sup>1</sup>

Recently, Asquith and Mullins (2) have attempted to measure the effect of the initial cash dividend announcement upon the market's valuation of firm shares. Using the market model to define expected firm returns, Asquith and Mullins (A-M) find significant positive excess returns for the initial cash dividend announcement period. A-M also find by means of cross-sectional OLS regression that the size of the excess return for the announcement period is positively and linearly related to the initial dividend yield.

However, there are several possible problems with the A-M paper. First, the A-M sample announcements are drawn from the 1963-1980 time period. There is no a priori reason to assume that the market reaction to the initial dividend announcement is constant over this extremely long sample period. Indeed, one might expect the opposite to be true. The market reaction (change in stock price) to the initial dividend announcement should, in an efficient market, represent the change in net present value of future firm earnings or dividends as communicated by the announcement. It might also be expected that this change in net present value would depend upon the rate used by the market to discount future firm dividends and earnings. Clearly, market discount rates significantly increased over the 1963-1980 period.

Second, A-M utilize a variant of the market model in order to estimate expected security returns. As Blume (4), Sunder (10), and Bey (3) have shown, parameter estimates of the market model are highly unstable over time. Therefore, the A-M estimates of excess returns may be inefficient or biased.

Third, by using OLS regression to relate the announcement period excess return to the initial dividend, A-M implicitly assume the relationship is linear. There is no a priori reason to assume that the market regards all increases in dividend yield as positive signals of future firm income. Indeed, it is highly unlikely that the market would interpret a 100% initial dividend payout of earnings as a positive signal of future firm income and dividends. Rather, it is more likely that the market would interpret such large initial dividend

yields as evidence of at least partial firm liquidation. Therefore, it is quite possible that the relationship between initial cash dividend yield or payout and the announcement period rate of return is non-linear. For some range of initial dividend yields, the relation is positive; at some level of extremely large payout, the relationship becomes negative.

The purpose of this note is to empirically require the market reaction to initial cash dividend announcements using a statistical methodology unencumbered by such problems. Specifically, this study utilizes an alternative method to the market model in order to estimate expected security returns. The study analyzes a sample of the firm dividend announcements drawn from a much shorter, and hopefully, more homogenous time period. Finally, the study explicitly attempts to determine whether the magnitude of the market reaction is linearly related to the magnitude of the initial cash dividend. The statistical methodology used in the paper is described in Section II. Results are presented in Section III. Findings are summarized and implications explored in Section IV.

## II. Methodology

A variation of the comparison period approach developed by Masulis (9) was used to empirically test the following null hypothesis:

$H_0$ : Daily common stock returns for a firm during the initial cash dividend announcement period do not differ significantly from the firm's daily stock returns during periods before or after the announcement.

In other words,

$$E(R_A) = E(R_C)$$

where  $E(R_A)$  represents the expected daily rate of return for the firm during the announcement period and  $E(R_C)$  represents the expected daily rate of return for the firm during the comparison period before and after the announcement period.

The announcement period was defined to be the day on which the firm announces its initial dividend (day 0) and the following day, when the announcement is generally reported in the *Wall Street Journal* (day 1). The pre and post announcement "comparison" period extended from day -10 to -1 and from day 2 through day 11. Daily returns were computed for the entire 22 day "event" period for the entire sample of firms. The daily returns for all sample firms for days 0 and 1 were combined to form an equally weighted portfolio, as were the daily returns for day -10 to -1 and 2 to 10.<sup>2</sup> The null hypothesis that the mean announcement and comparison period returns are identical was then tested by the following statistic to determine significance:

$$t \equiv \frac{\bar{R}_A - \bar{R}_C}{\sqrt{\{(N_C - 1)\sigma_C^2 + (N_A - 1)\sigma_A^2\} / (N_C + N_A - 2)} \sqrt{1/N_C + 1/N_A}}$$

where  $\bar{R}_A$  is the mean announcement period return,  $\bar{R}_C$  is the mean comparison period return,  $N_C$  is the number of portfolio daily returns in the comparison period,  $N_A$  is the number of portfolio daily returns in the announcement period,  $\sigma_C^2$  is the variance of the comparison period mean return, and  $\sigma_A^2$  is the variance of the announcement period mean return.<sup>3</sup> The total sample of dividend announcements was also categorized into five sub-samples (of roughly equal size) according to the size of the dividend payout ratio.<sup>4</sup> This was done in order to determine if the magnitude of the market reaction to the initial dividend announcement was related to the relative size of the dividend declared, and whether this relationship, if any, appeared to be linear.

The entire 22 day event period for each firm was screened for other announcements which might significantly impact stock returns. Firms having such announcements were eliminated from the sample. A total of 57 initial cash dividend announcements met these criteria.<sup>5</sup>

In order to better determine whether the market responds to the initial cash dividend announcement in an efficient manner, average monthly returns and cumulative monthly returns were computed for a sample of 17 firms issuing initial dividends.<sup>6</sup> These returns were calculated for the period from 12 months before the month in which the initial cash dividend was declared to 12 months after.

### III. Empirical Results

As Table I indicates, the average sample firm declared an initial cash dividend of slightly less than \$.07 a share, which represented an average dividend payout ratio of roughly 14%. These numbers are reasonably small and indicate that, on average, firms begin with a cautious policy of cash dividend payout. However, Table I also indicates that firms differ widely in both absolute and relative initial dividend size. The largest initial dividend declared was \$.25 a share; the smallest was just \$.01. The largest initial dividend payout ratio was 31% of earnings; the smallest was 3% of earnings. The standard deviations for both absolute and relative dividend size are also large. These figures seem to indicate that there is no strong consensus among business firms about what the optimal dividend or dividend payout ratio ought to be.

Average daily returns and cumulative daily returns for the entire sample are presented in Table II. Stockholders of the 57 sample firms realized, on average, a cumulative rate of return of almost 4% over the twenty-one days. On average, the most significant positive return occurred on day 0, the day the initial dividend was declared. Both the magnitude and timing of these results are similar to the A-M findings as well as the results of Aharony and Swary (1), Kwan (8), and Woolridge (12).<sup>7</sup>

Summary statistics and t-test results for the entire initial sample are presented in Table III. The average announcement period return (1.3430%) is significantly larger than the average comparison period return (.0424%).



Table I - Descriptive Statistics for Initial Dividends

<u>Summary Statistics</u>	<u>Initial Dividend (\$)</u>	<u>Initial Dividend Payout Ratio (%)</u>
Number	57	57
Mean	.0674 (\$)	13.98 (%)
Median	.05	14
Standard Deviation	.0434	7.65
Maximum	.25	31
Minimum	.01	3

Therefore, the null hypothesis that returns over the announcement period do not differ from returns before or after the announcement period is rejected for the entire sample. The results are consistent with the thesis that cash dividends signal new information about future firm earnings to investors.<sup>8</sup>

The five sub-sample categories, the number of sub-sample observations, average sub-sample announcement return, average sub-sample comparison period return, and sub-sample t-statistics are also presented in Table III. These results indicate that firms with moderate initial dividend payout ratios display a larger announcement period return than firms with small initial dividend payout ratios. This result is not surprising. It might be expected that a larger initial dividend payout ratio might act as a more positive signal of future firm income than a small initial dividend payout ratio. However, these results also indicate that firms with very large initial dividend payout ratios (over 21%) have smaller average announcement returns than firms with more moderate initial dividend payout ratios. Specifically, it appears that an initial dividend payout ratio of 16% to 21% provides the most positive signal concerning future firm earnings. An initial dividend payout ratio greater than this appears to be a less positive signal of future firm income.

These results indicate that the initial dividend signaling mechanism may be more complicated than A-M believed. Specifically, it appears that the market does not believe that the relationship between relative initial dividend size and future earnings is linear. Rather, it appears that very large relative dividends may be interpreted by the market less as a signal of larger future firm income than as a signal of partial firm liquidation or, at least, reduced capital investment.

Average monthly returns and cumulative monthly returns for a sample of 17 firms are presented in Table IV. Stockholders of the firms realized, on average, a cumulative rate of return of almost 44% over the 25 month period. Stockholders realized an average cumulative rate of return of over 14% for the twelve month period following the month in which the initial dividend is declared. This later result, although large, does not necessarily

Table II - Average Daily Returns for the Entire  
Initial Dividend Sample

<u>Event Day</u>	<u>Average Daily Return (%)</u>	<u>Cumulative Daily Return (%)</u>
-10	.9809	.9809
- 9	-.0185	.9624
- 8	-.1247	.8377
- 7	.2360	1.0737
- 6	-.3831	.6906
- 5	.4750	1.1656
- 4	.5737	1.7393
- 3	-1.1012	.6381
- 2	.0893	.7274
- 1	.1772	.9046
0	2.1701	3.0747
1	.5157	3.5904
2	-.5206	3.0698
3	.1825	3.2523
4	.3357	3.5880
5	-.4103	3.1777
6	-.2260	2.9517
7	-.0573	2.8944
8	-.3082	2.5860
9	.5367	3.1229
10	.4715	3.5944
11	.2376	3.8320

Table III - Summary Statistics for Comparison and  
Announcement Period Returns

Category	Number of Observations	Comparison Period Average Return (%)	Announcement Period Average Return (%)	t
all	57	.0424	1.3430	4.70***
$0 \leq \text{DPR} \leq .06$	11	-.0457	.7877	1.39
$.06 < \text{DPR} \leq .10$	11	.1046	1.4580	2.26*
$.10 < \text{DPR} \leq .16$	13	-.0096	1.5540	2.41*
$.16 < \text{DPR} \leq .21$	12	.0063	2.2108	3.74**
$.21 < \text{DPR}$	10	.1097	.5111	.63

\* = significant at the .05 level

\*\* = significant at the .01 level

\*\*\* = significant at the .001 level

\*\*\*\* = significant at the .0001 level

indicate market inefficiency. Over the 1972-1980 time period, any randomly selected portfolio of stocks might be expected to yield such an annual rate of return. The 25% cumulative rate of return for the 12 month period before the initial dividend announcement indicates that firms generally declare their initial dividend during a period in which there is other positive information disseminated. Again, however, it must be emphasized that the sample size is very small.

#### IV. Summary and Implications

The purpose of this paper was to further study the market reaction to the announcement of initial cash dividends by business firms. Using the comparison period return model developed by Masulis (9) the average initial dividend announcement period rate of return was found to be significantly greater than the average comparison period rate of return for the sample of 57 firms. Also, the size of the difference between the average announcement period rate of return and comparison period rate of return, generally, was found to be positively related to the size of the initial dividend payout ratio. However, it was also found that this relationship appears to be non-linear; i.e., firms with very large initial dividend payout ratios have smaller announcement returns than firms with more moderate dividend payout ratios. This implies that the "information content of dividends" hypothesis, as traditionally defined, is not sufficient to explain market behavior. However, much further research in this area is needed.

Table IV - Average Monthly Returns for an Initial  
Dividend Sample of 17 Firms

<u>Event Month</u>	<u>Average Monthly Return (%)</u>	<u>Cumulative Monthly Return (%)</u>
-12	.1731	.1731
-11	2.3731	2.5462
-10	7.3529	9.8991
- 9	-2.0071	7.8920
- 8	2.3082	10.2002
- 7	- .5388	9.6614
- 6	2.6565	12.3179
- 5	.7547	13.0726
- 4	5.0664	18.1390
- 3	1.3518	19.4908
- 2	2.2194	21.7102
- 1	2.8352	24.5454
0	4.9582	29.5036
1	2.0652	31.5688
2	4.1094	35.6782
3	.4305	36.1087
4	-1.8017	34.3070
5	.8171	35.1241
6	2.4841	37.6082
7	.2811	37.8893
8	- .2888	37.6005
9	- .9305	36.6700
10	-2.8358	33.8342
11	8.7494	42.5836
12	1.2158	43.7994



## FOOTNOTES

1. For example, it was found for our sample of firms that the initial dividend declared is unrelated to the historical growth rate in firm earnings.
2. Portfolio returns rather than individual security returns are analyzed for the following reason. It might be expected that in a world of efficient markets the ex-post return of any security  $i$  for time period  $t$  might be given by the following equation:

$$\tilde{R}_{it} = E(R_{it}) + e_{it}$$

where  $\tilde{R}_{it}$  = the ex-post return of security  $i$  for time period  $t$ ,  $E(R_{it})$  = the expected rate of return, and  $e_{it}$  = an error term independent over time, zero mean and constant variance.

It might also be expected that the daily returns from a portfolio composed of such securities would appear normally distributed. Therefore, the equivalency between the average comparison period rate of return and average announcement period rate of return can be ascertained by means of a  $t$ -test.

3. For further information on this statistical test, see Downie and Starry (5), p. 129.
4. Therefore, this study utilizes a naive model to generate proxies for the firm dividends expected by the market (which are, of course, unobserved). In other words, this study assumes that the entire initial firm dividend is unexpected by the market.
5. The 57 firms represent as nearly as we were able to ascertain, a complete population of firms issuing initial dividends for which there were complete market data. Daily returns for the 57 firms in the sample were hand collected from the Wall Street Journal. Sample initial dividend announcements occurred during the 1973-1980 time period.
6. The monthly stock returns were obtained from the CRSP Monthly Stock Returns File. Complete monthly returns information was available for only 17 of the original 57 sample firms.
7. These results also provide evidence that the market reacts to the release of new and significant information in an efficient manner. There is no abnormal positive drift, on average, in the daily rates of return following the two day announcement period. In other words, there is little evidence that an investor could earn abnormal returns by purchasing the stocks of firms that have recently declared their initial cash dividend.
8. One assumption for this statistical test is that the variances for the announcement and comparison period returns are equal. Using the following statistic (see Winkler and Hays (11), p. 455-456):

$$F = \frac{\sigma^2_A}{\sigma^2_C}$$

where  $\sigma^2_A$  represents the sample variance of the announcement period mean return and  $\sigma^2_C$  is the variance of the comparison period mean return, we were unable to reject the hypothesis that the variances were equal, either for the entire sample, or for any sub-sample.

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