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The role of mid-year dividends as predictors of yearly earnings

Warwick Anderson

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Department of Economics and Finance

College of Business and Economics

University of Canterbury

Private Bag 4800, Christchurch

New Zealand

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Abstract: New Zealand joint dividend and earnings announcement data is used to corroborate an aspect of dividend signalling espoused by Miller and Rock (1985). This is, that dividends announced within the course of a company's financial year may be interpreted by investors as a signal about the quality of its annual earnings, even when interim earnings figures are published. This is because interim earnings figures may thought to be less trustworthy than annual ones. Given that firms listed on the New Zealand stock Exchange are required to furnish half-yearly financial reports, and that these reports disclose both EPS and dividend information, the simultaneity and semi-annual frequency of New Zealand company EPS and DPS information provide a natural test of differences between investor reactions to within-year and end-of-year announcement data with respect to Miller and Rock's contention.

Key words: Event Study, Dividend Signalling

JEL Classification: G14

1. College of Business and Economics, University of Canterbury, New Zealand.
Email: Warwick.anderson@canterbury.ac.nz

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The Role of mid-year dividends as predictors of yearly earnings

I. Introduction and Literature Review.

This paper builds on an aspect of the Miller and Rock (1985) model of dividend and investment behaviour by rational investors in an asymmetric information environment. Miller and Rock sought to account analytically for dividend signalling which was noted, but left unmodelled by Modigliani and Miller (1961). In particular, Miller and Rock argued (p. 1047) that interim earnings figures that are announced (say) from quarter to quarter, are imperfect estimates formulated according to GAAP of the real thing, leaving "management considerable discretion as to the precise figure to be reported". This is also true of reported annual earnings figures; but perhaps investors have a mindset that codifies company performance on a year-to-year basis. Inside that year-to-year format, we will show that investors do make use of dividend disclosures in formulating their views of what a firm's end-of-year earnings are likely to be, even when these interim dividend disclosures are made simultaneously with interim earnings disclosures. Hence a larger, more significant investor reaction (measured in abnormal return performance) is found on mid-year dividend announcements made jointly with mid-year earnings announcements than on year-end dividends announced jointly with full-year earnings, with the dividend effect dominating at the mid-year. These results are furnished from mid-year and year-end joint dividend and earnings disclosures by companies to the New Zealand Stock Exchange (NZX) 1990-2009. New Zealand data is used because the semi-annual nature of financial disclosures to the NZX provides a natural experiment that can be performed with market model methodology with a sufficiently long estimation period. By contrast, dividend announcements tend to be made on a quarterly basis in the U.S., which severely limits the length of each observation's estimation period. Further, dividend and earnings announcements are made jointly in New Zealand (as is the case in Australia and in the United Kingdom). This provides an opportunity to make a direct assessment of the influence of the dividend component relative to that of the earnings component in the joint announcements; and this means that the relative importance of dividend news in mid-year disclosures can be compared with its impact in end-of-year announcements.

There is now an extensive literature on dividends and dividend policy. Four early influential papers were Lintner (1956), and Darling (1957) who established a link between dividend policy and past and current earnings, Miller and Modigliani (1961) who provided a model of dividend

irrelevance to firm valuation, and Gordon (1962) who came up with a model of firm valuation based on the present value of future dividends. It was Miller and Modigliani (1961), however, that first commented, in a footnote, on the possibility of dividend announcements as signals. Although employing the market model on earnings data rather than dividend data in the first event study paper to be published, Ball and Brown (1968, pp.160-177) said several things cogent to concept of signalling:

> *Net income is an aggregate of components which are not homogeneous. It is thus alleged to be a "meaningless" figure, not unlike the difference between twenty-seven tables and eight chairs.*
>
> And :
>
> *Since the efficiency of the capital market is largely determined by the adequacy of its data sources, we do not find it disconcerting that the market has turned to other sources which can be acted upon more promptly than annual net income.*

The idea of a dividend signal was taken up by Pettit (1972) who set out to determine with event study methodology if dividend announcements could be associated with the behaviour of ongoing monthly abnormal returns. Further work on the effect of dividend announcements was conducted by Watts (1973), Charest (1978) and Gonedes (1978). Divecha and Morse (1983) studied dividend increases and decreases. Asquith and Mullins (1983) looked at the impact of dividend initiations and omissions, and provided a succinct justification for research into dividend signalling. Their work on omissions was expanded upon by Healy and Palepu (1988).

The importance of Miller and Rock (1985) to the dividend literature was that they furnished a dividend signalling model which took account of the impact on investors of a positive net dividend (ie, dividend after reinvestment expenses). This was the second major model developed to explain the signalling function of dividends, the first being Bhattacharya (1979) who posited that the very cost of paying out dividends gave profitable firms the opportunity to distinguish themselves in the eyes of investors from firms that were not so profitable. Miller and Rock took the argument further by showing that the burden of cost would rise for a company signaling its level of earnings if and as the level of its actual earnings was going down. Even though managers could choose, in what was an asymmetric information environment, to signal earnings expectations either truthfully or mendaciously, the authors maintained that any signal would only be worth making if a firm was, in actual fact, profitable, since only then would the costs be worth the effort of preventing undervaluation of its share-price by investors. Conversely, the cost of

sending a false signal would end up further hurting any company whose profitability was inadequate to support it, and this would occur with the release of its next set of financial reports.

Other papers investigating the market reaction to changes in dividends include Aharony and Swary (1980), Woolridge (1982), Penman (1983), Benesh, Keown and Pinkerton (1984), Dielman and Oppenheimer (1984), Woolridge and Ghosh (1985), Eades, Hess and Kim (1985), Roy and Cheung (1985), Aharony, Falk and Swary (1988), and Fehrs, Benesh and Peterson (1988). From this point in time, the dividend signalling research agenda branched into so many sub-fields that brief coverage of who did what becomes infeasible. These fields include (but by no means exhaustively), the effect of company size, special dividends, company insiders, transaction volumes, volatility and risk, free cash flows and investment, leverage, taxation, inter- and intra-industry effects, and behavioural finance. In terms of further analytical modelling, John and Williams (1985) furnished another model incorporating taxes and new share issues. More recently, a catering theory of dividends has been developed by Baker and Wurgler (2004).

However, one modern branch in particular of the ever-branching body of dividend literature is immediately important to the current paper. The methodology we use entails separating the simultaneous effects of dividends and earnings announced jointly as is the normal disclosure practice in the United Kingdom, Australia and New Zealand. It was pioneered by Kane, Lee and Marcus (1984) who employed a set of dummy variables to model the interaction effect between the unexpected change in earnings and the unexpected change in dividend implied in an announcement event. They coded the earnings-dividend interaction in directional terms, given that earnings per share may rise or fall and a dividend may rise, fall or remain unchanged. They then employed restricted least squares regression. Subsequent users of this methodology include Emanuel (1984) on New Zealand data, Easton and Sinclair (1989) and Easton (1991) on Australian data, Leftwich and Zmijewski (1994) in the United States, and Lonie, Abeyratna, Power and Sinclair (1996) on British data.

The relevance of the current study lies in Miller and Rock's (1985) speculation (p. 1047) that interim earnings figures are imperfect estimates that might encourage investors to place reliance on a dividend signal at least partially in their place. It is this, in the context of joint dividend and earnings announcements made in New Zealand, we attempt to address. The paper is laid out as follows: methodology, data, results, conclusion and limitations.

II. Methodology.

Abnormal returns in this paper are generated by the market model. For each company "i" and day "t", log returns of daily closing prices, are compiled, where P_{it} is the closing price and R_{it} is the log return. The closing price series are adjusted for dividend payments and share splits.

$$R_{it} = \ln\left(\frac{P_{it}}{P_{it-1}}\right)$$

For every daily company log return there is a return on the market index, R_{Mt} for the same day:

$$R_{Mt} = \ln\left(\frac{P_{Mt}}{P_{Mt-1}}\right)$$

The set of observed returns, R_{it} is then used as regressand in a simple ordinary least squares regression on the series of log market returns, R_{Mt}. The parameters, alpha and beta generated from this regression, with respect to an estimation period data set, yield a market-risk-adjusted returns expectation, $E(R_{it})$, which can then be used to forecast expected returns in an immediately ensuing test period:

$$E\left(R_{it}\right) = \alpha + \beta_i\left(R_{Mt}\right)$$

Test period abnormal returns, AR_{it} are simply the observed return minus the above returns expectation:

$$AR_{it} = R_{it} - E\left(R_{it}\right)$$

An alternative measure is the cumulative abnormal return, CAR3day, which captures abnormal performance over a three-day span covering not just the day, but the previous and ensuing day as well, to build in some allowance for both extremely fast and relatively more slow uptake of the announcement news. CAR3day is merely the sum of AR_{it-1}, AR_{t0} and AR_{t+1}.

The New Zealand Stock Exchange requires listed companies to make at least two disclosures per company year of accounting position and performance. These are an "interim" set of financial reports covering the first half-year, and a "preliminary" set released shortly after the end of the company year that covers the full year's performance and record. Given that these disclosures, which contain information on dividends (DPS) and earnings (EPS), are published roughly six months apart, the market model estimation period is restricted to containing 101 trading days (

and thus 100 returns) starting 111 days before the day of the announcement. This allows for a test period of ten days before and ten days after the announcement day. This brings the total of required daily returns to 121 days of returns. For clarity from here onward, the "interim" announcement will be termed "mid-year", and the "preliminary" will be called the "year-end" announcement.

The two main variables gathered from announcements are percentage change in dividend (ΔDPS) and percentage change in earnings, ΔEPS. For each type of announcement (for instance mid-year), the percentage change is from the same announcement the previous company year. Because these are simple percentage changes, dividend initiations take on an infinite value. Therefore announcements of dividend initiations are dropped from the sample.

The second phase of the methodology entails employing the restricted least squares regression technique first used by Kane, Lee and Marcus (1984) and then by Easton and Sinclair (1989), Easton (1991) and Lonie, Abeyratna, Power and Sinclair (1996). Its purpose is to disentangle the interaction effects of joint dividend and earnings announcements.[i]

In this procedure, either AR_{it} or CAR3day is the dependent variable and percentage change in dividend and percentage change in earnings are employed as first-order independent variables. In addition, the possible interaction effects between these two first-order variables are modelled with dummies. Of the nine possible permutations of changes in direction of announced DPS and announced EPS, the six that make economic sense are:

DI-EI The "good news" case where the dividend increases with earnings also increasing;

DD-EI Dividend down with earnings increasing;

DI-ED Dividend increasing with earnings down;

DNC-EI No change in dividend while earnings increase;

DNC-ED No change in dividend while earnings go down;

DD-ED The "bad news" case when both the dividend and earnings decline.

Five of these DPS-EPS directional combinations are represented with a dummy each, with the bad-news case, DD-ED being left to be represented by the intercept term. A priori, we would expect the good-news and bad-news cases (first and last above) to be associated with a greater shift in the size of ARt_0 or CAR3day than in the remaining four cases where the two news items could be

expected to dampen each other. The formal structure of the restricted least squares model is as follows:

$$(i) \quad CAR3day = \alpha + \beta_1 \Delta DPS + \beta_2 \Delta EPS + \beta_3 D_1 + \beta_4 D_2 + \beta_5 D_3 + \beta_6 D_4 + \beta_7 D_5$$

$$(ii) \quad CAR3day = \alpha + \beta_1 \Delta DPS + \beta_2 \Delta EPS$$

$$(iii) \quad CAR3day = \alpha + \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \beta_4 D_4 + \beta_5 D_5$$

In this set of three linked equations, the good-news combination (DI-EI) is represented by D_1, and the dummies D_2 to D_5 model the remaining four combinations in the order given in the list above.

The first of the three regression runs is an unrestricted regression containing all of the independent variables, while the other two contain restrictions. In regression (ii) the interaction dummies are left out, while regression (iii) is restricted to just being run on the dummies alone. The joint significance of the first order variables is measured by a first-order F-statistic calculated from the residual sums of squares of regressions (i) and (iii):

$$F_{FIRST\ ORDER} = \frac{\left(\frac{RSS_{RESTRICTED(EQN(iii))} - RSS_{UNRESTRICTED}}{m_{EQN(iii)}} \right)}{\left(\frac{RSS_{UNRESTRICTED}}{(N-K)} \right)}$$

In this formulation, m is the degrees of freedom associated with regressors omitted from equation (iii), N the number of observations and K the number of degrees of freedom lost in the unrestricted regression. The joint significance of the interaction variables is similarly measured from the residual sums of squares from regressions (i) and (ii):

$$F_{INTERACTION} = \frac{\left(\frac{RSS_{RESTRICTED(EQN(ii))} - RSS_{UNRESTRICTED}}{m_{EQN(ii)}} \right)}{\left(\frac{RSS_{UNRESTRICTED}}{(N-K)} \right)}$$

However, initially two reduced-form versions of the restricted least squares procedure will be used to investigate the influence of changes in dividend, holding earnings constant (in the manner of Easton and Sinclair (1989)) and then the influence of changes in earnings, holding dividend constant. These cut-down versions differ only in having fewer dummy variables.

III. Data.

The usable dataset consists of 634 pairs of mid-year and year-end joint dividend-and-earnings announcements made by companies listed on the New Zealand Stock Exchange between January 1990 and December 2009. All announcement data came from the New Zealand Stock Exchange Deep Archive. Company adjusted closing price data was sourced from Datastream, and where it was not available from Datastream, the NZX Deep Archive. In addition, a number of price series not available from either of these sources were furnished by the Investment Research Group Ltd.

For a mid-year announcement observation to be present in the dataset, the year-end announcement for the same company year must also be present – and vice versa. Thus, in one respect the data is matched data. However, there was no requirement that the mid-year observation should be of the same nature as the year-end observation (ie both be DI-EI observations, or DNC-ED observations).

All observations had to have an estimation period that was free of any preceding dividend-and-earnings announcement event. This factor determined the choice of a 100-day estimation period for the market model.

The observations for the ten years to the end of 1999 have been cleaned of a number of possible confounding influences. If any of the following types of announcement were made inside a candidate observation's test period, then the observation was dropped from the sample:

1. Special dividends
2. Announcements of changes in debt
3. Share buybacks
4. Earnings forecasts
5. Bonus shares
6. Rights issues
7. Options
8. Impending take-overs
9. Company revaluations
10. Revisions of erroneous data in an announcement
11. NZX requiring a company to explain unusual changes in share-price

The data gathered for the decade 2000 to 2009 has so far been cleaned only of instances of special dividends. This may mean a contraction in size of the study's eventual dataset.

IV. Results.

Table 1 provides a set of counts of announcement events sorted by dividend-and-earnings news category. Each category in the table gives rise to a table of abnormal returns and a related figure,

in the Appendices. Also in the appendices are a series of 11 figures showing the behaviour of abnormal returns, sorted into the above categories, in the test period. The figures contrast the mid-year characteristics with those of the year-end. Whenever an abnormal return is significant at the five percent or smaller level, that point in the figure is circled.

Table 1.
Summary of announcement characteristics.

Announcement Characteristic	Mid-year	Year-end	Total
Rising EPS (Dividends held constant)	396	376	772
Falling EPS (Dividends held constant)	238	258	496
Rising DPS (Earnings held constant)	385	393	778
Falling DPS (Earnings held constant)	108	122	230
No change in DPS (EPS held constant)	141	119	260
DI-EI	191	203	394
DD-ED	117	146	263
DD-EI	32	31	63
DI-ED	40	60	100
DNC-EI	106	76	182
DNC-ED	148	118	266

Table 2 furnishes a first view of the pattern of abnormal returns from the test period. Because there is no differentiation of AR by announcement type, we would not expect to see any pattern over the 21 days of the test period. Nevertheless, on day t_0, the day of the announcement, significant AR is found, both at the mid-year and at the end of the year.

The three-day event window is delineated by vertical dashed lines. It is noteworthy that market reactions are generally stronger for the mid-year series than for the year-end. The exceptions to this are associated with cases of dividend increases.

The next step is to see how the restricted least squares regression results relate movements in abnormal returns and three-day cumulative abnormal returns to the nature of the dividend and earnings announcements in terms of the two first order variables and the six direction-of-change variables

Table 2.

Abnormal Return characteristics - all dividend and earnings types undistinguished.

Mid Year																					
Day	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
Mean	0.000	-0.001	-0.001	0.000	-0.001	-0.001	0.000	0.000	-0.002	-0.001	-0.004	-0.001	-0.001	-0.004	-0.001	0.000	-0.001	0.000	-0.001	0.000	0.000
Min	0.258	0.142	0.175	0.115	0.197	0.259	0.325	0.245	0.101	0.086	0.218	0.242	0.210	1.385	0.189	0.108	0.099	0.153	0.100	0.183	0.107
Max	0.189	0.188	0.086	0.141	0.122	0.285	0.211	0.121	0.128	0.171	0.116	0.245	0.167	0.097	0.128	0.081	0.093	0.141	0.202	0.219	0.073
Stdev	0.022	0.020	0.019	0.018	0.021	0.028	0.021	0.021	0.019	0.020	0.039	0.034	0.027	0.059	0.021	0.017	0.018	0.021	0.022	0.021	0.017
% Positive	49%	49%	47%	51%	49%	47%	48%	52%	47%	50%	49%	49%	51%	46%	48%	48%	47%	50%	49%	53%	50%
n	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634
h	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
p	0.809	0.109	0.070	0.546	0.535	0.250	0.937	0.777	0.029	0.292	0.014	0.279	0.254	0.127	0.134	0.654	0.186	0.771	0.433	0.835	0.871
t-stat	-0.242	-1.607	-1.816	-0.604	-0.621	-1.152	-0.079	-0.283	-2.195	-1.054	-2.460	-1.084	-1.143	-1.530	-1.502	-0.448	-1.323	-0.292	-0.785	-0.209	-0.162
Year End																					
Mean	0.000	-0.001	-0.002	0.000	-0.002	0.000	0.000	-0.001	0.000	-0.002	-0.007	-0.004	-0.002	0.000	0.000	-0.001	0.000	-0.001	-0.001	-0.001	0.000
Min	0.130	0.104	0.096	0.108	0.121	0.239	0.184	0.100	0.107	0.086	0.359	0.250	0.158	0.090	0.127	0.080	0.381	0.138	0.137	0.083	0.188
Max	0.286	0.111	0.085	0.129	0.186	0.188	0.098	0.184	0.094	0.200	0.452	0.224	0.276	0.121	0.091	0.160	0.157	0.237	0.148	0.092	0.204
Stdev	0.022	0.018	0.018	0.018	0.020	0.020	0.019	0.019	0.017	0.021	0.045	0.036	0.026	0.019	0.019	0.020	0.024	0.021	0.018	0.017	0.022
% Positive	50%	53%	54%	49%	54%	52%	50%	51%	50%	51%	58%	54%	50%	48%	51%	50%	53%	51%	51%	55%	49%
n	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634
h	0	0	1	0	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0
p	0.969	0.274	0.018	0.736	0.002	0.544	0.620	0.161	0.510	0.044	0.000	0.016	0.066	0.746	0.596	0.359	0.913	0.371	0.433	0.105	0.711
t-stat	-0.039	1.095	2.365	-0.337	3.058	0.607	-0.496	1.404	-0.659	2.016	4.039	2.418	1.844	0.324	0.530	0.917	0.109	0.896	-0.784	1.621	0.370

***RLS Regression Results on Earnings changes Only (Dividends held constant)*:**
In

Table 3, dividends are held constant while earnings are sorted into rising EPS handled by the dummy and falling EPS, modelled in the intercept. Both rising and falling EPS are significant in mid-year (Int) announcements generally, but only rising earnings retain their statistical significance with respect to year-end announcements. The first-order variables ΔDPS and ΔEPS remain insignificant in both periods, as indicated by the insignificance of the fist-order F-statistic at the bottom of the table. The item of real interest in this preliminary table is the drop in size of the interaction F-statistic from 17.36 in the mid-year to 3.47 at the year-end. This, in conjunction with the reduction in size of the coefficients of both rising and falling earnings direction variables indicates that investor reaction to year-end announcements is more muted than the reaction at mid-year.

Table 3 RLS Regression ignoring dividend change (CAR3day)

Regressand	**CAR3day**		
	All Obs.	**Int**	**Fin**
Coefficient (p-Values)			
Falling earnings (INTERCEPT)	-0.00597 (0.0103)	-0.01621 (0.0000)	0.00562 (0.1165)
ΔEPS	-0.00033 (0.7467)	-0.0006 (0.5786)	0.001239 (0.5736)
ΔDPS	0.000218 (0.1745)	-0.00011 (0.7298)	0.000167 (0.3817)
Rising earnings	0.02136 (0.0000)	0.02733 (0.0000)	0.014278 (0.0086)
Observations Count R^2 Statistics, F-Statistics and p-Values			
N	1268	634	634
Adj $R^2_{UNRESTRICTED}$	0.0289	0.0497	0.0120
Adj $R^2_{EQUATION\ (ii)}$	0.0016	-0.0012	0.0027
Adj $R^2_{EQUATION\ (iii)}$	0.0290	0.0521	0.0133
$F_{UNRESTRRICTED}$	13.584 (0.0000)	12.041 (0.0000)	3.5649 (0.0140)
$F_{EQUATION\ (ii)}$	2.0406 (0.1304)	0.63167 (0.5320)	1.8545 (0.1574)
$F_{EQUATION\ (iii)}$	38.83 (0.0000)	35.782 (0.0000)	9.5457 (0.0021)
$F_{FIRST\ ORDER}$	0.9692 (0.3797)	0.2107 (0.8100)	0.5789 (0.5608)
$F_{INTERACTION}$	18.2587 (0.0000)	17.3623 (0.0000)	3.4731 (0.0316)

This pattern is loosely repeated when ARt_0 is used as the regressand in **Error! Not a valid bookmark self-reference.** below. With this dependent variable, the interaction variables generate significant coefficients in the mid-year, which diminish in size and become insignificant at the year end, while ΔEPS remains insignificant in both periods. However, ΔDPS becomes strongly significant at the year end, causing the first-order F-statistic (3.46) to become significant at the five percent level. There is a large drop in the size of the interaction F-statistic from a highly significant 22.89 to an insignificant 1.42. Again the pattern is that of a very large F-statistic in the mid-year being muted at year-end.

Table 4 RLS Regression ignoring dividend change (day zero ARs).

Regressand	ARt0		
	All Obs.	Int	Fin
Coefficient (p-Values)			
Falling earnings (INTERCEPT)	-0.00558 (0.0008)	-0.01329 (0.0000)	0.003101 (0.2372)
ΔEPS	2.76E-05 (0.9694)	-0.00023 (0.7564)	0.001157 (0.4738)
ΔDPS	0.000339 (0.0032)	5.16E-06 (0.9818)	0.000328 (0.0192)
Rising earnings	0.014445 (0.0000)	0.021544 (0.0000)	0.00672 (0.0911)
Observations Count R^2 Statistics, F-Statistics and p-Values			
N	1268	634	634
Adj $R^2_{UNRESTRICTED}$	0.0317	0.0674	0.0115
Adj $R^2_{EQUATION\ (ii)}$	0.0073	0.0011	0.0086
Adj $R^2_{EQUATION\ (iii)}$	0.0266	0.0702	0.0048
$F_{UNRESTRRICTED}$	14.841 (0.0000)	16.239 (0.0000)	3.463 (0.0161)
$F_{EQUATION\ (ii)}$	5.6727 (0.0035)	1.3442 (0.2615)	3.7514 (0.0240)
$F_{EQUATION\ (iii)}$	35.574 (0.0000)	48.768 (0.0000)	4.0548 (0.0445)
$F_{FIRST\ ORDER}$	4.4026 (0.0124)	0.0481 (0.9530)	3.1570 (0.0432)
$F_{INTERACTION}$	16.4325 (0.0000)	22.8851 (0.0000)	1.4194 (0.2426)

RLS Regression Results on Earnings changes Only (Dividends held constant):

The restricted least squares procedure is now altered to keep earnings constant, and allow changes in the direction of announced dividends to vary. In Table 5, where three-day CARs are the dependent variable, the two first-order variables, ΔDPS and ΔEPS remain insignificant at both announcement times, while all three possible directions of change (upward, downward and nil) of announced dividend are strongly significant in the mid-year. The coefficients of all three drop in absolute size and become insignificant in year-end announcements (Fin). Surprisingly, the interaction F-statistic for the year-end (3.14) is significant at the five percent level of error; but the drop in magnitude from the strongly significant interaction F-statistic from the mid-year (14.26) is again apparent.

Table 5. Regression ignoring earnings change (CAR3day)

Regressand	CAR3Day		
	All Obs.	Int	Fin
Coefficient (p-Values)			
Falling dividend (INTERCEPT)	-0.01143 (0.0039)	-0.03034 (0.0000)	0.006176 (0.2824)
ΔEPS	0.001099 (0.2583)	0.001076 (0.3034)	0.002841 (0.1702)
ΔDPS	3.14E-05 (0.8508)	-0.00029 (0.3962)	-6.3E-06 (0.9744)
Rising Dividends	0.020154 (0.0000)	0.03097 (0.0000)	0.011455 (0.0904)
DNC	0.014517 (0.0073)	0.033659 (0.0000)	-0.00332 (0.6804)
Observations Count R^2 Statistics, F-Statistics and p-Values			
N	1268	634	634
Adj $R^2_{UNRESTRICTED}$	0.0150	0.0392	0.0094
Adj $R^2_{EQUATION\ (ii)}$	0.0016	-0.0012	0.0027
Adj $R^2_{EQUATION\ (iii)}$	0.0155	0.0395	0.0096
$F_{UNRESTRRICTED}$	5.8237 (0.0001)	7.4595 (0.0000)	2.5044 (0.0412)
$F_{EQUATION\ (ii)}$	2.0406 (0.1304)	0.63167 (0.5320)	1.8545 (0.1574)
$F_{EQUATION\ (iii)}$	10.998 (0.0000)	14.03 (0.0000)	4.0654 (0.0176)
$F_{FIRST\ ORDER}$	0.6610 (0.5165)	0.8994 (0.4074)	0.9462 (0.3888)
$F_{INTERACTION}$	9.5769 (0.0001)	14.2611 (0.0000)	3.1409 (0.0439)

With respect to announcement day abnormal returns in

Table **6** the pattern is reinforced. The dividend direction-of-change variables all remain strongly significant at the mid-year while lapsing into insignificance at the year-end. And again, the first–order variables are insignificant in both periods. This time, only the mid-year interaction F-statistic is significant, and there is a large drop-off from its value of 14.92 to the 2.50 of its year-end partner. Again this is evidence of a strong mid-year announcement response, but a lacklustre year-end announcement response.

Table 6. Regression ignoring earnings change (day zero ARs)

Regressand	ARt0		
	All Obs.	Int	Fin
Coefficient (p-Values)			
Falling dividends (INTERCEPT)	-0.00912 (0.0012)	-0.02242 (0.0000)	0.003004 (0.4747)
ΔEPS	0.000987 (0.1541)	0.001081 (0.1353)	0.001831 (0.2267)
ΔDPS	0.00021 (0.0778)	-0.00013 (0.5937)	0.000226 (0.1181)
Rising Dividends	0.013579 (0.0000)	0.022339 (0.0000)	0.006658 (0.1783)
DNC	0.009266 (0.0162)	0.023086 (0.0000)	-0.00341 (0.5621)
Observations Count R^2 Statistics, F-Statistics and p-Values			
N	1268	634	634
Adj $R^2_{UNRESTRICTED}$	0.0191	0.0433	0.0133
Adj $R^2_{EQUATION\ (ii)}$	0.0073	0.0011	0.0086
Adj $R^2_{EQUATION\ (iii)}$	0.0167	0.0425	0.0104
$F_{UNRESTRRICTED}$	7.1683 (0.0000)	8.1608 (0.0000)	3.1368 (0.0143)
$F_{EQUATION\ (ii)}$	5.6727 (0.0035)	1.3442 (0.2615)	3.7514 (0.0240)
$F_{EQUATION\ (iii)}$	11.758 (0.0000)	15.046 (0.0000)	4.3295 (0.0136)
$F_{FIRST\ ORDER}$	2.5486 (0.0786)	1.2619 (0.2838)	1.9400 (0.1446)
$F_{INTERACTION}$	8.5877 (0.0002)	14.9177 (0.0000)	2.5048 (0.0825)

Restricted Least Squares Results with Six Dividend and Earnings Directional Permutations

The findings thus far are again reinforced in this analysis. Again the first order variables, ΔDPS and ΔEPS remain insignificant in both timeslots when CAR3day is the three linked regressions' dependent variable.

Table 7. Full RLS regression results with five dummy variables

	CAR3day Mid-year	CAR3day Year-end	ARt_0 Mid-year	ARt_0 Year-end
Panel A: Unrestricted Regression Coefficients (p-values)				
Intercept (DD-ED)	-0.0324 (0.0000)	0.0007 (0.8907)	-0.0257 (0.0000)	-0.0001 (0.9771)
DDPS	-0.0003 (0.3994)	0.0002 (0.3786)	-0.0001 (0.5901)	0.0003 (0.0186)
DEPS	-0.0002 (0.8394)	0.0013 (0.5369)	0.0001 (0.8849)	0.0010 (0.5249)
DI-EI	0.0467 (0.0000)	0.0240 (0.0007)	0.0364 (0.0000)	0.0137 (0.0084)
DD-EI	0.0253 (0.0231)	0.0007 (0.9520)	0.0185 (0.0152)	0.0006 (0.9483)
DI-ED	0.0355 (0.0004)	0.0188 (0.0509)	0.0298 (0.0000)	0.0074 (0.2965)
DNC-EI	0.0396 (0.0000)	0.0093 (0.2950)	0.0286 (0.0000)	0.0052 (0.4236)
DNC-ED	0.0181 (0.0077)	0.0028 (0.7199)	0.0149 (0.0014)	0.0021 (0.7067)
Panel B: Unrestricted Regression Statistics				
N	634	634	634	634
Degrees of Freedom	626	626	626	626
R^2	0.0907	0.0314	0.1126	0.0260
F Stat	8.9201	2.8983	11.3480	2.3888
(p-value)	(0.0000)	(0.0055)	(0.0000)	(0.0204)
$Sigma^2$	0.0030	0.0038	0.0014	0.0020
Panel C: Restricted Least Squares Statistics				
$F_{FIRST\ ORDER}$	0.3692 (0.6914)	0.5981 (0.5502)	0.1539 (0.8574)	3.0259 (0.0492)
$F_{INTERACTION}$	12.2099 (0.0000)	3.3016 (0.0060)	15.2890 (0.0000)	1.8303 (0.1049)

However, when ARt_0 becomes the regressand, the year-end ΔDPS coefficient increases in size and become significant at the five percent level of error. The year-end first-order F-statistic (3.03) also becomes significant at the five percent level of error as a consequence. In all four regression procedures reported in the table, the DI-EI combination remains strongly significant; but the mid-year coefficient values are approximately double their year-end counterparts. Much more noteworthy is that every dividend-and-earnings change permutation is strongly significant in the two columns of mid-year results, and this parlays through to mid-year interaction F-statistics (12.21 and 15.29) that are both significant at lower than the one percent level of error. The carry-

through of a significant DI-EI effect into the CAR3day year-end result muddies the waters a bit by causing that procedure's interaction F-statistic also to strongly significant, but it is to be noted that the value of the F-statistic itself (3.30) is a mere quarter of the size (or less) than the mid-year interaction F-statistics bracketing it. However, the overall results are the same as in the previous tables: there is a much stronger association between the independent variables and the regressand at the mid-year than at year-end. This implies that traders are reacting more strongly to mid-year announcement data than they do to that of the year-end.

V. Conclusions and limitations.

This paper set out to investigate the strength of market reactions to dividend signals associated with mid-year announcements relative to those at year-end. This accords with Miller and Rock's (1985) speculation that interim earnings information is not trusted as being as reliable as the information published at the end of the year for the full year. This would certainly ring true with firms whose reported earnings are based on accounting projections rather cash already received and banked. Nevertheless, annual earnings figures will also be based on accrual accounting. It would just appear that traders may place more reliance on the year-end earnings figures.

That being said, the paper has furnished evidence that an increase in dividends is associated with heightened abnormal return performance at the end of a firm's year. This is unlikely to have much to say about the year just passed, and may be forward-looking with respect to the next year's earnings projections. However, consideration of that is beyond the scope of this paper.

There are a number of limitations that will be addressed in future drafts. In the first instance, it would be strengthened by consideration of the "catering theory" dividend premium explored by Baker and Wurgler (2004). This is especially so given that the data set covers a twenty-year span. The results could also be corroborated by the employment of an alternative method of generating expected and abnormal returns. To that end, a version of the Fama and French three-factor model is a possible candidate. Some consideration also could and should be given to thinness of trading by some of the companies currently gathered up in the data set.

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Table A1. Abnormal Returns over the Test Period - Earnings increase.

Panel A: Mid Year

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	396	396	396	396	396	396	396	396	396	396	396	396	396	396	396	396	396	396	396	396	396
Min	-0.060	-0.142	-0.094	-0.062	-0.120	-0.259	-0.068	-0.063	-0.098	-0.078	-0.202	-0.242	-0.174	-1.385	-0.092	-0.063	-0.068	-0.116	-0.082	-0.106	-0.078
Max	0.080	0.065	0.086	0.141	0.076	0.132	0.059	0.121	0.128	0.101	0.116	0.245	0.149	0.059	0.106	0.060	0.093	0.125	0.089	0.219	0.073
Mean	0.000	-0.001	-0.002	0.000	-0.001	-0.001	0.000	0.000	0.000	0.000	0.002	0.001	-0.001	-0.004	-0.001	-0.001	-0.001	0.000	-0.001	0.001	0.000
% +ve	45%	47%	44%	48%	46%	45%	45%	51%	48%	46%	53%	50%	50%	46%	46%	44%	44%	47%	46%	50%	48%
St Dev	0.015	0.017	0.017	0.017	0.018	0.024	0.014	0.017	0.018	0.017	0.033	0.032	0.022	0.071	0.017	0.014	0.016	0.018	0.017	0.019	0.014
t-test	-0.154	-1.022	-1.785	-0.438	-0.722	-0.450	-0.501	0.443	0.315	0.086	1.246	0.343	-0.998	-1.111	-1.197	-0.950	-1.132	-0.277	-0.758	0.529	0.669
p-value	0.878	0.307	0.075	0.662	0.471	0.653	0.617	0.658	0.753	0.932	0.214	0.731	0.319	0.267	0.232	0.343	0.258	0.782	0.449	0.597	0.504

Panel B: Year End

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376
Min	-0.078	-0.061	-0.096	-0.061	-0.057	-0.050	-0.078	-0.069	-0.107	-0.071	-0.111	-0.131	-0.158	-0.063	-0.122	-0.067	-0.080	-0.094	-0.095	-0.079	-0.188
Max	0.079	0.092	0.085	0.058	0.125	0.065	0.055	0.084	0.094	0.124	0.187	0.133	0.208	0.081	0.051	0.090	0.157	0.145	0.091	0.090	0.077
Mean	-0.001	0.000	0.002	0.000	0.001	0.002	0.000	0.000	-0.001	0.002	0.012	0.006	0.001	0.000	0.000	0.001	0.001	0.000	-0.001	0.001	0.000
% +ve	51%	51%	55%	47%	50%	51%	52%	47%	47%	52%	60%	56%	48%	49%	47%	49%	50%	47%	47%	53%	47%
St Dev	0.016	0.016	0.016	0.015	0.015	0.013	0.014	0.015	0.016	0.019	0.038	0.027	0.023	0.016	0.016	0.016	0.017	0.017	0.016	0.017	0.019
t-test	-0.921	0.471	2.829	0.090	1.011	2.405	0.584	0.087	-1.060	2.169	5.969	4.115	1.037	0.435	-0.338	0.622	1.102	0.459	-1.451	1.367	-0.477
p-value	0.358	0.638	**0.005**	0.928	0.313	**0.017**	0.559	0.931	0.290	**0.031**	**0.000**	**0.000**	0.300	0.664	0.735	0.534	0.271	0.647	0.148	0.172	0.633

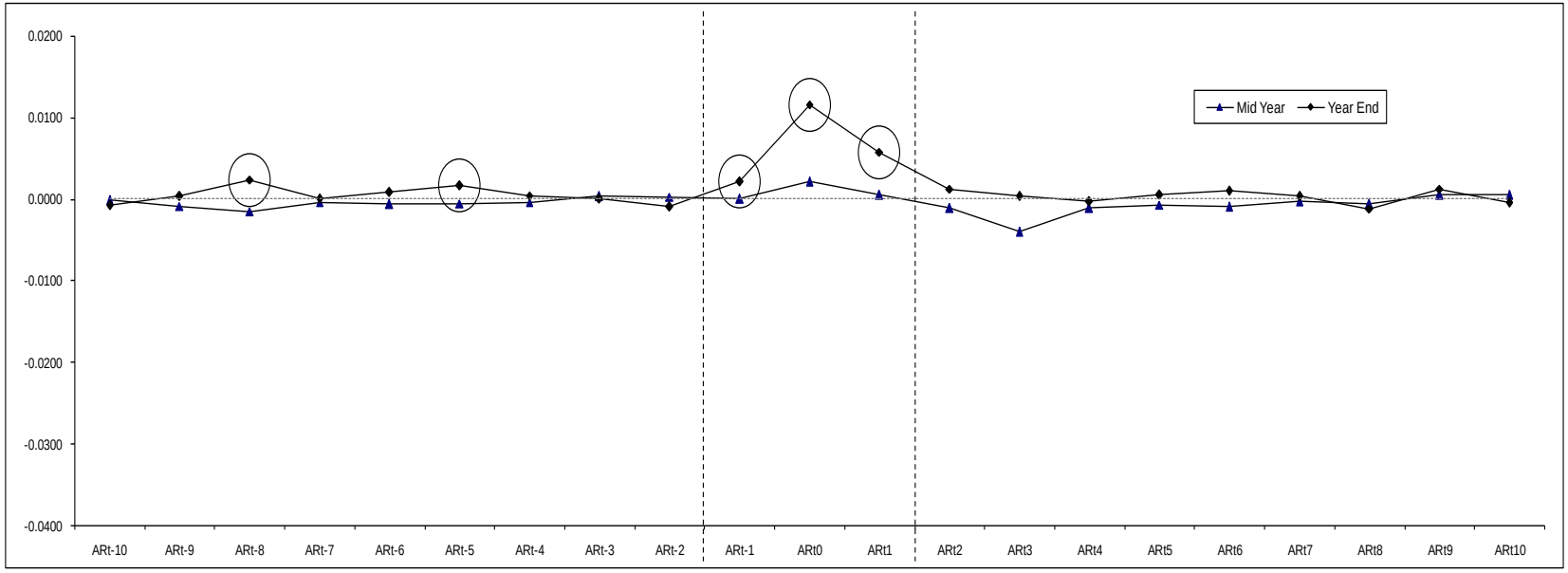

Figure A1. Mean Values of Abnormal Returns over the Test Period - Earnings increase.

Table A2. Abnormal Returns over the Test Period - Earnings Decrease.

Panel A: Mid Year

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238
Min	-0.258	-0.134	-0.175	-0.115	-0.197	-0.199	-0.325	-0.245	-0.101	-0.086	-0.218	-0.241	-0.210	-0.192	-0.189	-0.108	-0.099	-0.153	-0.100	-0.183	-0.107
Max	0.189	0.188	0.079	0.051	0.122	0.285	0.211	0.104	0.062	0.171	0.104	0.146	0.167	0.097	0.128	0.081	0.067	0.141	0.202	0.095	0.059
Mean	0.000	-0.002	-0.001	-0.001	0.000	-0.003	0.000	-0.001	-0.005	0.002	-0.014	-0.005	-0.001	-0.003	-0.002	0.000	-0.001	0.001	0.003	-0.001	-0.001
% +ve	55%	51%	52%	56%	54%	50%	54%	55%	46%	56%	44%	48%	53%	47%	52%	53%	53%	55%	53%	58%	53%
St Dev	0.030	0.024	0.023	0.020	0.025	0.034	0.030	0.027	0.019	0.024	0.046	0.036	0.035	0.030	0.025	0.021	0.020	0.025	0.028	0.023	0.020
t-test	-0.189	-1.241	-0.798	-0.415	-0.180	-1.152	0.214	-0.714	-3.864	1.370	-4.582	-2.013	-0.660	-1.524	-0.943	0.241	-0.726	0.661	1.586	-0.859	-0.849
p-value	0.851	0.216	0.426	0.678	0.858	0.250	0.831	0.476	**0.000**	0.172	**0.000**	**0.045**	0.510	0.129	0.347	0.810	0.468	0.509	0.114	0.391	0.397

Panel B: Year End

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258
Min	-0.130	-0.104	-0.096	-0.108	-0.121	-0.239	-0.184	-0.100	-0.072	-0.086	-0.359	-0.250	-0.116	-0.090	-0.127	-0.080	-0.381	-0.138	-0.137	-0.083	-0.104
Max	0.286	0.111	0.082	0.129	0.186	0.188	0.098	0.184	0.080	0.200	0.452	0.224	0.276	0.121	0.091	0.160	0.071	0.237	0.148	0.092	0.204
Mean	0.001	0.001	0.001	-0.001	0.005	-0.001	-0.002	0.003	0.000	0.001	0.001	0.000	0.003	0.000	0.001	0.001	-0.001	0.001	0.000	0.001	0.001
% +ve	48%	56%	53%	52%	60%	54%	48%	56%	53%	51%	55%	50%	52%	48%	55%	53%	56%	56%	57%	57%	52%
St Dev	0.029	0.022	0.020	0.021	0.025	0.028	0.023	0.025	0.018	0.024	0.054	0.047	0.029	0.023	0.022	0.025	0.032	0.027	0.022	0.016	0.026
t-test	0.569	1.040	0.547	-0.512	3.072	-0.705	-1.055	1.672	0.181	0.731	0.297	0.062	1.557	0.064	0.984	0.678	-0.599	0.775	0.224	0.880	0.913
p-value	0.570	0.300	0.585	0.609	**0.002**	0.481	0.292	0.096	0.856	0.466	0.767	0.951	0.121	0.949	0.326	0.499	0.550	0.439	0.823	0.380	0.362

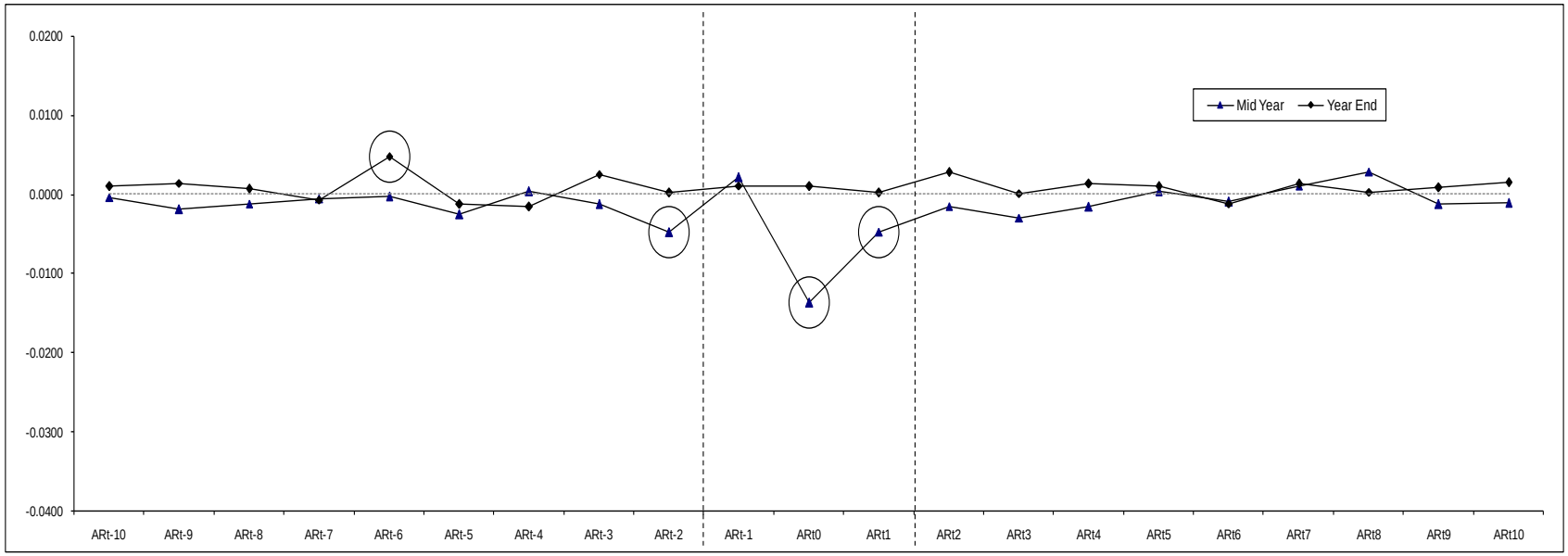

Figure A2. Mean Values of Abnormal Returns over the Test Period - Earnings Decrease.

Table A3. Abnormal Returns over the Test Period - Dividend Increase.

Panel A: Mid Year

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385
Min	-0.056	-0.134	-0.094	-0.062	-0.067	-0.259	-0.068	-0.063	-0.098	-0.071	-0.202	-0.154	-0.174	-0.143	-0.189	-0.063	-0.046	-0.153	-0.100	-0.106	-0.107
Max	0.059	0.054	0.078	0.141	0.076	0.084	0.211	0.121	0.061	0.067	0.116	0.245	0.127	0.093	0.055	0.081	0.093	0.125	0.155	0.219	0.073
Mean	0.000	-0.002	-0.001	0.000	-0.001	-0.001	0.001	0.000	0.000	0.000	0.000	0.000	-0.002	-0.001	-0.002	0.000	-0.002	0.000	-0.001	0.000	-0.001
% +ve	46%	45%	46%	49%	45%	45%	45%	49%	47%	48%	52%	49%	49%	44%	45%	46%	42%	47%	47%	51%	46%
St Dev	0.014	0.016	0.016	0.017	0.017	0.021	0.017	0.018	0.017	0.016	0.036	0.029	0.025	0.018	0.019	0.016	0.015	0.019	0.018	0.020	0.016
t-test	-0.088	-2.206	-1.229	-0.019	-1.126	-0.727	0.725	0.071	-0.252	-0.173	-0.113	0.245	-1.572	-1.036	-2.262	0.527	-2.059	-0.322	-0.599	-0.130	-0.801
p-value	0.930	**0.028**	0.220	0.985	0.261	0.468	0.469	0.943	0.801	0.863	0.910	0.807	0.117	0.301	**0.024**	0.599	**0.040**	0.747	0.550	0.896	0.424

Panel B: Year End

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393
Min	-0.130	-0.104	-0.077	-0.055	-0.092	-0.118	-0.078	-0.069	-0.107	-0.078	-0.359	-0.159	-0.158	-0.063	-0.122	-0.069	-0.063	-0.101	-0.137	-0.066	-0.104
Max	0.286	0.092	0.085	0.058	0.125	0.065	0.067	0.089	0.094	0.124	0.187	0.220	0.276	0.110	0.091	0.160	0.157	0.237	0.091	0.090	0.172
Mean	0.000	0.001	0.002	0.001	0.001	0.001	0.000	0.001	0.000	0.001	0.011	0.006	0.002	0.000	0.001	0.000	0.001	0.001	-0.002	0.002	0.000
% +ve	48%	51%	55%	51%	52%	51%	52%	49%	49%	51%	62%	56%	50%	47%	51%	49%	52%	49%	48%	55%	49%
St Dev	0.023	0.018	0.017	0.016	0.017	0.015	0.017	0.016	0.016	0.018	0.043	0.032	0.027	0.018	0.018	0.018	0.018	0.022	0.018	0.016	0.021
t-test	-0.252	1.062	2.148	0.889	1.116	1.679	-0.318	0.756	0.005	0.863	5.273	3.544	1.220	-0.204	0.904	0.354	1.135	1.093	-1.724	2.134	0.115
p-value	0.801	0.289	**0.032**	0.375	0.265	0.094	0.751	0.450	0.996	0.389	**0.000**	**0.000**	0.223	0.838	0.367	0.724	0.257	0.275	0.086	**0.033**	0.909

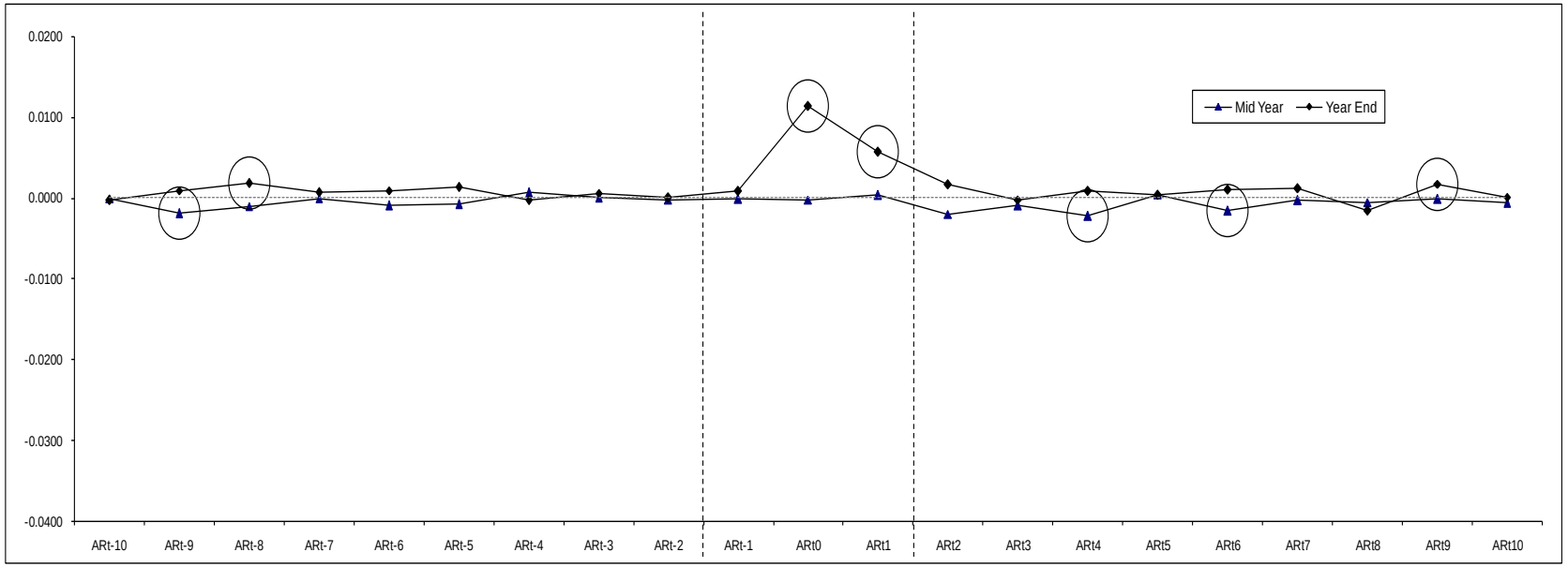

Figure A3. Mean Values of Abnormal Returns over the Test Period - Dividend Increase.

Table A4. Abnormal Returns over the Test Period -Dividend Decrease.

Panel A: Mid Year

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
Min	-0.078	-0.107	-0.092	-0.115	-0.151	-0.199	-0.048	-0.245	-0.099	-0.081	-0.218	-0.242	-0.210	-1.385	-0.117	-0.087	-0.057	-0.116	-0.081	-0.116	-0.074
Max	0.189	0.081	0.086	0.051	0.122	0.085	0.073	0.080	0.128	0.171	0.088	0.080	0.149	0.076	0.106	0.059	0.052	0.141	0.202	0.070	0.067
Mean	0.003	0.000	-0.005	-0.002	0.001	-0.007	0.000	-0.004	-0.004	0.004	-0.022	-0.012	-0.002	-0.017	0.002	-0.001	-0.002	0.002	0.004	0.000	0.002
% +ve	61%	59%	48%	57%	61%	56%	56%	58%	51%	62%	35%	45%	56%	56%	57%	56%	55%	60%	58%	63%	69%
St Dev	0.028	0.023	0.024	0.025	0.029	0.039	0.021	0.033	0.025	0.029	0.049	0.049	0.035	0.138	0.026	0.020	0.019	0.030	0.034	0.023	0.021
t-test	0.963	-0.090	-1.927	-0.798	0.459	-1.991	0.227	-1.119	-1.581	1.453	-4.798	-2.522	-0.729	-1.289	0.866	-0.350	-1.027	0.705	1.330	-0.125	0.998
p-value	0.338	0.928	0.057	0.427	0.647	**0.049**	0.821	0.266	0.117	0.149	**0.000**	**0.013**	0.468	0.200	0.389	0.727	0.307	0.482	0.186	0.901	0.320

Panel B: Year End

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122
Min	-0.099	-0.074	-0.096	-0.108	-0.121	-0.239	-0.184	-0.100	-0.072	-0.086	-0.240	-0.250	-0.116	-0.090	-0.127	-0.080	-0.381	-0.138	-0.084	-0.083	-0.050
Max	0.105	0.063	0.063	0.129	0.186	0.188	0.098	0.184	0.057	0.200	0.452	0.224	0.126	0.121	0.081	0.129	0.071	0.071	0.148	0.092	0.204
Mean	-0.001	0.001	0.002	-0.002	0.008	-0.003	-0.002	0.004	-0.002	0.005	0.002	-0.002	0.002	0.001	0.001	0.002	-0.002	-0.001	0.003	0.001	0.002
% +ve	53%	57%	56%	48%	61%	52%	49%	59%	50%	52%	52%	51%	52%	52%	52%	56%	57%	52%	55%	57%	49%
St Dev	0.026	0.020	0.025	0.024	0.030	0.035	0.028	0.031	0.019	0.030	0.063	0.055	0.028	0.026	0.024	0.027	0.043	0.024	0.022	0.020	0.025
t-test	-0.310	0.716	0.859	-0.863	2.958	-0.897	-0.687	1.427	-1.076	1.764	0.285	-0.402	0.690	0.423	0.250	0.711	-0.471	-0.474	1.266	0.287	0.916
p-value	0.757	0.475	0.392	0.390	**0.004**	0.371	0.494	0.156	0.284	0.080	0.776	0.688	0.491	0.673	0.803	0.478	0.638	0.636	0.208	0.774	0.362

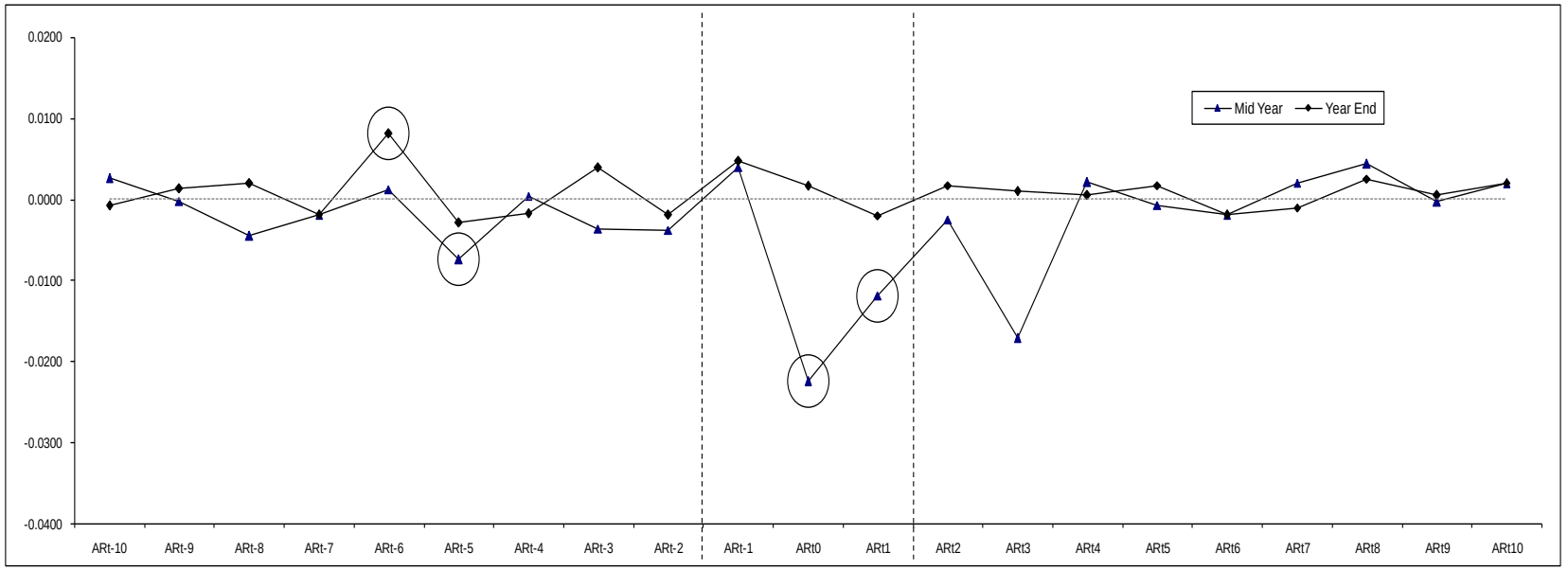

Figure A4. Mean Values of Abnormal Returns over the Test Period -Dividend Decrease.

Table A5. Abnormal Returns over the Test Period - Dividend No Change.

Panel A: Mid Year

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141
Min	-0.258	-0.142	-0.175	-0.043	-0.197	-0.177	-0.325	-0.070	-0.101	-0.086	-0.147	-0.132	-0.108	-0.066	-0.092	-0.108	-0.099	-0.054	-0.037	-0.183	-0.055
Max	0.056	0.188	0.079	0.041	0.073	0.285	0.040	0.099	0.032	0.101	0.104	0.146	0.167	0.097	0.128	0.071	0.067	0.136	0.142	0.095	0.059
Mean	-0.003	0.000	0.000	0.000	-0.001	0.002	-0.002	0.001	-0.004	0.001	0.000	0.002	0.002	-0.001	-0.001	-0.002	0.002	0.000	0.001	0.000	0.000
% +ve	48%	51%	48%	50%	52%	47%	50%	55%	44%	47%	53%	53%	54%	45%	51%	46%	55%	50%	46%	50%	46%
St Dev	0.030	0.025	0.023	0.015	0.024	0.036	0.030	0.016	0.017	0.021	0.036	0.029	0.028	0.020	0.020	0.019	0.022	0.019	0.019	0.021	0.015
t-test	-1.079	-0.225	-0.048	-0.352	-0.339	0.641	-0.956	1.082	-2.652	0.592	0.134	0.639	0.722	-0.303	-0.666	-1.263	0.831	0.243	0.725	-0.113	-0.211
p-value	0.282	0.823	0.962	0.726	0.735	0.523	0.341	0.281	**0.009**	0.555	0.893	0.524	0.472	0.763	0.507	0.209	0.407	0.809	0.469	0.910	0.833

Panel B: Year End

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119
Min	-0.026	-0.069	-0.035	-0.099	-0.055	-0.056	-0.032	-0.033	-0.064	-0.071	-0.087	-0.077	-0.031	-0.038	-0.058	-0.076	-0.080	-0.094	-0.049	-0.079	-0.188
Max	0.105	0.111	0.047	0.026	0.061	0.045	0.038	0.054	0.040	0.089	0.099	0.107	0.109	0.041	0.044	0.047	0.030	0.071	0.048	0.047	0.056
Mean	0.002	0.000	0.001	-0.002	0.002	0.001	0.001	0.000	0.000	0.001	0.000	0.002	0.003	0.001	-0.001	0.001	-0.001	0.001	-0.001	0.000	-0.001
% +ve	50%	53%	48%	45%	51%	55%	47%	49%	52%	53%	50%	49%	49%	51%	47%	49%	50%	55%	55%	52%	49%
St Dev	0.017	0.020	0.011	0.015	0.016	0.014	0.010	0.014	0.016	0.018	0.027	0.025	0.019	0.016	0.015	0.016	0.013	0.017	0.014	0.016	0.023
t-test	0.970	-0.096	0.892	-1.230	1.086	1.004	0.772	-0.230	-0.316	0.881	-0.195	0.774	1.629	0.619	-0.839	0.669	-0.725	0.720	-0.407	-0.317	-0.386
p-value	0.334	0.924	0.374	0.221	0.280	0.317	0.442	0.819	0.753	0.380	0.845	0.440	0.106	0.537	0.403	0.505	0.470	0.473	0.685	0.752	0.700

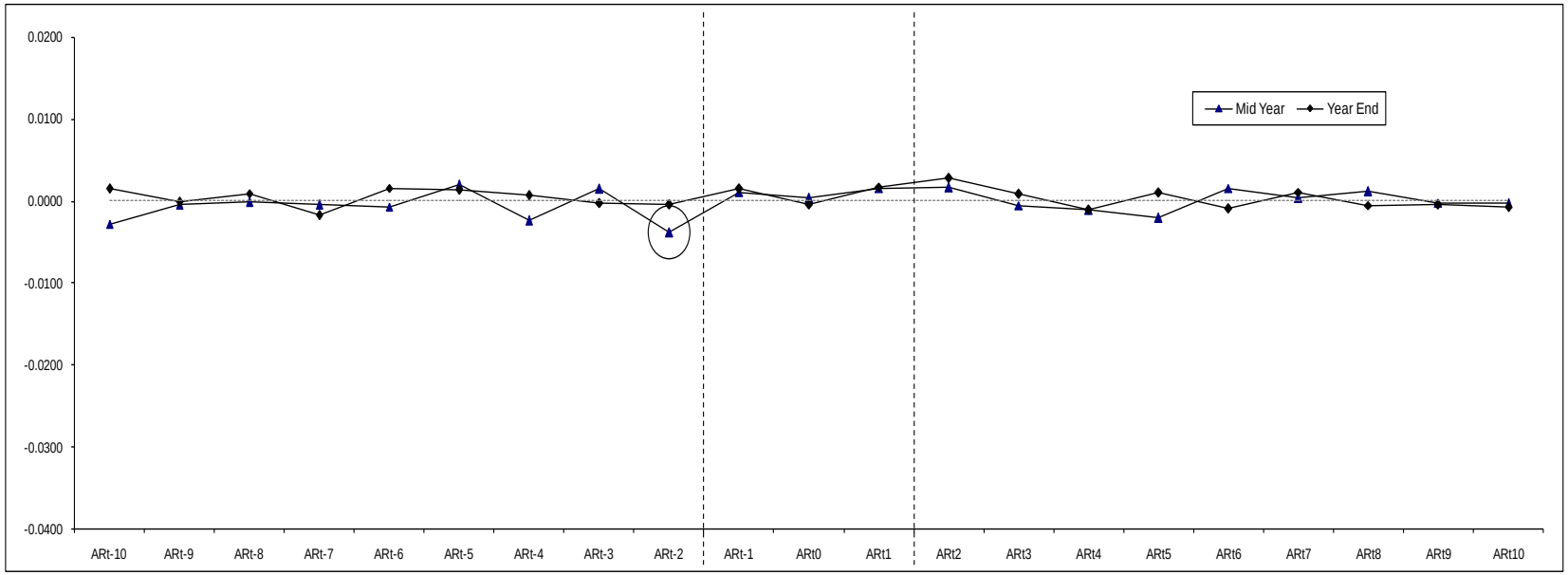

Figure A5. Mean Values of Abnormal Returns over the Test Period - Dividend No Change.

Table A6. Abnormal Returns over the Test Period - DI-EI.

Panel A: Mid Year

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191
Min	-0.048	-0.075	-0.043	-0.062	-0.067	-0.259	-0.033	-0.042	-0.077	-0.045	-0.085	-0.070	-0.051	-0.060	-0.050	-0.063	-0.040	-0.105	-0.053	-0.041	-0.042
Max	0.040	0.054	0.045	0.141	0.071	0.084	0.045	0.050	0.052	0.067	0.116	0.117	0.073	0.043	0.055	0.052	0.061	0.125	0.081	0.219	0.041
Mean	0.000	0.000	-0.002	-0.002	-0.001	-0.001	0.000	0.000	0.001	0.000	0.010	0.003	0.000	0.000	-0.001	-0.002	-0.001	0.000	-0.002	0.001	-0.001
% +ve	45%	48%	43%	45%	43%	45%	46%	51%	48%	43%	60%	50%	53%	40%	43%	37%	39%	47%	42%	49%	41%
St Dev	0.014	0.016	0.014	0.018	0.017	0.025	0.014	0.014	0.017	0.015	0.030	0.024	0.018	0.014	0.016	0.014	0.012	0.019	0.016	0.020	0.012
t-test	-0.445	-0.126	-1.605	-1.341	-0.790	-0.496	0.227	0.227	0.457	-0.306	4.887	1.918	0.119	-0.404	-1.075	-2.257	-1.673	-0.047	-1.597	0.968	-1.532
p-value	0.657	0.900	0.110	0.182	0.431	0.621	0.820	0.820	0.648	0.760	**0.000**	0.057	0.905	0.687	0.284	**0.025**	0.096	0.963	0.112	0.334	0.127

Panel B: Year End

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203
Min	-0.078	-0.061	-0.044	-0.055	-0.057	-0.050	-0.048	-0.031	-0.064	-0.048	-0.111	-0.081	-0.054	-0.056	-0.045	-0.056	-0.048	-0.052	-0.054	-0.079	-0.067
Max	0.079	0.049	0.085	0.058	0.057	0.065	0.055	0.084	0.075	0.124	0.187	0.133	0.208	0.081	0.046	0.044	0.057	0.145	0.091	0.090	0.077
Mean	0.000	0.000	0.001	0.000	0.002	0.002	0.001	0.001	0.000	0.002	0.015	0.008	0.000	0.002	0.001	0.000	0.001	0.001	-0.001	0.002	-0.002
% +ve	50%	52%	53%	44%	53%	51%	52%	48%	48%	52%	65%	58%	47%	49%	48%	48%	51%	47%	49%	55%	42%
St Dev	0.015	0.015	0.015	0.016	0.014	0.014	0.014	0.014	0.014	0.018	0.038	0.025	0.022	0.016	0.012	0.015	0.014	0.017	0.015	0.018	0.015
t-test	0.043	-0.260	1.341	-0.361	1.694	2.135	0.741	1.207	-0.161	1.835	5.715	4.846	0.208	1.484	0.595	0.037	1.469	0.849	-0.642	1.213	-1.675
p-value	0.966	0.795	0.181	0.719	0.092	**0.034**	0.460	0.229	0.872	0.068	**0.000**	**0.000**	0.836	0.139	0.553	0.971	0.143	0.397	0.522	0.227	0.095

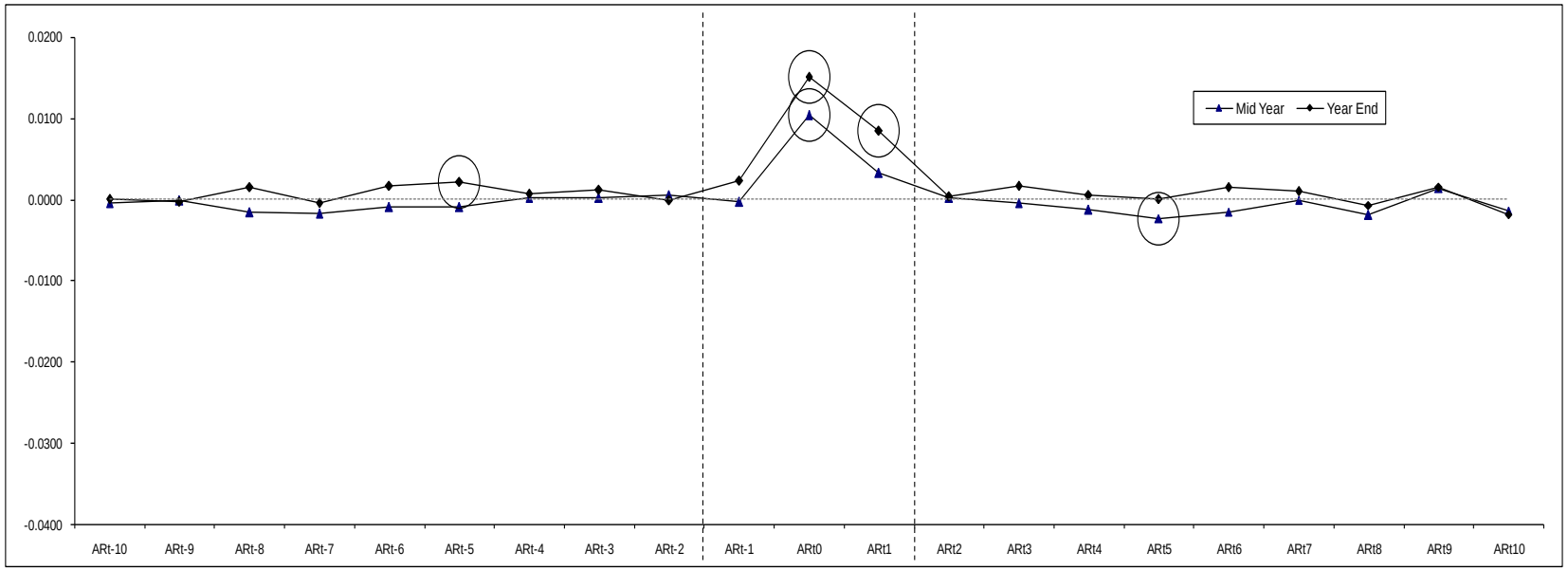

Figure A6. Mean Values of Abnormal Returns over the Test Period - DI-EI.

Table A7. Abnormal Returns over the Test Period - DD-ED.

Panel A: Mid Year

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117
Min	-0.078	-0.107	-0.081	-0.115	-0.151	-0.199	-0.048	-0.245	-0.099	-0.081	-0.218	-0.241	-0.210	-0.192	-0.117	-0.087	-0.057	-0.153	-0.081	-0.116	-0.107
Max	0.189	0.081	0.077	0.051	0.122	0.035	0.073	0.104	0.062	0.171	0.088	0.080	0.127	0.093	0.106	0.059	0.045	0.141	0.202	0.052	0.056
Mean	0.002	-0.002	-0.003	-0.002	-0.001	-0.009	0.003	-0.003	-0.006	0.005	-0.026	-0.012	-0.003	-0.005	-0.002	0.002	-0.003	0.001	0.005	-0.002	-0.001
% +ve	57%	57%	51%	58%	56%	51%	60%	56%	50%	64%	35%	44%	55%	50%	51%	59%	53%	60%	56%	64%	62%
St Dev	0.026	0.021	0.020	0.024	0.028	0.036	0.020	0.033	0.022	0.028	0.051	0.042	0.040	0.036	0.028	0.022	0.019	0.031	0.034	0.024	0.023
t-test	1.026	-1.225	-1.633	-0.930	-0.321	-2.802	1.487	-1.116	-3.095	1.892	-5.470	-2.995	-0.781	-1.505	-0.841	0.821	-1.613	0.389	1.581	-0.727	-0.409
p-value	0.307	0.223	0.105	0.354	0.749	**0.006**	0.140	0.267	**0.002**	0.061	**0.000**	**0.003**	0.436	0.135	0.402	0.413	0.110	0.698	0.117	0.469	0.683

Panel B: Year End

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146
Min	-0.130	-0.104	-0.096	-0.108	-0.121	-0.239	-0.184	-0.100	-0.072	-0.086	-0.359	-0.250	-0.116	-0.090	-0.127	-0.080	-0.381	-0.138	-0.137	-0.083	-0.104
Max	0.286	0.068	0.063	0.129	0.186	0.188	0.098	0.184	0.080	0.200	0.452	0.224	0.276	0.110	0.091	0.129	0.071	0.142	0.148	0.092	0.204
Mean	0.000	0.001	0.000	-0.001	0.007	-0.004	-0.003	0.004	-0.001	0.001	0.000	-0.001	0.005	0.001	0.002	0.000	-0.003	-0.001	0.001	0.001	0.001
% +ve	48%	59%	56%	49%	64%	47%	45%	60%	52%	47%	51%	49%	57%	49%	55%	53%	55%	55%	57%	62%	51%
St Dev	0.036	0.024	0.025	0.025	0.031	0.034	0.029	0.029	0.020	0.028	0.069	0.059	0.036	0.025	0.026	0.026	0.041	0.027	0.026	0.019	0.031
t-test	-0.037	0.615	-0.104	-0.591	2.884	-1.504	-1.448	1.649	-0.614	0.360	0.025	-0.153	1.574	0.356	0.931	0.130	-0.940	-0.235	0.427	0.881	0.434
p-value	0.971	0.539	0.917	0.555	**0.005**	0.135	0.150	0.101	0.540	0.719	0.980	0.879	0.118	0.722	0.353	0.896	0.349	0.814	0.670	0.380	0.665

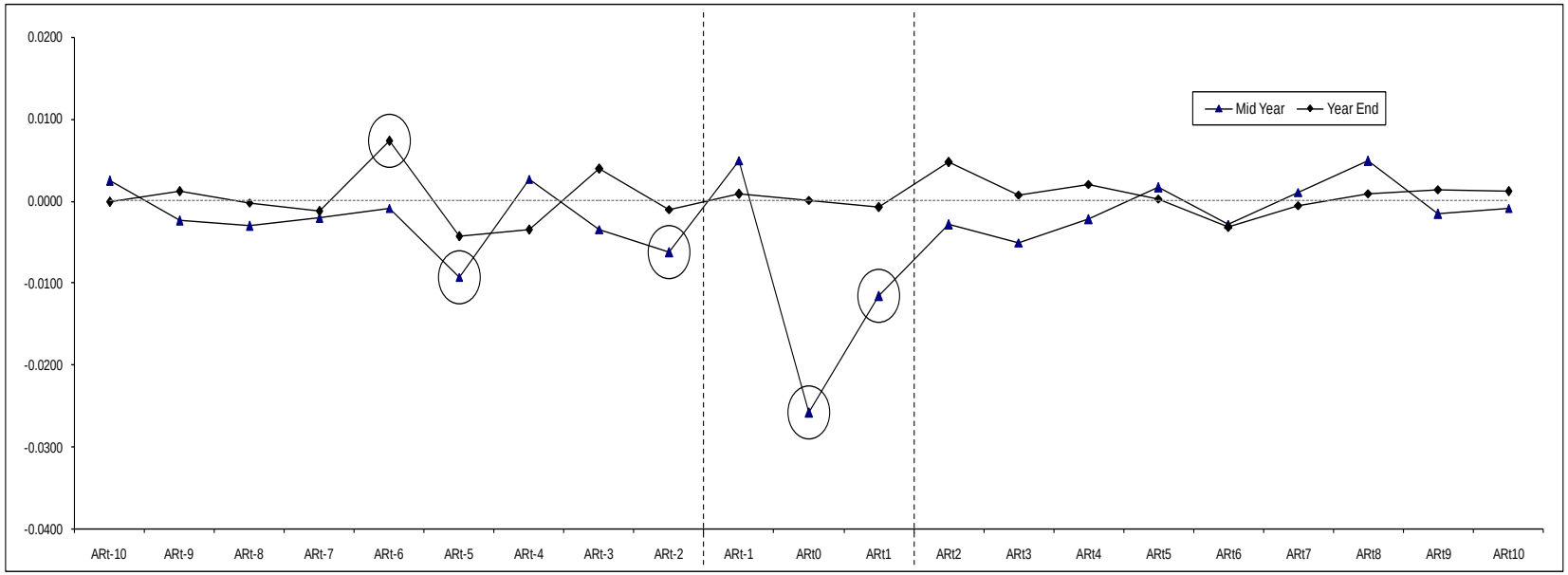

Figure A7. Mean Values of Abnormal Returns over the Test Period - DD-ED.

Table A8. Abnormal Returns over the Test Period - DD-EI.

Panel A: Mid Year

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Min	-0.060	-0.134	-0.065	-0.022	-0.042	-0.045	-0.033	-0.049	-0.042	-0.028	-0.082	-0.242	-0.083	-1.385	-0.040	-0.033	-0.055	-0.044	-0.078	-0.051	-0.035
Max	0.080	0.065	0.086	0.042	0.068	0.085	0.211	0.068	0.128	0.062	0.076	0.054	0.061	0.043	0.057	0.081	0.045	0.037	0.051	0.044	0.067
Mean	-0.003	0.000	-0.003	0.002	-0.002	0.008	0.008	0.001	0.004	0.003	-0.007	-0.004	-0.003	-0.041	0.003	-0.003	-0.001	0.000	0.003	0.000	0.003
% +ve	44%	59%	41%	56%	44%	66%	53%	59%	47%	59%	34%	56%	53%	66%	66%	47%	47%	50%	69%	56%	59%
St Dev	0.025	0.031	0.025	0.014	0.020	0.026	0.041	0.020	0.028	0.018	0.030	0.051	0.025	0.246	0.017	0.020	0.016	0.015	0.022	0.016	0.020
t-test	-0.572	-0.037	-0.600	0.696	-0.643	1.797	1.101	0.333	0.817	1.082	-1.344	-0.434	-0.619	-0.936	0.864	-0.775	-0.453	0.033	0.662	0.079	0.787
p-value	0.572	0.971	0.553	0.492	0.525	0.082	0.279	0.741	0.420	0.288	0.189	0.668	0.540	0.357	0.394	0.444	0.653	0.974	0.513	0.937	0.437

Panel B: Year End

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
Min	-0.046	-0.020	-0.031	-0.029	-0.045	-0.035	-0.063	-0.052	-0.042	-0.036	-0.095	-0.062	-0.039	-0.053	-0.018	-0.033	-0.046	-0.028	-0.036	-0.026	-0.050
Max	0.035	0.037	0.082	0.051	0.022	0.034	0.049	0.027	0.034	0.069	0.148	0.036	0.059	0.121	0.048	0.025	0.046	0.040	0.045	0.058	0.037
Mean	-0.002	0.005	0.011	0.001	-0.003	-0.001	0.002	-0.003	0.001	0.005	0.004	-0.005	-0.001	0.001	0.002	-0.001	0.003	0.000	0.000	-0.001	0.002
% +ve	48%	58%	55%	45%	39%	48%	61%	35%	52%	52%	55%	45%	35%	45%	55%	42%	58%	32%	45%	42%	45%
St Dev	0.019	0.014	0.025	0.016	0.014	0.015	0.018	0.015	0.016	0.022	0.036	0.022	0.018	0.029	0.014	0.015	0.019	0.013	0.016	0.016	0.017
t-test	-0.717	1.968	2.548	0.336	-1.175	-0.378	0.670	-0.986	0.360	1.225	0.573	-1.307	-0.355	0.174	0.834	-0.512	0.873	-0.030	-0.098	-0.337	0.610
p-value	0.479	0.058	**0.016**	0.739	0.249	0.708	0.508	0.332	0.721	0.230	0.571	0.201	0.725	0.863	0.411	0.612	0.389	0.976	0.923	0.738	0.547

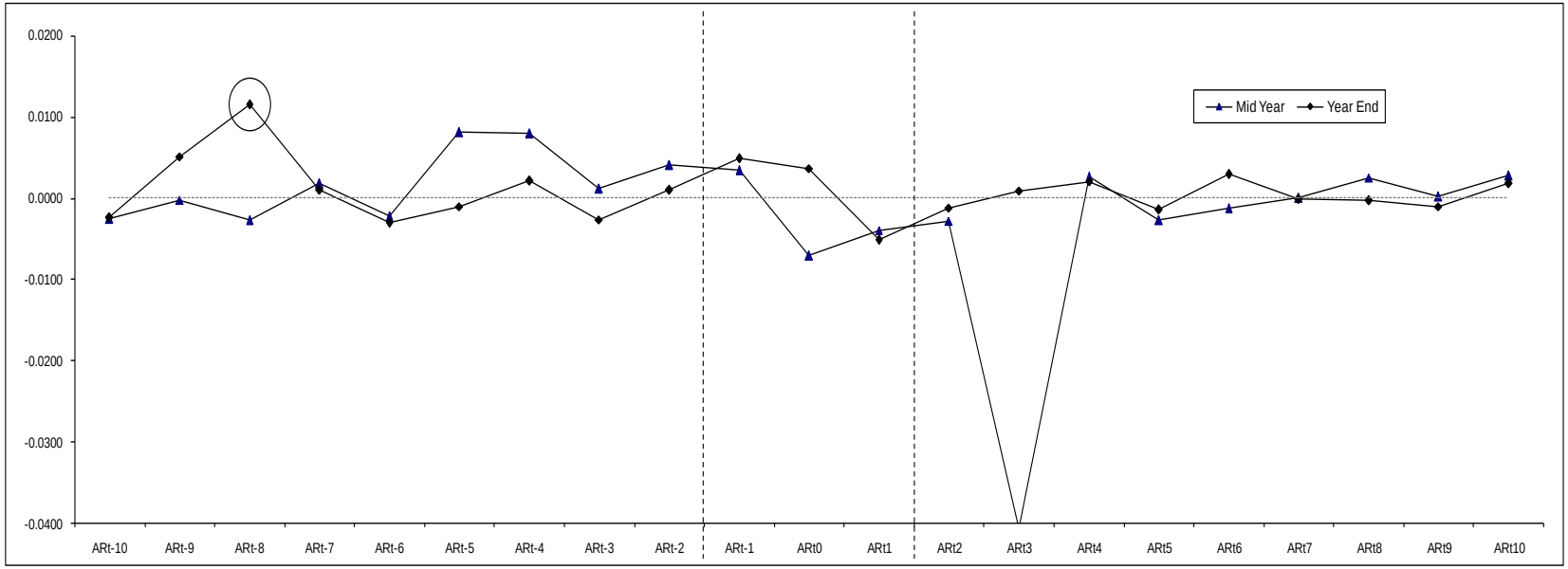

Figure A8. Mean Values of Abnormal Returns over the Test Period - DD-EI.

Table A9. Abnormal Returns over the Test Period - DI-ED.

Panel A: Mid Year

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Min	-0.025	-0.064	-0.094	-0.025	-0.025	-0.042	-0.034	-0.047	-0.022	-0.016	-0.121	-0.092	-0.045	-0.143	-0.189	-0.020	-0.031	-0.052	-0.100	-0.042	-0.041
Max	0.032	0.042	0.078	0.039	0.049	0.050	0.024	0.089	0.056	0.045	0.095	0.066	0.030	0.035	0.049	0.060	0.027	0.032	0.046	0.049	0.048
Mean	0.000	-0.003	0.000	0.002	0.002	0.002	-0.002	0.003	0.003	0.002	0.004	-0.003	-0.002	-0.001	-0.005	0.004	0.001	0.001	-0.001	0.002	0.001
% +ve	48%	35%	60%	53%	55%	53%	43%	48%	58%	63%	65%	43%	50%	55%	45%	48%	65%	53%	60%	60%	55%
St Dev	0.012	0.018	0.024	0.013	0.014	0.015	0.012	0.019	0.013	0.010	0.032	0.024	0.014	0.025	0.033	0.016	0.012	0.014	0.020	0.014	0.015
t-test	0.031	-1.030	-0.030	1.103	1.069	0.872	-0.941	0.829	1.517	1.263	0.761	-0.817	-1.087	-0.215	-0.958	1.400	0.656	0.403	-0.217	0.732	0.350
p-value	0.975	0.309	0.976	0.277	0.292	0.389	0.352	0.412	0.137	0.214	0.451	0.419	0.284	0.831	0.344	0.170	0.516	0.689	0.829	0.469	0.728

Panel B: Year End

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Min	-0.063	-0.030	-0.050	-0.045	-0.036	-0.017	-0.029	-0.050	-0.041	-0.060	-0.045	-0.053	-0.054	-0.063	-0.055	-0.035	-0.048	-0.059	-0.054	-0.041	-0.021
Max	0.061	0.057	0.050	0.048	0.043	0.046	0.032	0.089	0.057	0.080	0.128	0.133	0.080	0.042	0.051	0.160	0.036	0.237	0.032	0.046	0.085
Mean	0.001	0.002	0.002	0.002	0.000	0.004	0.001	0.002	0.002	0.001	0.008	0.011	0.003	-0.004	0.000	0.003	0.001	0.002	-0.001	0.000	0.006
% +ve	53%	42%	55%	65%	52%	65%	48%	52%	52%	50%	62%	63%	53%	38%	53%	58%	50%	53%	48%	45%	68%
St Dev	0.020	0.016	0.016	0.015	0.014	0.012	0.012	0.020	0.018	0.021	0.030	0.029	0.021	0.017	0.019	0.025	0.015	0.036	0.016	0.013	0.017
t-test	0.316	0.900	1.049	0.861	0.057	2.876	0.813	0.718	0.994	0.496	2.115	2.834	0.947	-1.876	0.107	1.051	0.649	0.538	-0.316	-0.010	2.608
p-value	0.753	0.372	0.299	0.393	0.955	**0.006**	0.420	0.476	0.324	0.622	**0.039**	**0.006**	0.348	0.066	0.915	0.297	0.519	0.592	0.753	0.992	**0.012**

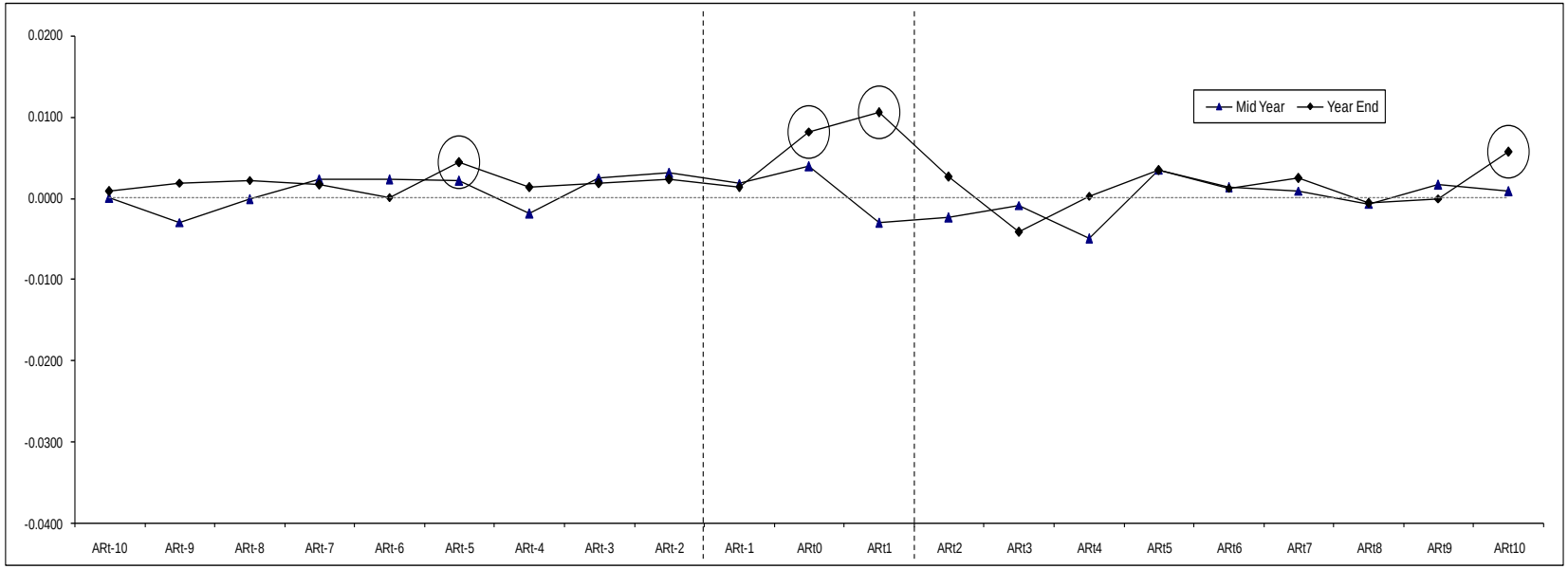

Figure A9. Mean Values of Abnormal Returns over the Test Period - DI-ED.

Table A10. Abnormal Returns over the Test Period - DNC-EI.

Panel A: Mid Year

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106
Min	-0.026	-0.142	-0.092	-0.041	-0.120	-0.040	-0.030	-0.070	-0.071	-0.071	-0.087	-0.100	-0.082	-0.052	-0.051	-0.108	-0.073	-0.116	-0.082	-0.099	-0.040
Max	0.038	0.049	0.043	0.039	0.076	0.285	0.059	0.121	0.061	0.052	0.104	0.245	0.150	0.097	0.041	0.046	0.093	0.042	0.063	0.070	0.065
Mean	0.000	-0.004	-0.001	0.001	0.000	0.003	0.000	0.000	-0.003	-0.001	0.003	0.005	0.000	0.000	-0.002	0.000	0.001	-0.002	-0.001	0.001	0.002
% +ve	46%	43%	46%	52%	48%	44%	44%	46%	42%	44%	52%	52%	48%	45%	43%	51%	49%	45%	44%	49%	51%
St Dev	0.010	0.020	0.017	0.014	0.020	0.034	0.013	0.021	0.016	0.018	0.031	0.033	0.024	0.021	0.017	0.018	0.022	0.019	0.017	0.017	0.015
t-test	-0.044	-2.080	-0.553	0.640	0.248	0.969	-0.147	0.201	-1.797	-0.429	0.908	1.525	-0.182	0.050	-1.247	-0.082	0.295	-1.207	-0.442	0.481	1.193
p-value	0.965	**0.040**	0.581	0.524	0.805	0.335	0.884	0.841	0.075	0.669	0.366	0.130	0.856	0.960	0.215	0.935	0.769	0.230	0.660	0.632	0.236

Panel B: Year End

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Min	-0.038	-0.058	-0.028	-0.061	-0.055	-0.033	-0.078	-0.069	-0.035	-0.071	-0.087	-0.077	-0.158	-0.033	-0.036	-0.067	-0.080	-0.094	-0.034	-0.047	-0.188
Max	0.066	0.056	0.047	0.039	0.125	0.045	0.037	0.054	0.028	0.077	0.179	0.107	0.109	0.037	0.048	0.047	0.063	0.027	0.048	0.059	0.057
Mean	-0.001	0.000	0.001	0.000	0.001	0.001	0.001	-0.001	-0.002	0.000	0.006	0.004	0.000	0.001	0.000	0.002	0.000	-0.002	-0.001	0.002	0.001
% +ve	50%	46%	53%	54%	49%	54%	51%	54%	47%	54%	53%	47%	43%	58%	47%	53%	51%	50%	46%	55%	54%
St Dev	0.014	0.017	0.012	0.014	0.020	0.012	0.014	0.015	0.014	0.019	0.041	0.028	0.028	0.014	0.013	0.016	0.015	0.015	0.014	0.018	0.027
t-test	-0.630	-0.052	0.728	0.216	0.360	0.983	0.589	-0.448	-1.075	0.216	1.337	1.262	0.003	0.799	-0.277	1.183	0.183	-1.259	-0.911	1.021	0.358
p-value	0.531	0.959	0.469	0.830	0.720	0.329	0.558	0.655	0.286	0.830	0.185	0.211	0.998	0.427	0.783	0.241	0.855	0.212	0.365	0.311	0.721

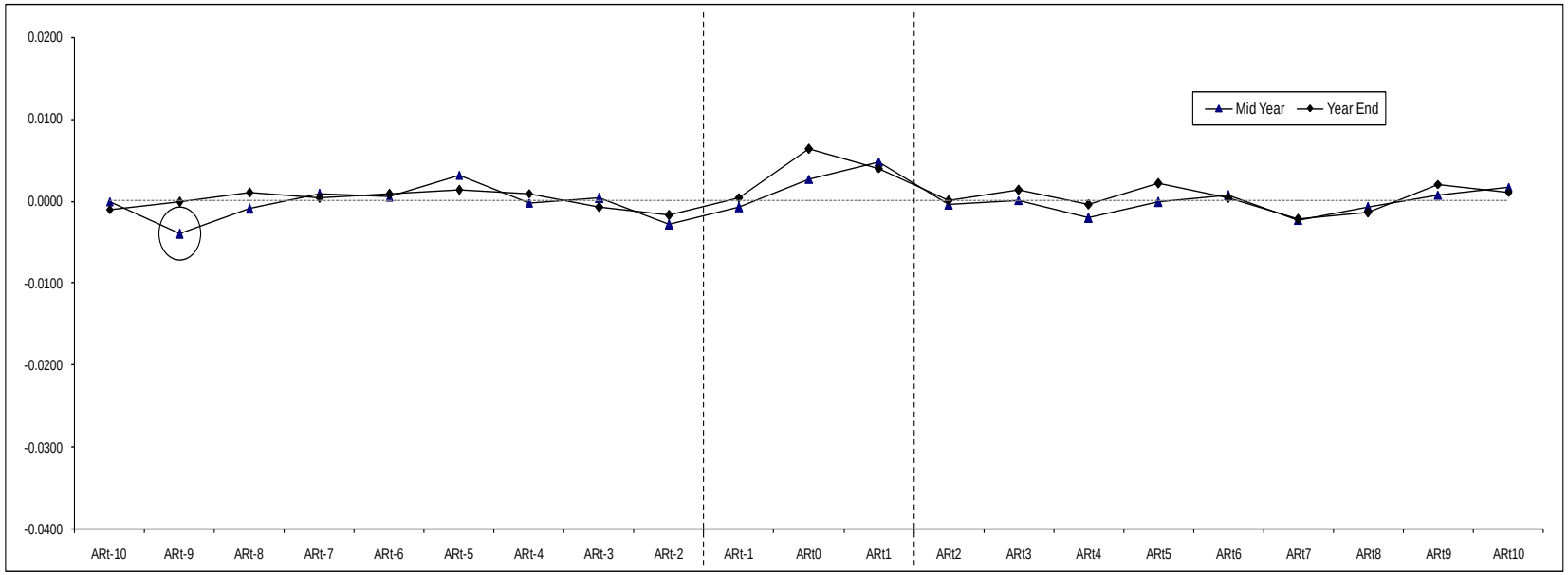

Figure A10. Mean Values of Abnormal Returns over the Test Period - DNC-EI.

Table A11. Abnormal Returns over the Test Period - DNC-ED.

Panel A: Mid Year

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
Min	-0.258	-0.049	-0.175	-0.056	-0.197	-0.177	-0.325	-0.062	-0.101	-0.086	-0.202	-0.154	-0.174	-0.066	-0.049	-0.047	-0.099	-0.044	-0.048	-0.183	-0.078
Max	0.059	0.188	0.079	0.043	0.073	0.092	0.038	0.099	0.032	0.086	0.101	0.146	0.167	0.049	0.128	0.071	0.067	0.136	0.142	0.095	0.073
Mean	-0.002	0.000	0.000	0.000	-0.001	-0.002	-0.004	0.000	-0.002	-0.001	-0.011	-0.003	-0.002	-0.002	0.000	0.000	0.000	0.002	0.002	-0.002	0.000
% +ve	51%	49%	47%	51%	51%	45%	45%	55%	45%	47%	44%	49%	48%	46%	53%	50%	48%	50%	47%	50%	47%
St Dev	0.031	0.021	0.023	0.017	0.023	0.024	0.030	0.017	0.017	0.021	0.040	0.034	0.031	0.018	0.017	0.016	0.020	0.019	0.019	0.024	0.017
t-test	-0.659	0.206	-0.127	0.293	-0.439	-0.893	-1.540	0.134	-1.693	-0.371	-3.328	-1.091	-0.672	-1.362	0.221	0.070	-0.207	1.050	1.007	-1.197	-0.112
p-value	0.511	0.837	0.899	0.770	0.662	0.374	0.126	0.894	0.093	0.711	**0.001**	0.277	0.503	0.175	0.825	0.944	0.836	0.295	0.316	0.233	0.911

Panel B: Year End

	ARt-10	ARt-9	ARt-8	ARt-7	ARt-6	ARt-5	ARt-4	ARt-3	ARt-2	ARt-1	ARt0	ARt1	ARt2	ARt3	ARt4	ARt5	ARt6	ARt7	ARt8	ARt9	ARt10
Count	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118
Min	-0.032	-0.069	-0.035	-0.099	-0.034	-0.056	-0.058	-0.057	-0.107	-0.045	-0.110	-0.131	-0.029	-0.063	-0.122	-0.076	-0.063	-0.033	-0.095	-0.047	-0.101
Max	0.105	0.111	0.060	0.040	0.061	0.055	0.038	0.081	0.094	0.089	0.081	0.088	0.061	0.043	0.048	0.090	0.157	0.071	0.032	0.041	0.056
Mean	0.001	0.001	0.002	0.000	0.001	0.001	-0.001	-0.001	-0.001	0.002	0.004	-0.001	0.003	-0.001	-0.002	0.001	0.000	0.003	-0.002	0.000	-0.001
% +ve	49%	56%	54%	48%	53%	55%	53%	47%	49%	54%	56%	53%	53%	47%	49%	47%	53%	55%	52%	53%	47%
St Dev	0.017	0.020	0.012	0.015	0.015	0.014	0.013	0.016	0.019	0.017	0.026	0.026	0.015	0.017	0.020	0.019	0.020	0.016	0.016	0.012	0.017
t-test	0.467	0.569	1.859	-0.326	1.023	1.134	-0.555	-0.526	-0.680	1.147	1.575	-0.554	1.907	-0.862	-0.926	0.402	0.182	2.247	-1.102	0.325	-0.403
p-value	0.642	0.570	0.066	0.745	0.309	0.259	0.580	0.600	0.498	0.254	0.118	0.580	0.059	0.390	0.357	0.689	0.856	**0.026**	0.273	0.746	0.687

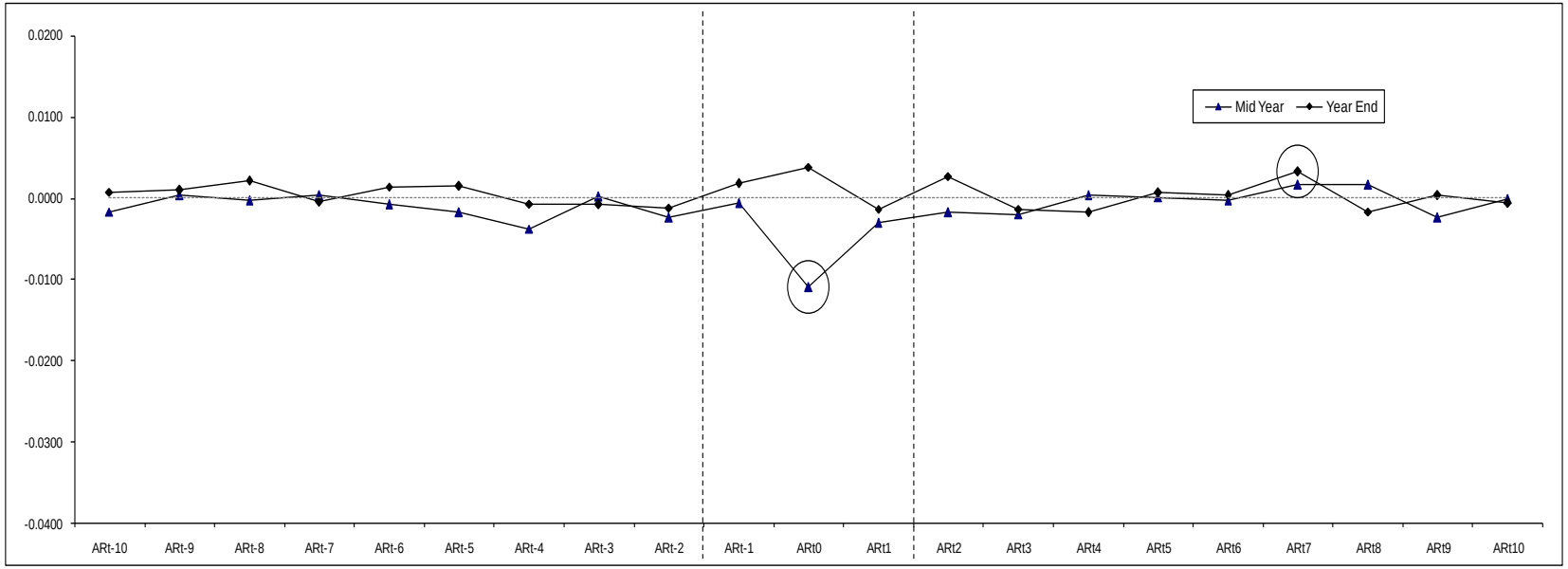

Figure A11. Mean Values of Abnormal Returns over the Test Period - DNC-ED.