A Reexamination of Stock Distributions Controlling for Nonstationarity of Systematic Risk

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Abstract

Most stock dividend/split event studies have assumed that beta is stationary over the estimation period. Concerns have been raised, however, about the effects of shifts in systematic risk on the results of these studies. These concerns are highlighted by recent evidence (in a different context) that indicates a significant difference in prediction error between portfolios of securities with stationary and nonstationary betas. This study reexamines the issue of the information content of stock dividends and splits using a large, updated sample and controlling for shifts in systematic risk. A significant market reaction associated with both the announcement date and the ex dividend date is found for both large and small stock distributions. The results do not appear to be highly sensitive to a violation of the assumption that systematic risk is stationary during the estimation period.

Introduction

Stock dividends and stock splits have attracted considerable research attention. Although they appear cosmetic in terms of real economic effects, they have been found by several studies to generate abnormal returns around announcement and ex dividend dates. Such evidence either reflects market efficiency anomalies or suggests that signals of other events are being transmitted through stock distributions. These phenomena are also interesting because of the naive investor rationale (discussed in the next section) underlying their accounting treatment.

Previous studies of the effects of stock distributions on the magnitude of securities returns generally have ignored the possibility of shifts in the parameters of the model representing the return-generating process. Charest (1978), Woolridge (1983), Brown *et al.* (1985), and Bar-Yosef and Brown (1977) voice concern about the possible effect of shifts in systematic risk of securities studied in examinations of market response to stock dividends and splits. Using monthly data, Bar-Yosef and Brown (1977) observe different reactions to stock splits under a moving beta technique from those obtained under the commonly employed constant beta technique. Brennan and Copeland (1988) report shifts in

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the level of beta around stock split announcement and ex dividend dates. In a different context, Foster *et al.* (1988) find estimation period beta stationarity to be an important factor in the ability of portfolio diversification to abate errors in predicting beta outside the estimation period. Concerns of this nature motivate a reexamination of the full range of stock distributions controlling for stability of systematic risk.

Background and Previous Studies

The current accounting treatment of stock dividends prescribed by the Committee on Accounting Procedure (CAP) in Accounting Research Bulletin No. 43 (ARB 43) (1953) rests on the corresponding predicted market reaction. An issuer of a small stock dividend (i.e., one that involves issuance of additional shares amounting to less than 20 percent to 25 percent of the number previously outstanding) is required to reduce retained earnings by the fair value of the dividend shares. The naive investor rationale given by the CAP justifying this treatment is that many investors, observing no apparent lowering of share prices, perceive the distribution of a small stock dividend as an event that increases the total market value of their holdings. Furthermore, the CAP asserts that the stated purpose of small stock dividends and their characterization as dividends in notices to shareholders and the public are well-recognized factors that convey the impression that a small stock dividend is a distribution of corporate earnings, usually in an amount equivalent to the fair value of the new shares. The CAP concludes, however, that larger stock dividends lack such implications.

Several commentators, including Monahan and Schwartz (1986), Chang (1969), and Schaffer (1954), have criticized the accounting for stock dividends and splits as illogical and inconsistent. Schaffer, a CAP member, states that the CAP adopted the procedure more on grounds of general acceptance than on the basis of theory. (Two other members qualified their assent by stating that CAP's reasoning was internally inconsistent and that, in any case, the corporate entity should not base its accounting on considerations of possible shareholder reactions.) Zeff (1978) suggests a different reason. Citing a 1941 letter from George May to J.S. Seidman, Zeff notes

> Evidently, both the New York Stock Exchange and a majority of the CAP regarded periodic stock dividends as 'objectionable,' and the CAP acted to make it more difficult for corporations to sustain a series of such stock dividends out of their accumulated earnings.

The CAP position with respect to small stock dividends suggests that positive abnormal returns to stockholders are generated on the ex dividend date because the market does not adjust fully to the distribution of the dividend. The

CAP position with respect to large stock dividends (and splits) implies that no significant market reaction should occur on the ex dividend date. There are a number of empirical studies in the accounting and finance literature that shed some light on the CAP's position. One fairly consistent finding is a positive market reaction to announcements of stock distributions (splits and dividends) of various sizes. Note that evidence of market reaction to the announcement of small stock dividends does not support the CAP position, which holds that the extra value arises upon distribution of the dividend shares. Also, Fama *et al.* (1969), Reilly and Drzycimski (1981), Charest (1978), Ohlson and Penman (1985), Dravid (1987), and Lamoureux and Poon (1987) found various types of ex dividend date reactions for stock splits and large stock dividends. These reactions do not support the CAP assertion concerning large distributions. The empirical evidence with respect to small stock dividend ex dividend dates has been mixed. Foster and Vickrey (1978) and Spiceland and Winters (1986) did not find a significant ex dividend date reaction. On the other hand, Chottiner and Young (1971), Grinblatt *et al.* (1984), and Woolridge (1983) found significant ex dividend date reactions for various classes of small stock dividends. (Grinblatt *et al.* considered only stock distributions of size 10 percent or more.) Eades *et al.* (1984) found significant ex dividend date reactions but did not distinguish among sizes of distributions.

Investigators who have found significant market reactions associated with announcement dates and/or ex dividend dates have attributed such reactions to factors other than stockholders' perceptions of receiving extra value from the distribution itself. Explanations include the prospect of increased cash dividends, favorable management signals communicated through stock distributions, possible benefits arising from pricing the stock in a more favorable trading range, and an increase in price volatility that enhances stockholders' opportunities to capture tax benefits of offsetting certain capital gains and losses. (For a related study of the possible reasons that firms engage in stock dividends and splits, see Lakonishok and Lev, 1987.) An accounting-based signalling explanation for positive reactions to stock dividend announcements is offered by Grinblatt *et al.* (1984). This explanation suggests that firms facing retained earnings restrictions imposed by bond covenants or other circumstances will tend to avoid declaring stock dividends (and invoking the CAP rule that mandates a retained earnings reduction) unless they expect increased future earnings. Such retained earnings restrictions impose a cost on firms that would seek to release false signals. Asquith *et al.* (1989) offer evidence that stock split announcements serve as signals to market agents that earnings increases preceding splits are permanent rather than transitory.

Most of the empirical investigations to date are event studies in which researchers perform a regression analysis and assume that systematic risk is stable over the estimation interval. The present study offers an improvement in research design because it examines the market reaction around the announcement (declaration) dates and ex dividend dates of the full range of stock dividends and splits controlling for nonstationarity of systematic risk. Specifically, securities (distribution events) are categorized as having either stationary (stable) or nonstationary (nonstable) betas during the estimation period. The reactions of the market to the stationary and nonstationary sets of securities on both the announcement date and ex dividend date then are examined. The primary goal is to test whether beta nonstationarity is a significant concern in stock distribution studies. A secondary goal is to produce (using a large, updated sample) further evidence on the existence of market reactions to the announcement and distribution of stock dividends and splits. Although it is doubtful that market reaction is relevant to the setting of accounting policy in this area (despite the CAP's assertion), the study furnishes additional evidence regarding the stated rationale for the extant accounting procedures.

Sample Selection

The first step in the sample selection process was to obtain a listing of all stock distributions (CRSP distribution codes 5523 and 5533) with declaration or ex dividend dates between January 1, 1974 and December 31, 1985 from the 1986 Center for Research in Security Prices (CRSP) daily master tape. This produced an initial sample of 4,308 distributions. Exclusion of 22 reverse splits reduced this number to 4,286.

The second step was to scrutinize the *Wall Street Journal Index* for the date the distribution was announced in the *Wall Street Journal* and other firm-specific news reported in the seven day period centered on the event date (i.e., beginning three days before and ending three days after the declaration or ex dividend date event). The event studied first was the announcement event; following Grinblatt *et al.* (1984), the public release of the information concerning the announcement of the distribution (designated as day 0 and referred to as the *announcement* or *declaration* date in the remainder of this article) was considered to be the earlier of the CRSP declaration date or the trading day preceding the date the announcement appeared in the *Wall Street Journal*. In most (946 of 1,052) cases, the CRSP declaration date preceded the *Wall Street Journal* date by one trading day. In some cases, the *Wall Street Journal* announced stock dividend or split proposals well in advance of the declaration date. Two factors mentioned by Charest (1978) suggest acceptance of these earlier dates as the event dates. He observes that proposals almost never are rejected by stockholders and that, state laws permitting, management can carry out a stock distribution as long as the number of shares authorized is not exceeded. Application of the foregoing procedures produced 1,138 pure announcement dates. Of these, 86 were dropped from the sample because of incomplete daily returns data. The final sample, therefore, consisted of 1,052 announcement events.

An ex dividend date sample of comparable size was chosen randomly from 3,086 pure ex dividend dates that similarly had been screened for other firm-specific news. (During the screening process it became evident that stock dividend and split announcements are more likely to coincide with other news items, such as earnings and cash dividend announcements, than are ex dividend dates.) The final ex dividend date sample consisted of 1,022 events after dropping 116 for incomplete returns data. Because ex dividend dates are publicly known well in advance, day 0 for these events refers to the CRSP-specified ex dividend date.

Testing for Beta Stationarity

The partitioning of the stock distributions sample in this research utilizes techniques developed by Brown *et al.* (1975) and discussed in Garbade (1977), Bey (1983a, 1983b), and Foster *et al.* (1988). Four of these techniques compute independent, normally distributed recursive residuals that measure deviations of the dependent variable (firm's daily return) from its predicted value. The predicted value is derived by regressing each observed return for day t on the market return for day t, using coefficients calculated from the observed returns through time t - 1. One thus obtains a recursive residual for each daily return except the first one. Brown *et al.* show that the recursive residuals have zero mean up to the time when a shift in the beta coefficient occurs, whereupon in general they begin to exhibit nonzero means. The four tests designed to detect departures of the means of the recursive residuals from zero are the cusum forward test, the cusum backward test, the cusum of squares forward test, and the cusum of squares backward test.

The two cusum tests calculate the cumulative sums of the recursive residuals both forward and backward through the time series, respectively. The expected value of the cumulative sum under the null hypothesis of stationarity is zero. Brown, *et al.* provide a test such that under the null, the probability of deviation of the sample cusum from zero can be set at any desired significance level. (The purpose of running the calculations backward as well as forward is to help locate the point where a shift occurs.) The two cusum of squares tests use the squared recursive residuals and are intended to furnish additional evidence of shifts in beta. These two tests are less conclusive, however, because they are sensitive to changes in the residual variance as well as to changes in beta. Consequently, Bartlett's test for constancy of variance was used to aid in interpreting the results of the cusum of squares tests.

In addition to the four tests mentioned above, the Brown *et al.* techniques also include moving regressions. These require fitting the model on a segment of successive observations and then moving the segment along the time series. The behavior of the beta coefficient provides additional evidence of any nonstationarities, somewhat in the manner of a Chow test. The test statistic produced by this procedure is called the homogeneity statistic; it is equivalent to the usual ANOVA ratio of mean squares. Under the null hypothesis of stationarity it is distributed as an F distribution as described in Bey (1983b). Segments of length 15 and 30 were selected to obtain two homogeneity statistics.

Sample Classification

Conducting the stationarity tests over the 98 day period preceding day -19 (day -117 through day -20) resulted in the identification of 207 announcement events associated with securities whose betas were classified as nonstationary over that period, 382 announcements associated with securities whose betas were classified as stationary over that period, and 463 events associated with securities that were classified as ambiguous with respect to beta stationarity.

A security was considered to have a nonstationary beta if its test statistic on any of four relatively conclusive tests (i.e., the two cusum tests and the two homogeneity tests) was significant at the .05 level. Based on these tests, 172 events were classified as nonstationary. A security was considered stationary if none of the six tests (including the two cusum of squares tests) produced a significant statistic at the .05 level. Three hundred eighty-two securities failed all six tests and were categorized as stationary over the estimation period. Four hundred ninety-eight securities initially were considered to be ambiguous because although their cusum and homogeneity tests were not significant, there was a significant statistic on one or both of the cusum of squares tests. Securities falling into this group were labeled as ambiguous with respect to beta stationarity/nonstationarity because the two cusum of squares tests are sensitive to violations of the assumption of homoscedasticity. Some of the ambiguous firms subsequently were reclassified as nonstationary after testing for constant residual variance. A conservative approach was taken with respect to the possible reclassification of the 498 ambiguous securities; the only securities considered for reclassification were those with a cusum of squares statistic that was significant at the .01 level (252 events). The Bartlett's test for constancy of variance, using Box's approximation (as described by Dixon and Massey, 1969) and four approximately equal subperiods, then was applied to the 252 ambiguous events. Thirty-five of these securities had constant variances (loosely speaking) at the .05 level and consequently were considered nonstationary. Thus, the announcement date sample consisted of 207 (172 + 35) securities that were considered to have nonstationary betas during the estimation period, 382 stable securities, and 463 (498 - 35) ambiguous events.

Performance of the identical procedures on the ex dividend date sample produced a final sample of 237 events associated with nonstationary securities, 390 events associated with stationary securities, and 395 events associated with securities whose betas were classified as ambiguous with respect to stationarity.

Measurement of Market Reaction

The principal methodology of this study was to investigate, for nonstationary and stationary groups and for the sample as a whole, the aggregate market reaction to stock distribution announcements and ex dividend dates. The overall reaction was gauged by examining mean abnormal returns (based on the ordinary least squares market model) and cumulative abnormal returns (residuals) for selected periods preceding and following the event date. The market reaction to small and large stock dividends and splits also was examined to provide evidence concerning the CAP extra value assertions.

Abnormal returns are defined as:

$$\mu_{it} = R_{it} - E(\tilde{R}_{it} \mid R_{mt})$$

where:

μ_{it}	=	the residual return from firm i's common stock on day t, where t ranged from day -19 to day +19;
R_{it}	=	the actual return from firm i's common stock on day t, where t ranged from day -19 to day +19;
$E(\tilde{R}_{it} \mid R_{mt})$	=	the expected return for firm i's common stock on day t conditional on the *ex post* value of the market return.

The $E(\tilde{R}_{it} \mid R_{mt})$s were generated as indicated below using the market model:

$$\tilde{R}_{it} = \alpha_i + \beta_i \tilde{R}_{mt} + \tilde{e}_{it}$$

$$E(\tilde{R}_{it} \mid R_{mt}) = \alpha_i + \beta_i R_{mt}$$

where:

$\tilde{R}_{it}$	=	the return on security i on day t, where t ranged from -117 to -20;

$\tilde{R}_{mt}$ = the return on the CRSP equally weighted index, adjusted for dividends for day t, where t ranged from -117 to -20;

$\tilde{e}_{it}$ = residual for security i on day t;

α_i and β_i = the intercept and slope that define the linear relationship between $\tilde{R}_{it}$ and $\tilde{R}_{mt}$.

The regression coefficients were obtained by regressing daily returns for security i on the market factor. For both the announcement date and the ex dividend date, the regressions were calculated over the 98 day period prior to the earliest day of the 39 day window (days -117 to -20). Residuals (abnormal returns) then were calculated for each day of the 39 day period from day -19 to day +19.

Results

Overall Announcement Date and Ex Date Reactions

The first set of tests was intended to determine whether there was an aggregate market reaction to the announcement of the stock distribution across three categories of securities—stable, nonstable, and combined. The combined set consists of stable, nonstable, and ambiguous securities. The results for the combined set correspond to those that would have been obtained without controlling for beta nonstationarity. Theoretically, the excess returns for the stationary set are the only ones that are generated in a manner consistent with the market model assumptions. Following prior studies, it was hypothesized that positive abnormal returns (ARs) are associated with stock dividends and splits. The ARs were averaged within each group for each day of the seven day period surrounding the event and standardized test statistics were calculated in order to examine the significance of abnormal returns. The square root of the forecast variance for each abnormal return was computed, following Mitchell and Lehn (1990):

$$\sigma_{ar} = \left\{ \sigma^2 \left[1 + \frac{1}{T} + \frac{(R_{mt} - \bar{R}_m)^2}{CSSR_m} \right] \right\}^{1/2}$$

where:

σ^2	=	the estimated residual variance for the firm during the estimation period;
T	=	the number of days in the estimation period;
$\bar{R}_m$	=	the mean of the market return during the estimation period corresponding to that firm; and
$CSSR_m$	=	the corrected sum of squares of the market return during the estimation period.

Standardized abnormal returns then were formed for each firm for each day t of its event window:

$$sar_{it} = \frac{\mu_{it}}{\sigma_{ar}}$$

The test statistic for each day t of the event window for the n firms is

$$Z_t = \frac{\sqrt{n}}{n} \sum_{i=1}^{n} sar_{it} \approx N(0,1)$$

Table 1 summarizes the results of the first series of tests. As this table shows, abnormal returns were highly significant on days 0 and +1 across all three sets. On the basis of these tests, it can be concluded that there is a market reaction to the announcement of stock distributions. Overall, the stationary and combined sets exhibit a similar pattern of reactions on various days of the event window. The nonstationary set differs in some respects, however; the nonstationary set shows a significant reaction on day -1 but not day +2, unlike the stationary and combined sets. As discussed in the next section, the day -1 reaction for the nonstationary set appears to be a function of the size of the stock distribution.

Table 4 provides the same tests for the ex dividend date. (Tables 2, 3, 5, and 6 show breakdowns of Tables 1 and 4 by size of distribution and are discussed in the next section.) Table 4 indicates that there is also a strong ex dividend date reaction. The results for all three sets are similar. Perhaps the most notable dissimilarity is the absence of a day -1 reaction for the nonstationary set.

To determine whether the results in Tables 1 and 4 were driven by a few large residuals, a binomial test was conducted of the null hypothesis that each subset came from a population with a proportion of positive ARs less than or equal to 0.5. This hypothesis was rejected strongly. It can be concluded that the declaration date and ex dividend date reactions are general phenomena and are not caused by a swamping effect of a few observations.

Analysis by Size of Distribution

To gather evidence on the CAP's conclusions that small stock dividends almost always produce significant amounts of extra value on the ex dividend date and that large stock dividends fail to generate such ex dividend date value, two dividend classes were formed corresponding to those commonly discussed in the literature and consistent with an SEC accounting rule that states that distributions of 25 percent or more should be considered a split-up effected in the form of a dividend. Tables 2 and 3 illustrate market reactions to the announcement of small and large distributions, respectively. Tables 5 and 6 present the corresponding results for ex dividend dates.

Tables 2 and 3 indicate that the announcement reaction (days 0 and +1) occurs for both small and large stock distributions. Abnormal returns on day -1, the day preceding the announcement date, are insignificant for small dividends but significant for large distributions in the case of the nonstationary and combined sets. Further comparison of Tables 2 and 3 shows a consistently weaker reaction on days 0 and +1 for small stock dividends than for large dividends and splits.

Tables 5 and 6 indicate that the overall ex dividend date reaction (days 0 and +1) generally remains evident for both small and large distributions. The only exception is that, for small distributions, the nonstationary set does not show a significant reaction on day +1. As observed for announcement events, the ex dividend date reactions to small dividends on days 0 and +1 are consistently weaker than the corresponding reactions to large distributions. Although probably not of major import from a policy perspective, the large abnormal returns depicted in Table 6 raise doubt about the CAP's contention that large distributions should not affect market price materially (other than reducing it in proportion to the additional shares distributed).

Statistical Comparisons of Average Abnormal Returns

In order to clarify the effects nonstationarity of beta might have had on results, average abnormal returns exhibited by the stationary group versus each of the other two groups were tested for differences. Recall that the stationary set is ideal in the sense that its members satisfy the stationarity assumption of the market model; the nonstationary set is a worst case scenario, as its members all violate the stationarity assumption. For event days -1, 0, +1, and +2, the days that appeared to be the most important in terms of market reaction, the average abnormal returns for the three sets were compared by computing t-statistics for the differences in means. The results for declaration events appear in Table 7 and for ex dividend date events in Table 8. In all cases the null hypothesis that the mean abnormal returns are the same for the nonstationary and stationary groups could not be rejected formally. Some marginally significant differences, however, were evident on days -1 and 0 between the nonstationary and stationary sets for declaration events. No other significant differences were apparent for either declaration or ex dividend date events. As Tables 7 and 8 do not indicate any significant differences between the stationary group and the combined group, the market model methodology appears robust to violations of the stationarity assumption, at least for the sample in this study.

Cumulative Abnormal Returns

To consider the possibility that the market anticipated the declaration and the distribution of the dividends and splits in the sample and to obtain graphical evidence of returns behavior, cumulative abnormal returns were computed for the 39 day period surrounding and including the declaration date. A similar analysis was conducted for the ex dividend date. The cumulative abnormal return at a particular day, d, is defined as follows:

$$CAR_d = \sum_{t=1}^{d} \sum_{i=1}^{n} \mu_{it}/n$$

where:

d = 1, 2, ... , 39;
n = the number of securities in the sample;
μ_{it} = the unexpected return of security i on day t.

Figure 1 summarizes the results of the CAR_d computations for the announcement date. All three groups exhibit the same basic pattern of a big jump around day 0, with some apparent market anticipation preceding the event. CAR graphs for the stationary and combined sets coincide, supporting the conclusion that violation of the stationarity assumption is not a major concern. Because of the beta shift during the estimation period, the graph for the nonstationary set is an unreliable indicator of abnormal returns. Results for the ex dividend date appear in Figure 2. Again there is some apparent anticipation across all three sets prior to the ex dividend date. The graph for the stationary set is consistently lower, but follows the same basic pattern as the plot for the combined set.

Summary and Conclusions

This study examines market reaction to the full range of stock dividends and splits using a large, updated sample. The results have implications for research methodology, for the growing body of evidence of market reactions to stock distributions, and for the credibility of the stated rationale underlying an accounting policy. With respect to methodology, violation of the stationarity assumption appears to be only a minor concern in market model studies using daily data to measure market reaction to stock dividends and splits. The stationary group of securities may be viewed as the sample that would have been used in a study that dropped all firms except those with stable betas in the estimation period. The combined group corresponds to samples used in studies that have not controlled for stationarity of beta. The nonstationary group represents a worst case, as all securities in the group experience detectable beta shifts during the model estimation period. Although some differences appear in returns behavior exhibited by the stationary and combined sets on some days before and after the announcement and ex dividend date events, these differences are not statistically significant.

With regard to evidence of market reaction to stock distributions, the study supports previous findings of both announcement and ex dividend date abnormal returns. These findings are extended in this study to both small and large categories of distributions. Also, the findings remain valid when only securities with stationary betas are included in the sample.

With respect to the stated rationale underlying accounting policy for stock distributions, two of the findings fail to support the CAP's assertions. One of these findings that supports earlier studies is the general pattern of significant announcement date reactions. The CAP contends that the extra value from small stock dividends should arise when the shares are distributed. Any reaction observed on the announcement date cannot be attributable to the share distribution per se and therefore suggests the presence of other underlying economic factors. The other finding that indicates the presence of factors not considered by the CAP is the positive ex dividend date reaction observed for large distributions—distributions for which the CAP's conclusion requires that there not be a significant reaction. Therefore, although it is doubtful that market reactions to these stock distribution events are important determinants of accounting policy, the results of this study do not support the rationale presented in ARB 43. More fundamentally, however, it is still not clear why the accounting for small stock dividends should be based on perceived market response. It seems more appropriate that the accounting by the issuing company parallel the memorandum entry approach prescribed for the investors who receive the shares, except where an entry is necessary to conform to legal capital requirements.

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Table 1
Abnormal Returns Surrounding the Declaration Date
All Distribution Sizes

Days Relative to Declaration Date	Sample Means	Sample Standard Deviation	Standard Sample Means	Z Values
	Panel A: Nonstationary Set (n=207)			
-3	.002294	.028801	.092134	1.326
-2	.000000	.023543	.053965	0.776
-1	.005075	.028294	.208671	3.002**
0	.016710	.033132	.723875	10.415***
+1	.010240	.034976	.489791	7.047***
+2	.001729	.030349	.078417	1.128
+3	-.002882	.027215	-.137209	-1.974
	Panel B: Stationary Set (n=382)			
-3	.002029	.029190	.103225	2.018*
-2	-.000651	.024450	-.034927	-0.683
-1	.000499	.026909	-.007631	-0.149
0	.011613	.036276	.483796	9.456***
+1	.009494	.033776	.363431	7.103***
+2	.003873	.029140	.144530	2.825**
+3	.000691	.030487	.020685	0.404
	Panel C: Combined Set (n=1052)			
-3	.001956	.029598	.080567	2.613**
-2	.000066	.025910	.007912	0.257
-1	.001577	.027479	.055271	1.793
0	.014089	.036213	.585387	18.987***
+1	.009679	.035503	.411339	13.342***
+2	.002393	.030799	.115691	3.752***
+3	.000247	.028452	.011310	0.367

*** Significant at the .001 level
** Significant at the .01 level
* Significant at the .05 level

Table 2
Abnormal Returns Surrounding the Declaration Date
Distribution Sizes Under 25 Percent

Days Relative to Declaration Date	Sample Means	Sample Standard Deviation	Standard Sample Means	Z Values
		Panel A: Nonstationary Set (n=87)		
-3	.003917	.038785	.169436	1.580
-2	-.003219	.026211	-.085861	-0.801
-1	.004674	.033633	.161398	1.505
0	.015467	.035754	.651370	6.076***
+1	.011382	.040568	.389183	3.630***
+2	.002639	.035348	.039318	0.367
+3	-.002758	.033634	-.089233	-0.832
		Panel B: Stationary Set (n=196)		
-3	.002259	.030901	.104597	1.464
-2	-.001074	.028136	-.052939	-0.741
-1	-.000615	.029815	-.047605	-0.666
0	.009964	.041554	.339840	4.758***
+1	.008498	.036461	.268674	3.761***
+2	.005806	.033076	.213705	2.992**
+3	.000956	.033642	.040027	0.560
		Panel C: Combined Set (n=546)		
-3	.002265	.032974	.094359	2.205*
-2	-.000037	.028404	-.013418	-0.314
-1	.000216	.029596	-.003485	-0.081
0	.011752	.038913	.433697	10.134***
+1	.008424	.037206	.290988	6.799***
+2	.002381	.033080	.109352	2.555*
+3	.001324	.031218	.063602	1.486

*** Significant at the .001 level
** Significant at the .01 level
* Significant at the .05 level

Table 3
Abnormal Returns Surrounding the Declaration Date
Distribution Sizes 25 Percent or Larger

Days Relative to Declaration Date	Sample Means	Sample Standard Deviation	Standard Sample Means	Z Values
		Panel A: Nonstationary Set (n=120)		
-3	.001118	.018589	.036090	0.395
-2	.002335	.021211	.155338	1.702
-1	.005365	.023836	.242944	2.661**
0	.017612	.031216	.776441	8.505***
+1	.009412	.030441	.562732	6.164***
+2	.001068	.026275	.106763	1.170
+3	-.002972	.021556	-.171991	-1.884
		Panel B: Stationary Set (n=186)		
-3	.001787	.027352	.101780	1.388
-2	-.000206	.019908	-.015947	-0.217
-1	.001672	.023487	.034493	0.470
0	.013350	.029735	.635491	8.667***
+1	.010543	.030758	.463282	6.318***
+2	.001837	.024237	.071636	0.977
+3	.000411	.026852	.000303	0.004
		Panel C: Combined Set (n=506)		
-3	.001623	.025486	.065684	1.478
-2	.000177	.022945	.030928	0.696
-1	.003045	.024942	.118672	2.669**
0	.016611	.032906	.749070	16.850***
+1	.011033	.033553	.541204	12.174***
+2	.002406	.028162	.122531	2.756**
+3	-.000915	.025106	-.045116	-1.015

*** Significant at the .001 level
** Significant at the .01 level
* Significant at the .05 level

Table 4
Abnormal Returns Surrounding the Ex Dividend Date (Day Zero)
All Distribution Sizes

Days Relative to Ex Dividend Date	Sample Means	Sample Standard Deviation	Standard Sample Means	Z Values
		Panel A: Nonstationary Set (n=237)		
-3	.004031	.025825	.223845	3.446***
-2	.002048	.024091	.108966	1.678
-1	.001800	.027196	.114348	1.760
0	.016590	.033836	.806071	12.409***
+1	.007555	.038670	.404268	6.224***
+2	.002655	.026984	.209043	3.218**
+3	.001127	.023009	.044597	0.687
		Panel B: Stationary Set (n=390)		
-3	.000131	.025311	-.004948	-0.098
-2	.000448	.023028	.032603	0.644
-1	.003155	.026357	.140423	2.773**
0	.014917	.036957	.735509	14.525***
+1	.009183	.029319	.426435	8.421***
+2	.004875	.025543	.245919	4.857***
+3	-.000464	.024204	-.029960	-0.592
		Panel C: Combined Set (n=1022)		
-3	.001522	.025742	.082359	2.633**
-2	.001739	.025233	.071376	2.282*
-1	.002938	.027292	.130997	4.188***
0	.014888	.035269	.716993	22.921***
+1	.009195	.033259	.444085	14.197***
+2	.003684	.025972	.213100	6.812***
+3	.000591	.024016	.021498	0.687

*** Significant at the .001 level
** Significant at the .01 level
* Significant at the .05 level

Table 5
Abnormal Returns Surrounding the Ex Dividend Date (Day Zero)
Distribution Sizes Under 25 Percent

Days Relative to Ex Dividend Date	Sample Means	Sample Standard Deviation	Standard Sample Means	Z Values
		Panel A: Nonstationary Set (n=90)		
-3	.005215	.029456	.315490	2.993**
-2	.001592	.029964	.110612	1.049
-1	-.000366	.032608	.038022	0.361
0	.014059	.037366	.482763	4.580***
+1	.002950	.035888	.169104	1.604
+2	.001039	.027567	.118934	1.128
+3	.001451	.026867	.061271	0.581
		Panel B: Stationary Set (n=184)		
-3	.001580	.029759	.058123	0.788
-2	-.000884	.024298	-.027800	-0.377
-1	.003410	.029964	.136652	1.854
0	.015872	.045086	.706292	9.581***
+1	.009997	.031577	.393208	5.334***
+2	.004746	.028153	.228421	3.098**
+3	.001457	.025535	.087025	1.180
		Panel C: Combined Set (n=469)		
-3	.002135	.029868	.119183	2.581**
-2	.002566	.029622	.082595	1.789
-1	.003180	.031203	.136398	2.954**
0	.014056	.040796	.565364	12.244***
+1	.008080	.035733	.319341	6.916***
+2	.002999	.028575	.169482	3.670***
+3	.001884	.026108	.070716	1.531

*** Significant at the .001 level
** Significant at the .01 level
* Significant at the .05 level

Table 6
Abnormal Returns Surrounding the Ex Dividend Date (Day Zero)
Distribution Sizes 25 Percent or Larger

Days Relative to Ex Dividend Date	Sample Means	Sample Standard Deviation	Standard Sample Means	Z Values
		Panel A: Nonstationary Set (n=147)		
-3	.003307	.023404	.167736	2.034*
-2	.002326	.019764	.107958	1.309
-1	.003126	.023296	.161078	1.953
0	.018139	.031514	1.004010	12.173***
+1	.010375	.040136	.548246	6.647***
+2	.003644	.026667	.264212	3.203**
+3	.000928	.020387	.034388	0.417
		Panel B: Stationary Set (n=206)		
-3	-.001164	.020532	-.061283	-0.880
-2	.001638	.021822	.086555	1.242
-1	.002927	.022730	.143792	2.064*
0	.014064	.027848	.761606	10.931***
+1	.008455	.027202	.456113	6.546***
+2	.004989	.023033	.261549	3.754***
+3	-.002181	.022876	-.134452	-1.930
		Panel C: Combined Set (n=553)		
-3	.001002	.021651	.051129	1.202
-2	.001039	.020801	.061862	1.455
-1	.002733	.023497	.126417	2.973**
0	.015595	.029810	.845591	19.885***
+1	.010141	.031008	.549880	12.931***
+2	.004265	.023551	.250093	5.881***
+3	-.000504	.022052	-.020244	-0.476

*** Significant at the .001 level
** Significant at the .01 level
* Significant at the .05 level

Table 7
Comparison of Average Abnormal Returns Associated with Declaration Dates

Day	t-statistic for difference Nonstationary vs. Stationary	Combined vs. Stationary
	Panel A: All Distribution Sizes	
-1	1.906(a)	0.667
0	1.724(b)	1.144
+1	0.250	0.090
+2	0.830	0.837
	Panel B: Distribution Sizes Under 25 Percent	
-1	1.263	0.335
0	1.135	0.526
+1	0.569	0.024
+2	0.709	1.243
	Panel C: Distribution Sizes 25 Percent Or Larger	
-1	1.331	0.671
0	1.188	1.242
+1	0.316	0.181
+2	0.258	0.262

(a) Significant at the .0573 level
(b) Significant at the .0855 level

Table 8
Comparison of Average Abnormal Returns Associated with Ex Date Events

Day	t-statistic for difference Nonstationary vs. Stationary	Combined vs. Stationary
	Panel A: All Distribution Sizes	
-1	0.612	0.137
0	0.580	0.013
+1	0.558	0.007
+2	1.019	0.780
	Panel B: Distribution Sizes Under 25 Percent	
-1	0.924	0.087
0	0.352	0.475
+1	1.587	0.672
+2	1.038	0.711
	Panel C: Distribution Sizes 25 Percent Or Larger	
-1	0.080	0.104
0	1.257	0.661
+1	0.503	0.730
+2	0.494	0.383

Figure 1
Cumulative Abnormal Returns Declaration Date

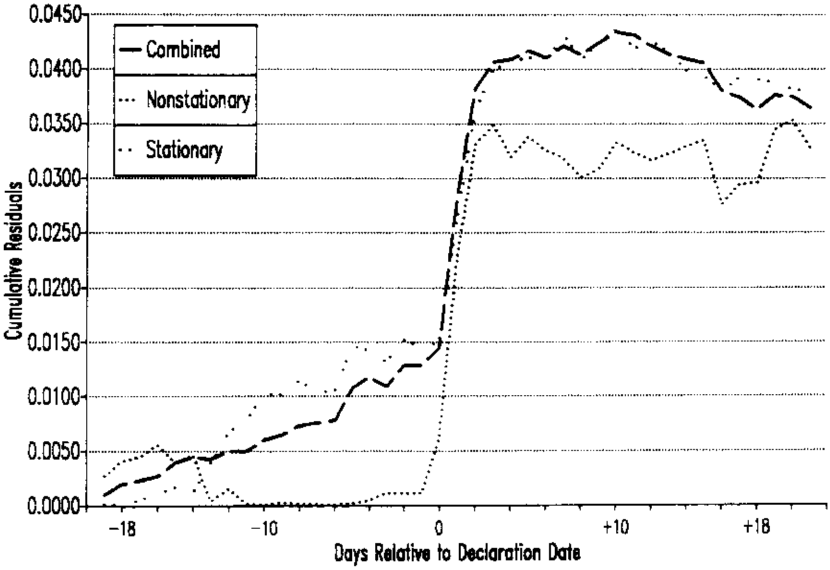

Figure 2
Cumulative Abnormal Returns Ex Dividend Date