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# AN ANALYSIS OF SHAREHOLDER REACTION TO DIVIDEND ANNOUNCEMENTS IN BULL AND BEAR MARKETS

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## Abstract

This paper examines the differential share price reaction to dividend increase and decrease announcements with respect to market phase. We find that market phase has a significant impact on abnormal returns around the announcement, and it appears that more information is conveyed by dividend change announcements which run counter to market phase. The results are robust in that the conclusions are the same for both an analysis of the raw abnormal returns data, and for the *FGLS* regressions which control for possible confounding factors. These results are consistent with the information content of dividends hypothesis, and have important implications for event studies where clustering is problematic.

## INTRODUCTION

A great deal of work has been done in the areas of market reaction to dividend announcements and the information content of dividends hypothesis (ICH). If dividend announcements convey previously unavailable information about the future prospects of a firm, dividend cuts should result in significant excess negative returns and dividend increases should result in significant excess positive returns (e.g. Charest (1978), Ghosh and Woolridge (1988), Eades, Hess and Kim (1985)). Miller (1980) suggests that unexpected changes in dividends provide the market with information about future earnings prospects, and therefore should result in price changes in the common stock. Empirically, Benesh, Keown, and Pinkerton (1984) as well as Eades, Hess and Kim (1985) have found that investor reaction to dividend cuts exceeds that of comparable dividend increases. One explanation for this discrepancy is that dividend cuts convey more information about firm prospects than dividend increases, due to management's view of dividend cuts as a last resort tactic.

The purpose of this study is to examine the *ICH* with respect to market phase. We hypothesize that investor expectations regarding security performance are asymmetric between bull markets and bear markets, and that these asymmetric expectations are consequently reflected in security price reactions to information generating events.

The *ICH* states that dividend announcements are used by managers as a way to signal shareholders regarding future prospects for the firm. Accordingly, a dividend increase should be perceived by investors as a positive signal regarding future prospects for the firm, while a dividend decrease should be perceived as a negative signal, and this has been well documented in the empirical literature. Additionally, it has been found that signal strength is a function of the amount of information transmitted (i.e. large dividend changes are stronger signals than smaller changes; Asquith & Mullins, 1984).

In analyzing the *ICH* with respect to market phase, it follows that an investor should gain relatively more information from dividend change announcements which run counter to strong market cycles. For example, dividend cuts in bull markets and dividend increases in bear markets should contain more information than dividend cuts in bear markets and dividend increases in bull markets. If this is the case, one would expect to see significant differences in the abnormal returns for similar dividend announcements between bull and bear markets as a result of a differential in the amount of information being transmitted. Empirical evidence supporting this

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contention would provide additional support for the information content hypothesis, and would also have important implications for traditional event study methodologies where the event or estimation period is associated with a strong market phase.

## METHODOLOGY

Two bull market periods and two bear market periods have been defined for the purposes of the study. We attempt to identify strong market phases which are adjacent or nearly adjacent, and whose duration exceeds 12 months. The market phase periods used in this study and their respective durations appear below:

| Period | Date | Duration |
|---|---|---|
| Bull 1 | 08/70-12/72 | 29 months |
| Bull 2 | 07/82-08/83 | 14 months |
| Bear 1 | 02/73-11/74 | 22 months |
| Bear 2 | 04/81-06/82 | 15 months |

The periods Bull 1 and Bear 1 were originally used by Gooding and O'Malley (1977) in their study of parameter stability and market phase. The second bull and bear phases were identified by examining the S&P 500 index for adjacent, long-duration, monthly-index moves in one direction.

The sample used in this study was drawn from the *CRSP* NYSE/AMEX daily file. To qualify for inclusion in the sample a firm was required to pay continuous, quarterly cash dividends over the period beginning two years prior and ending two years following each individual phase period. This eliminates the possibility of sampling bias resulting from including companies announcing either an initial dividend, or resumption of a previously discontinued dividend, immediately before the beginning of a market phase. It also eliminates those firms discontinuing dividend payments immediately following a phase period. The sample is therefore comprised of firms which have historically provided a continuous, long-term reliable signal to investors through the use of dividend policy.

All eligible firms from the *CRSP* file were tested for dividend changes during the selected bull and bear market phase periods, with the first regular quarterly cash dividend announcement made within each phase being used as the initial reference point. This insures any change announcements used in the study occur a minimum of three months into any market phase. Firms announcing stock splits or the payment of stock dividends during a market phase are not eliminated from the sample. However, the new reference dividend for these firms becomes the first regular cash dividend declared and paid following the split or stock dividend.

In performing the task of parameter estimation for firms in the sample there is a risk that the estimates will exhibit sensitivity, in the form of bias or instability, with respect to market phase. Klein and Rosenfeld (1987) find that residuals estimated for individual stocks are biased in bull and bear markets if either the mean-adjusted returns models or the raw-market returns models are used in estimation process. They suggest using either the market-adjusted returns model or the single-index market model (*SIMM*) in strong market phase environments. Gooding and O'Malley (1977) find evidence that beta is not stationary with respect to market phase, however, Fabozzi and Francis (1977) find beta to be stationary irrespective of market conditions. In a study using the *SIMM*, Kim and Zumwalt (1979) find 11% of securities in their sample exhibit significant nonstationarities, leading them to conclude that some securities respond differently with respect to market phase. Beyond market related stationarity problems, it is also quite possible that large dividend-change announcements provide investors with previously unavailable information about future prospects for the firm, thereby resulting in potential structural shifts in the parameter estimates.

Accordingly, both pre-event and post-event betas are estimated for each security in this study using the *SIMM*, and the analysis is carried out separately using both sets of estimates. The estimates are generated using 200-day estimation periods, with an event-period window of ±20 days on either side of the announcement date. Observations with ex-dates within 2 days of the announcement date are discarded. Finally, the 200 daily return observations for each security are combined into 100 two-day observations for the purpose of parameter estimation in order to match the estimation interval with the two-day event period interval, resulting in the following model

Equation 1

$$R_{it} = \alpha_i + \beta_i R_{mt} + u_{it}$$

where:

$R_{it}$ = the two-day return on security i
$a_i$ = the intercept term
$b_i$ = the parameter estimate
$R_{mt}$ = the two-day return on the market
$u_{it}$ = an error term

The daily abnormal return for security *i* on the two-day interval *t* is defined as:

Equation 2

$$e_{it} = R_{it} - E(R_{it})$$

where:

$R_{it}$ = the observed two-day event period return on security *i*
$E(R_{it})$ = $a_i + b_i R_{mt}$

The abnormal returns are then standardized using the standard error of the forecast,

Equation 3

$$s_{ift} = \left[ s_{ie}^2 \left( 1 + \left( \frac{1}{k} \right) + \frac{(R_{mt} - \overline{R}_m)^2}{\sum_{j=1}^{k} (R_{mt} - \overline{R}_m)^2} \right) \right]^{\frac{1}{2}}$$

where:

$s_{ie}^2$ = residual variance from the market model regression
$k$ = number of observations in the estimation period
$R_{mt}$ = return on the market portfolio for two-day period t
$R_{mj}$ = return on the market portfolio for the *jth* two-day observation of the estimation period
$R_m$ = average return on the market portfolio during the estimation period

and the standardized abnormal return is defined as:

Equation 4

$$SAR_{it} = \frac{e_{it}}{s_{ift}}$$

## RESULTS

If more information is contained in dividend change announcements which run counter to market phase, we would expect a priori to see larger abnormal returns around dividend increase (decrease) announcements in bear (bull) markets than in bull (bear) markets. To test for this relationship, the standardized abnormal returns around the two-day event period are partitioned by announcement type (increase or decrease), as well as paired and combined market phases. These results are presented in Table 1.1 and Table 1.2 for pre-event and post-event estimations respectively.

Note each of the mean *SARs* is significantly different from zero at the one percent level, with the absolute reactions to decrease announcements exceeding those of increase announcements. This is consistent with previous research regarding price reactions to dividend announcements. Note also that for both the pre-event and post-event

### TABLE 1.1

**Sample Characteristics Of The Pre-Event Standardized Abnormal Returns For Increase And Decrease Announcements**

(By Market Phase Type)

**Dividend Increase Announcements**

| Market Phase | Mean *SAR*# | Sample Size | Standard Deviation | Avg % Chng In Yield |
|---|---|---|---|---|
| Bull (all) | 0.356*** | 958 | 1.213 | 0.197 |
| Bear (all) | 0.462*** | 1476 | 1.259 | 0.162 |
| Bull 1 | 0.398*** | 562 | 1.232 | 0.221 |
| Bear 1 | 0.529*** | 984 | 1.337 | 0.171 |
| Bull 2 | 0.296*** | 396 | 1.184 | 0.162 |
| Bear 2 | 0.327*** | 492 | 1.078 | 0.144 |

**Dividend Decrease Announcements**

| Market Phase | Mean *SAR*# | Sample Size | Standard Deviation | Avg % Chng In Yield |
|---|---|---|---|---|
| Bull (all) | -1.191*** | 219 | 1.843 | -0.379 |
| Bear (all) | -1.056*** | 104 | 2.107 | -0.401 |
| Bull 1 | -1.165*** | 153 | 1.920 | -0.364 |
| Bear 1 | -1.002*** | 63 | 1.966 | -0.381 |
| Bull 2 | -1.255*** | 66 | 1.664 | -0.413 |
| Bear 2 | -1.138*** | 41 | 2.330 | -0.431 |

#Abnormal return standardized by the standard error of the forecast.
***, ** ,and * Significant at the 1%, 5%, and 10% level respectively.

estimation samples, the reaction to dividend increase announcements in bear markets is larger than that for dividend increase announcements in bull markets. It is reasonable to suspect that this result may be driven in part by a difference in the size of the dividend increases between the bull and bear market phases. However, for our sample periods we find that the average increase in dividend yield is actually larger in bull market phases than in bear market phases. Therefore, if the size of the yield increase is positively related to the size of the corresponding reaction, this would place upward pressure on bull market returns. It follows that if our results are biased as a result of a differential in the size of the change in yield between phases, they are biased in a way which would make it more difficult to reject the null hypothesis that the difference in price reactions to increase announcements with respect to market phase is equal to zero.

## TABLE 1.2
**Sample Characteristics Of The Post-Event Standardized Abnormal Returns For Increase And Decrease Announcements**
(By Market Phase)

**Dividend Increase Announcements**

| Market Phase | Mean *SAR*# | Sample Size | Standard Deviation | Avg. Yield Increase(%) |
|---|---|---|---|---|
| Bull (all) | 0.366*** | 958 | 1.229 | 0.197 |
| Bear (all) | 0.457*** | 1476 | 1.189 | 0.162 |
| Bull 1 | 0.415*** | 562 | 1.243 | 0.221 |
| Bear 1 | 0.510*** | 984 | 1.237 | 0.171 |
| Bull 2 | 0.297*** | 396 | 1.206 | 0.162 |
| Bear 2 | 0.350*** | 492 | 1.081 | 0.144 |

**Dividend Decrease Announcements**

| Market Phase | Mean *SAR*# | Sample Size | Standard Deviation | Avg. Yield Decrease(%) |
|---|---|---|---|---|
| Bull (all) | -1.242*** | 219 | 1.941 | -0.379 |
| Bear (all) | -0.914*** | 104 | 1.985 | -0.401 |
| Bull 1 | -1.175*** | 153 | 1.941 | -0.364 |
| Bear 1 | -0.840*** | 63 | 1.673 | -0.381 |
| Bull 2 | -1.397*** | 66 | 1.945 | -0.413 |
| Bear 2 | -1.026*** | 41 | 2.405 | -0.431 |

#Abnormal return standardized by the standard error of the forecast.
***, ** ,and * Significant at the 1%, 5%, and 10% level respectively.

Similarly, the results for decrease announcements show that the reaction around the announcement date is larger in bull markets than in bear markets for both the pre-event and post-event estimations, which is again consistent with our a priori expectations. Also similarly, the average size of the decrease in yield is larger in absolute terms in bear markets than in bull markets, which again would make it more difficult to reject the null hypothesis.

## Testing For Differences With Respect To Market Phase

Before testing whether the differences in the mean *SARs* between bull and bear markets are significant, we checked for homogeneity of the variance of the *SARs* between adjacent individual and combined market phases, for both the pre-event and post-event estimation samples, using an F-test. The null hypothesis that the difference in variance is equal to zero is rejected in over 50% of the cases. Consequently, the *t*-statistic used to test for differences between mean *SARs* is developed under the assumption of unequal population variance where:

Equation 5

$$t = \frac{\overline{SAR}_1 - \overline{SAR}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

and the *t*-value has associated degrees of freedom found using Satterthwaite's adjustment:

Equation 6

$$df = \frac{\left(s_1^2/n_1 + s_2^2/n_2\right)^2}{\frac{\left(s_1^2/n_1\right)^2}{n_1 - 1} + \frac{\left(s_2^2/n_2\right)^2}{n_2 - 1}}$$

and where:

$\overline{SAR}_i$ = the mean standardized abnormal return for phase *i*
$s_i^2$ = the variance of the *SAR* in phase *i*
$n_i$ = the number of observations in phase *i*

These results appear in Tables 2.1 and 2.2. Note that with the exception of the dividend decrease announcement pair using pre-event *SARs*, all phase pair differences are significant, and in the expected direction. While the difference for the pre-event dividend decrease pair is not significant, it is in the expected direction.

## Development Of The Cross-Sectional Regression Model

While the above results support our hypothesis and the *ICH*, there are a number of variables which cannot be explicitly controlled for in the context of a simple t-test. Therefore, a multiple regression model is employed to control for the factors deemed relevant in influencing market reaction. Concomitantly, the regression model provides the opportunity to test for relationships previously suggested in the literature.

## Regression Variables Defined

*PRCTYLD* is the positive or negative percentage change in yield associated with the dividend change announcement. Similar to Asquith and Mullins (1983), Woolridge (1982), and Ghosh and Woolridge (1988), hereafter GW, this variable is chosen as a proxy for the relative amount of information being transmitted to shareholders on the announcement day. We expect a priori that the relative size of the increase or decrease in yield is positively related to the corresponding price reaction.

## TABLE 2.1
**Tests For Differences In Market Reaction By Market Phase**
(Using Pre-Event Parameter Estimates)

**Abnormal Returns Around Dividend Increase Announcements**

| Market Phase | Mean *SAR* | t-value For Difference | Sample Size | Avg. Yield Increase(%) |
|---|---|---|---|---|
| Bull (combined) | 0.356 | 2.074*** | 958 | 0.197 |
| Bear (combined) | 0.462 | | 1467 | 0.162 |

**Abnormal Returns Around Dividend Decrease Announcements**

| Market Phase | Mean *SAR* | t-value For Difference | Sample Size | Avg. Yield Decrease(%) |
|---|---|---|---|---|
| Bull (combined) | -1.191 | 0.563 | 219 | -0.379 |
| Bear (combined) | -1.056 | | 104 | -0.401 |

***, **, and * significant at the 1%, 5%, and 10% level respectively

## TABLE 2.2
**Tests For Differences In Market Reaction By Market Phase**
(Using Post-Event Parameter Estimates).

**Abnormal Returns Around Dividend Increase Announcements**

| Market Phase | Mean *SAR* | t-value For Difference | Sample Size | Avg. Yield Increase(%) |
|---|---|---|---|---|
| Bull (combined) | 0.366 | 1.8064** | 958 | 0.197 |
| Bear (combined) | 0.457 | | 1476 | 0.162 |

**Abnormal Returns Around Dividend Decrease Announcements**

| Market Phase | Mean *SAR* | t-value For Difference | Sample Size | Avg. Yield Decrease(%) |
|---|---|---|---|---|
| Bull (combined) | -1.242 | 1.398* | 219 | -0.379 |
| Bear (combined) | -0.914 | | 104 | -0.401 |

***, **, and * significant at the 1%, 5%, and 10% level respectively

*BETA* is the *SIMM* beta for either the pre-event or post-event period. GW argue that *BETA* can be interpreted as a measure of future expected stock price movements with respect to the market. As a result, they argue high beta stocks should react more to dividend cuts than low beta stocks, because dividend cuts for high beta stocks may signal that management is pessimistic about prospects for cash flows or stock price in the near term. Therefore GW predict *BETA* to have a negative coefficient for dividend decreases. Extending GW's argument to dividend increase announcements, it follows that high beta firms should see a smaller reaction than low beta firms to a given dividend increase. Investors in high beta firms will a priori expect management to be more optimistic about future prospects, and will therefore expect strong dividend signals. Hence, high beta firms should react less to a given dividend increase announcement than low beta firms. Accordingly, we would expect *BETA* to also have a negative coefficient for dividend increases.

*RESVAR* is the *SIMM* residual variance for the pre or post-event 200-day estimation period. Grinblatt, Masulis and Titman (1984) argue that high residual variances are associated with firms possessing highly variable earnings patterns. It follows that high *RESVAR* firms are associated with a higher degree of uncertainty. Therefore, dividend change announcements should not be as surprising to shareholders of these firms, and we would expect the sign to be negative for dividend increases and positive with respect to dividend decreases.

*LOGSIZE* is the natural logarithm of the size of the firm, where size is defined as the total number of shares outstanding times the average price per share over the period $t_{-10}$ to $t_{-6}$ prior to the announcement date. GW contend that since smaller firms are less heavily followed by analysts, dividend change announcements by smaller firms will result in larger market surprises and should therefore lead to larger impacts on event study residuals. This implies a negative coefficient for *LOGSIZE* for increase announcements and a positive coefficient for dividend decrease announcements.

*BEARDUM* is a dummy variable that takes a value of 1 in bear market phases and 0 otherwise. If the amount of information transmitted by a dividend change is a function of market phase, the coefficient of *BEARDUM* should be positive for dividend increase announcements.

*BULLDUM* is a dummy variable with a value of one in bull market periods and 0 otherwise. Since we a priori expect a larger negative response to decrease announcements in bull markets, we expect the coefficient of this variable to be negative for dividend decrease announcements.

## Adjusting For Heteroscedasticity Using Generalized Least Squares

Since we have previously determined that the variance of the *SARs* is not homoscedastic with respect to market phase, standard *OLS* regressions with *SAR* as the dependent variable will result in inefficient parameter estimates. To mitigate this problem, a feasible generalized least squares (*FGLS*) model is estimated. When the functional form of the heteroscedasticity is known, the *GLS* estimator can be written in matrix form as:

Equation 7

$$\hat{\beta} = (X'\Omega^{-1}X)^{-1}X'\Omega^{-1}Y$$

In the most general case,

Equation 8

$$Var[\varepsilon_i] = \sigma_i^2 = \sigma^2\omega_i$$

and

Equation 9

$$\Omega = \begin{bmatrix} \omega_1 & 0 & 0 & \cdots & 0 \\ 0 & \omega_2 & & \cdots & 0 \\ 0 & & \ddots & & \vdots \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & 0 & \cdots & \omega_n \end{bmatrix}$$

In most empirical work, the true form of W is not known and must be estimated. Therefore, we employ a two-stage estimation process or *FGLS* approach.[1] In large samples, it can be shown that this approach is asymptotic to equation 7 above.

Separate models are estimated for dividend increases and dividend decreases respectively. The form of the individual models is:

Equation 10

$$SIFTAR_j = \alpha + \delta_1 PRCTYLD + \delta_2 BETA_j + \delta_3 RESVAR_j + \delta_4 LOGSIZE_j + \delta_5 BEARDUM_j + u_j$$

for dividend increase announcements and

Equation 11

$$SIFTAR_j = \alpha + \gamma_1 PRCTYLD + \gamma_2 BETA_j + \gamma_3 RESVAR_j + \gamma_4 LOGSIZE_j + \gamma_5 BEARDUM_j + u_j$$

for dividend decrease announcements. The dependent variable $SIFTAR_j$ is the two-day abnormal return for the *jth* security standardized by the standard error of the forecast, and *SIFTAR* and the individual independent variables are transformed using the two-stage estimation process. The regressions are run using combined data from all phase periods and the results are presented in Table 3.1 and Table 3.2.

For the dividend increase announcement results in Table 3.1, the independent variables *BETA*, *RESVAR*, *LOGSIZE* and *BEARDUM* have the predicted sign for both the pre-event and post-event estimations and are significant everywhere. *PRCTYLD* exhibits a negative sign which runs counter to our a priori assumption, but the coefficient is insignificant. It is clear from these regressions that the securities in the sample exhibit a much stronger positive reaction to dividend increase announcements in bear markets than they do in bull markets after controlling for other relevant variables. This is consistent with our original hypothesis and also with the *ICH*.

The dividend decrease announcement results in Table 3.2 show *BETA*, *RESVAR*, *LOGSIZE*, and *BULLDUM* to have the expected sign, but only *BULLDUM* is significant in both cases. *BETA* and *RESVAR* are significant in the pre-event case only, and *LOGSIZE* is not significant in either case. *PRCTYLD* is again the only variable which violates our *a priori* expectations with respect to sign, and in this case the coefficient is significant. One explanation for this result is that large dividend cuts may be more likely to be anticipated by investors than small decreases, thereby causing a smaller negative reaction. The results of these regressions strongly suggest that security prices react more to dividend decrease announcements which run counter to market cycle, after controlling for other confounding effects. This again supports our original hypothesis and the *ICH*.

## CONCLUSIONS

The results of this study support our initial hypothesis that investor expectation, and therefore the amount of the information conveyed by dividend change announcements, varies with respect to market phase. The differences between market phases are found to be significant for both dividend increase announcements (good news) and dividend decrease announcements (bad news). Additionally, the conclusions are the same for both the statistical tests and cross-sectional regressions.

Beyond providing evidence consistent with the *ICH*, these results have important implications for event studies. Based on our findings, good news and bad news are perceived differently with respect to market phase. The confounding influence of market phase on dividend change announcements has obvious implications for research design in dividend studies, especially where clustering is problematic. It is also reasonable to expect that the influence of market phase extends to other types of “events” which are interpreted as good news or bad news by the market.

1. For a detailed description of the estimation process see Greene (1990), pp.407-410.

## TABLE 3.1
**_FGLS_ Regression Results For All Yield Increase Announcements, Using Pre-Event And Post-Event Estimates For Standardized Abnormal Returns (N=2423)**

$$SIFTAR = \alpha + \delta_1 PRCTYLD + \delta_2 BETA + \delta_3 RESVAR + \delta_4 LOGSIZE + \delta_5 BEARDUM + u$$

| VARIABLE | Parameter Estimates (Standard Error) | |
|---|---|---|
| | Results Using Pre-Event Betas | Results Using Post-Event Betas |
| ***INTERCEPT*** | 1.9702<br>(0.2316)*** | 1.7647<br>(0.2141)*** |
| ***PRCTYLD*** | -0.0185<br>(0.0333) | -0.0214<br>(0.0271) |
| ***BETA*** | -0.2062<br>(0.0652)*** | -0.1531<br>(0.0568)*** |
| ***RESVAR*** | -84.5569<br>(54.6516)* | -117.8495<br>(35.3099)*** |
| ***LOGSIZE*** | -0.1110<br>(0.01692)*** | -0.0966<br>(0.0159)*** |
| ***BEARDUM*** | 0.1218<br>(0.0569)** | 0.1598<br>(0.0582)*** |
| | $R^2_{adjusted}$=0.1150; F=53.469 | $R^2_{adjusted}$=0.1160; F=53.997 |

***, **, and * significant at the 1%, 5%, and 10% level respectively

## REFERENCES


[1] Alexander, G.J. and R.D. Stover, "Consistency of Mutual Fund Performance During Varying Market Conditions," ***Journal of Economics and Business***, Spring 1980, pp. 219-226.

[2] Benesh, G.A., A.J. Keown and J.M. Pinkerton, "An Examination of Market Reaction to Substantial Shifts in Dividend Policy," ***Journal of Financial Research***, 1984, pp.131-140.

[3] Brown, S.J. and J.B Warner, "Using Daily Stock Returns, the Case of Event Studies", ***Journal of Financial Economics***, 1985, pp.3-31.

[4] Charest, G., "Dividend Information, Stock Returns and Market Efficiency-II," ***Journal of Financial Economics***, 1978, pp.297-330.

[5] Dielman, T.E. and H.R. Oppenheimer, "An Examination of Investor Behavior During Periods of Large Dividend Changes," ***Journal of Financial and Quantitative Analysis***, June 1984, pp.197-216.

**TABLE 3.2**
**FGLS Regression Results For All Yield Decrease Announcements, Using Pre-Event and Post-Event Estimates For Standardized Abnormal Returns (n=315)**

$$SIFTAR = \alpha + \gamma_1 PRCTYLD + \gamma_2 BETA + \gamma_3 RESVAR + \gamma_4 LOGSIZE + \gamma_5 BULLDUM + u$$

| VARIABLE | Parameter Estimates (Standard Error) | |
|---|---|---|
| | Results Using Pre-Event Betas | Results Using Post-Event Betas |
| *INTERCEPT* | -1.3298<br>(0.8294) | -1.4481<br>(0.8981) |
| *PRCTYLD* | 0.9310<br>(0.4599)** | 1.1867<br>(0.4747)** |
| *BETA* | -0.7656<br>(0.1890)*** | -0.1376<br>(0.2342) |
| *RESVAR* | 289.1898<br>(91.9506)*** | 8.5126<br>(188.7661) |
| *LOGSIZE* | 0.1082<br>(0.0670) | 0.1039<br>(0.0701) |
| *BULLDUM* | -0.2797<br>(0.1598)* | -0.2714<br>(0.1581)* |
| | $R^2_{adjusted}$=0.2633; F=19.766 | $R^2_{adjusted}$=0.2690; F=20.317 |

***, **, and * significant at the 1%, 5%, and 10% level respectively

[6] Dukes, W.P., O.D. Bowlin and S.S. MacDonald, “The Performance of Beta in Forecasting Portfolio Returns in Bull and Bear Markets using Alternative Market Proxies,” ***Journal of Quarterly Business and Economics***, Spring 1987, pp.89-103.

[7] Eades, K.M., P.S. Hess and E.H. Kim, “Market Rationality and Dividend Announcements,” ***Journal of Financial Economics***, 1985, pp.581-604.

[8] Fabozzi, F.J. and J.C. Francis, “Stability Tests for Alphas and Betas Over Bull and Bear Market Conditions,” ***Journal of Finance***, September 1977, pp. 1093-1099.

[9] Ghosh, C. and R. Woolridge, “An Analysis of Shareholder Reaction, Reaction to Dividend Cuts and Omissions,” ***Journal of Financial Research***, Winter 1988, pp.281-294.

[10] Gooding, A.E. and T.P. O’Malley, “Market Phase and the Stationarity of Beta,” ***Journal of Financial and Quantitative Analysis***, December 1977, pp.833-857.

[11] Greene, William H., ***Econometric Analysis***, MacMillan Publishing Company, New York, 1990.

[12] Kim, M.K. and J.K. Zumwalt, “An Analysis of Risk in Bull and Bear Markets,” ***Journal of Financial and Quantitative Analysis***, December 1979, pp.1010-1025.

[13] Klein, A. and J. Rosenfeld, “The Influence of Market Conditions on Event Study Residuals,” ***Journal of Quantitative and Financial Analysis***, September 1987, pp.345-351.

[14] Kolb, R.W. and R.J. Rodriguez, “Is the Distribution of Beta Stationary?” ***Journal of Financial Research***, Winter 1990, pp. 279-283.

[15] Miller, M., “Can Management Use Dividends to Influence the Value of the Firm?” ***Issues in Corporate Finance***: Stern Stewart Putnam and Macklis Ltd., New York, 1980, pp.136-140.

[16] Miller, M., and F. Modigliani, “Dividend Policy and the Valuation of Shares,” ***Journal of Business***, October 1961, pp. 411-433.

[17] Peterson, P.P., “Event Studies: A Review of Issues and Methodology,” ***Quarterly Journal of Business and Economics***, 1989, pp.36-66.

[18] Woolridge, J.R., “The Information Content of Dividend Changes,” ***Journal of Financial Research***, Fall 1982, pp. 237-247.