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ABSTRACT

This paper investigates the dividend decisions of firms in the UK reporting losses after sustained periods of profitability. It is found that loss-making firms are more likely to reduce dividends compared to firms that remain profitable, although a loss is far from a guarantee that the dividend payment will be reduced. A lower propensity to reduce dividends is found in the UK relative to the US, consistent with the stronger culture of dividend payments. The size of the loss is an important factor in a firm's dividend policy. However, this is mitigated to some extent if it is the result of unusual accounting items because managers view these as a temporary fluctuation in profitability. Leverage is found to have some role in the dividend decision, with higher levels of debt consistent with a greater likelihood of a reduction in the distribution whilst also suppressing profitability in future years. Profit margins prior to the loss year are also a significant factor in dividend policy whereby low margin firms are more likely to cut dividends.

Despite being the two most heavily researched stock markets in the world, the US and UK have notable differences in dividend cultures, with the former having lower average dividend yields[1] and a higher proportion of non-dividend paying stocks. Recent studies by Fama and French (2001) and Benito and Young (2001) have documented a decline in dividend payers in both the US and the UK respectively. Furthermore, they describe the characteristics of dividend payers and non-payers, both former payers and firms that have never paid a dividend. Benito and Young (2001) take the additional step of considering the differences between firms that cut dividends and firms that omit dividend payments. We further extend this comparison by examining the dividend decisions of companies that have a considerable history of both profitability and dividend payments, but that then incur a downturn in earnings or a loss. Of particular interest is the dividend decision made by firms in the initial loss period. Are managers reluctant to cut dividends, viewing the loss as a temporary phenomenon, or do they act decisively by reducing the dividend to preserve the firm's cash resources?

DeAngelo et al (1992) used US data for 1980-85 to investigate the dividend policy of firms that reported a poor earnings performance after sustained dividend distributions and profitability. They cite work by Miller and Modigliani (1961), arguing that dividend changes for firms with a track record of profitability can be more reliably viewed as a significant change in dividend policy rather than a continuation of previous policy. DeAngelo et al (1992) discovered that around half of all firms with ten or more year's prior positive dividends and earnings cut dividends in the initial loss year. This compared to just 1% of non-loss firms cutting dividends. They find that analysing the unusual accounting items accompanying bottom line

earnings is able to explain more of the dividend decisions by firms. An exceptional item is viewed as having only a transitory impact on profitability and thus a dividend reduction is less likely. This finding is particularly important given that Collins et al (1997) document a dramatic increase in the US between 1953-93 in both the percentage of firms reporting unusual items and the size of the items relative to net income.

Burgstahler and Dichev (1997) investigate the existence of earnings management by US firms to both avoid earnings decreases and losses. They discover that earnings changes of just below zero occur less frequently than would be expected relative to increases slightly greater than zero. Furthermore, far fewer observations of overall earnings just below zero are recorded relative to expectations than is the case for slightly positive earnings. They argue that earnings management to avoid losses is both pervasive and economically significant. This is consistent with Hayn (1995), who suggests that firms whose earnings are expected to be marginally negative partake in earnings management to help them into positive territory. Degeorge et al (1999) report a hierarchy for earnings; managers attach most importance to avoiding losses, the emphasis then moves to achieving increases in quarterly earnings and finally to beating analysts' forecasts. Barth et al (1999) find that firms with a history of sustained earnings growth are valued at higher multiples of earnings than firms without such a track record. The multiples increase almost monotonically with the number of years of consistent growth, providing managers with an incentive to smooth earnings. In summary, this literature implies that previously profitable firms will do their utmost to avoid having to report losses. Further, those firms that do report losses will have clearly experienced a genuinely disappointing earnings

performance. This makes a firm's dividend decision surrounding a reported loss of particular interest.

If dividend policy reflects managers' views of profitability then there is a possibility that this can be used to predict future earnings. Lintner (1956) finds that dividends are only increased when management believes that earnings have permanently increased. Modigliani and Miller (1959) and Miller and Modigliani (1961) hypothesize that a dividend cut is indicative that future earnings are likely to be disappointing. Watts (1973) found evidence of a positive relationship between current dividends and future earnings for 310 firms for the period 1946-1967, but the statistical significance of these results was very low. Healy and Palepu (1988) discovered that firms initiating dividend payments experienced rapidly increasing earnings both prior to the first dividend and for two years afterwards. However, for firms omitting dividends they find that earnings decline in the year of the omission but then increase substantially in future years. This is the opposite of the informational content of dividends hypothesis. DeAngelo et al (1992) find that a dividend cut is a significant factor in improving the ability to predict future earnings using current earnings. This holds despite the use of different earnings measures such as operating income, operating cash flow or the use of net income combined with unusual accounting items. Bernatzi et al (1997) discover that firms that cut dividends have experienced declining earnings in both the year of the cut and in the previous year also. Consistent with Healy and Palepu (1988), they find that earnings significantly increase in the year after the dividend cut. However, it is noted that firms that raise dividends are less likely to experience a future earnings decline compared to firms that merely maintain dividends. Skinner (2004) reports that

the relationship between current earnings and future earnings is stronger for dividend paying firms than for non-paying firms, particularly for large dividend payers.

Fama and French (2001) document a substantial decline in the incidence of dividend paying non-financial, non-utility (industrial) firms. The proportion of 'payers' fell from 66% in 1978 to just 21% in 2000. They attribute this to a combination of, a decline in the number of firms possessing the characteristics of dividend payers and, a decline in the propensity of industrials to pay dividends irrespective of the firm's characteristics. DeAngelo et al (2002) also find a decline in payers similar to Fama and French (2001), but they point out that aggregate dividends have actually increased in real terms between 1978 and 2000. This is due to large payers becoming larger, whilst many small payers have been lost from the sample. Evidence from the UK presented by Benito and Young (2001) and ap Gwilym et al (2004) shows that the culture of dividend payments by firms is very different to the US. The proportion of dividend paying non-financials in 1979 was around 95%. This declined over the next two decades, but was still over 70% in 1999.

Given the significant differences between the UK and US in terms of dividend payers, and also the decline in payers generally in the last twenty years or so, it seems reasonable to reassess some of the previous findings between dividends and earnings. This paper applies the methodology of DeAngelo et al (1992) to a UK context over a different period of time. Given that their original period of study (1980-85) was close to a peak in dividend payments, and also of a relatively short time frame compared to other studies, the reporting of similar findings using a different epoch, in a different country, when conditions appear to have materially changed would represent strong

corroboration of their findings. Furthermore, we extend DeAngelo et al's (1992) study to incorporate a range of additional variables that could influence manager's dividend decisions.

Fama and French (2001) find that firms that formerly paid dividends have a greater ratio of liabilities to assets than dividend paying firms. Benito and Young (2001) also describe that higher leverage is associated with dividend reduction and omission. Given these results it appears appropriate to consider debt as a variable that may improve the ability to explain dividend decisions amongst previously profitable firms. Both short-term liabilities and the overall indebtedness of firms are considered.

Barbee et al (1996) suggest that annual sales may be a more reliable indicator of a firm's long-term profitability than earnings. They ascribe this to earnings being more variable due to temporary occurrences, e.g. short-term pricing policies. Senchack and Martin (1987) also make the point that sales are less likely to be affected by accounting discrepancies than earnings. With this in mind, changes in sales are also investigated in terms of dividend policy along with profit margins on sales.

In anticipation of our results, it is discovered that losses are an important factor in the UK for dividend reductions, with far fewer cuts being made by profitable firms. A loss does not guarantee a dividend cut though, with less than one-third of firms reducing dividends in the initial loss year. A lower propensity to reduce dividends is found in the UK relative to the US, consistent with the stronger culture of dividend payments. The magnitude of the loss is found to be relevant to the dividend decision, with large losses increasing the propensity of firms to cut dividends. Unusual

accounting items decrease the probability of a dividend reduction since managers view these as being temporary factors in depressing profits and that reversion to more normal levels is expected in the future. Leverage is also linked to the dividend decision and, consistent with Benito and Young (2001), higher indebtedness raises the prospect of a dividend cut. Finally, in terms of dividend policy, profit margins on turnover are found to be a significant factor both prior to the loss year, and in the loss year itself, with lower margins being associated with more dividend reductions.

Some evidence is found that dividend reductions are a sign that future earnings will be lower than for non-reducers, although the statistical significance of these findings is quite low. However we do find an earnings rebound after a loss for dividend reducing firms consistent with Healy and Palepu (1988), amongst others. Finally, the overall debt position of the firm is linked to future profitability, with high debt levels suppressing profitability in future years.

The remainder of the paper is set out as follows. Section I describes the data sources used in the study, the sample selection criteria and the methodology employed. Section II compares the dividend policy of firms that are loss making with those that remain profitable. It also relates the decision to reduce dividends to losses, earnings and changes in profitability. Section III considers the magnitude of losses of dividend reducers compared to those firms that do not cut dividends. Section IV investigates the impact of unusual accounting items on dividend policy. Section V looks at debt and sales measures as additional factors in explaining dividend decisions amongst loss-making firms, while section VI considers the informational content of dividend policy in terms of future earnings. Section VII concludes.

I. Data and Methodology

The methodology used in this study is, where possible, consistent with that of DeAngelo et al (1992) for comparative purposes. Most of the study utilizes the 'primary' loss sample; this contains non-financial, non-utility (industrial) firms that had at least seven consecutive years of positive earnings and dividends prior to the initial loss year. The firms were initially identified using the London Share Price Database (LSPD); the full data set was then obtained for each individual firm from the FAME database. In total, the primary sample contains 108 firms that fulfilled the earnings and dividends criteria and posted an initial loss during 1996-2000. Firms with incomplete track records were not included in the sample.

To create a standardized time frame for firms in the loss sample, year 0 will be deemed to refer to the initial loss year, with the years prior to the loss being denoted as a negative value and the years after the loss as positive values (i.e. year –1 is the accounting year before the initial loss year and year 1 is the accounting year after the initial loss year). Given that the data used is of an annual nature, the calendar year of the loss is assumed to be three months after the financial year-end (to allow for the preparation of accounts and subsequent dissemination to the market). Thus for firms with financial accounting periods ending in January through September, the end of the accounting year and the calendar year of the loss will be the same. For firms with a financial year-end in October, November or December however, the loss year is the subsequent calendar year, e.g. for a financial year-end of 30th November 1997, the loss year is defined as 1998. Throughout this study the profits (losses) for the periods

in question are defined as profits (losses) after exceptional items, interest, taxation, extraordinary items and minority interests, but excluding dividends. Any other profit measures used, e.g. operating profits, are explicitly stated in the text. DeAngelo et al (1992) use income after extraordinary items and discontinued operations in their US study as the standard profitability measure.

The distribution of the 108 firms within the loss sample was found to be relatively even across the five years with the following breakdown: 1996, 23 firms; 1997, 21 firms; 1998, 17 firms; 1999, 27 firms; 2000, 20 firms. No industry was found to be excessively dominant in this sample. Using the FTSEA Industry Codes, the largest representations were made by business support services with 11 firms and engineering (general) with 8 firms.

The 'secondary' non-loss sample was created in the same way as the primary, however firms must also have had positive earnings throughout the 1996-2000 period (firms that delisted or were acquired are still eligible for both samples). Firms are only included in the sample after the seven years of previous earnings and dividends have been completed. Thus some firms may be in the sample for the full five years whilst others may only be in for one year.

Dividend reductions were initially identified from the LSPD (taking into account share-splits). These were then individually checked against the appropriate annual report using LexisNexis. A dividend reduction was classified as a decrease in the total dividend paid for the full year. Thus a maintained interim dividend but a reduced final dividend would count as a reduction. The total payout for the financial year of the

firm must equal zero for an omission to have occurred. All dividends are compared on a basis net of tax since this alleviates any problems relating to the Finance Act 1999.[2]

The use of annual data throughout the study is consistent with DeAngelo et al (1992) and also with Lintner (1956), who found that dividends were considered on an annual basis. Whilst every effort has been made to provide a comparison with DeAngelo et al (1992), the qualifying period prior to inclusion in both of the samples has not remained the same. It was found that a criterion requiring 10 years prior positive earnings and dividends did not provide sufficient firms for the primary loss sample. This may have been due to a combination of, fewer stocks listed generally in the UK compared to the US and, the decline in dividend paying firms described earlier.

II. A Comparison between Loss Making and Profitable Firms

Table 1 shows the number and proportion of dividend cuts amongst both the primary loss sample and the secondary non-loss sample. Whilst there were 31 instances of dividend cuts in the loss sample, there were just 25 in the non-loss sample. This difference is magnified on a percentage basis to 29% versus only 2%. Indeed 11 firms (10%) making an initial loss omitted dividends entirely, whilst another 9 firms paid an interim dividend but then omitted the final payment. There was, by contrast, just one omission in the non-loss sample. Of the 21 initial dividend reductions in the non-loss sample just 3 were made in the first year of declining earnings during 1996-2000.

The evidence presented points to losses being a very significant factor in dividend reductions. Given that all the firms considered had been profitable and paid dividends, this marked a significant change in policy. The findings are consistent with DeAngelo et al (1992), although they found that around half of firms experiencing an initial loss cut their dividends. The lower propensity to cut distributions in the UK is not unexpected given the stronger culture of dividend paying relative to the US.

Table 2 shows that the overall level of earnings is important in dividend decisions. Firm years are ranked according to the return on equity (ROE), calculated as the profit for the period divided by shareholders' funds in the previous year. The pooled sample shows that the greater the magnitude of the loss in terms of ROE, the more likely a dividend reduction is. Of those firms with a ROE of less than –20%, 43.6% of firms cut dividends. This compared to 18.8% of firms where the ROE was between 0% and -5%. It is also noticeable that the lower the ROE within the profitable firms, the greater the propensity to cut dividends that exists. For firms with an ROE between 0% and 5% it was found that 7.4% cut dividends, while only 0.6% of companies with an ROE in excess of 20% cut dividends. There is significant corroboration with the findings of DeAngelo et al (1992) within these results; the main difference is that they find a greater proportion of firms with the lowest negative ROE cut dividends.

Table 3 provides a logit analysis of firms' dividend decisions using a pooled sample of the 108 firms from the loss sample and 206 firms from the non-loss sample that have at least one year of declining profits between 1996 and 2000, but still remain positive. The dependent variable equals zero if the dividend is reduced, and one otherwise. A loss dummy is included in some specifications; this takes a value of one

if the firm is a member of the loss sample, and zero otherwise. The remaining independent variables are the profit for the period and the change in profit. Both of these variables are standardized by shareholders' funds in the year prior to the event year.

The loss dummy variable is strongly negative in every specification of the model, regardless of the other variables used. It is the most significant variable as the remaining variables lose their statistical significance when included in specifications containing the loss dummy. The pseudo R-squared[3] is also greater when comparing their individual specifications. Profitability is positively related to the dividend decision and thus a smaller loss reduces the chance of a dividend cut. The effect of the change in profitability appears less certain though. Whilst strongly positively related in the individual specification, it loses its statistical significance when combined with profitability and the sign of the coefficient becomes negative. This suggests that much of the explanatory power of the change in profitability is encompassed within the actual profit level. Given the findings in Tables 1 and 2, it is of little surprise that these results are similar to those of DeAngelo et al (1992).

III. The Magnitude of Losses and the Dividend Decision

Table 4 displays the mean and median levels of standardized earnings in the years surrounding the event year for dividend reducers and non-reducers from the loss sample. The *t*-statistic, in the rightmost column, tests for equality of the means. In year –1 there is a difference of around 2-3% in mean earnings between the more profitable non-reducers compared to the less profitable reducers. In the loss year (year

0), the gap expands considerably to around 15% on both the mean and median measures. The *t*-statistic also becomes significant at the 95% level. This result adds further weight to the belief that losses are important in dividend setting.

In year 1, the non-reducers become profitable again, suggesting that managers were generally correct in their assessment that the loss was only temporary. Levels of profit are still below those prior to the loss however. There is, though, still a considerable disparity in profitability compared to those firms that reduced dividends, as evidenced by the *t*-statistic. These are still loss making on a mean basis and barely profitable on a median basis. It is noticeable that these reducing firms have still experienced a considerable improvement in profitability compared to the loss year, though this improvement continues into year 2 also. This is consistent with the US findings of Healy and Palepu (1988), DeAngelo et al (1992) and Bernatzi et al (1997). Even in year 2, however, the profitability is still low and considerably less than the non-reducing firms. DeAngelo et al (1992) argue that the dividend reduction reflects low levels of profitability not just in the year of the dividend cut but in future years also. This is opposed to reflecting year-on-year earnings changes. The evidence presented in Table 4 tends to support this conclusion. Perhaps the year-on-year improvement in earnings after a dividend reduction is due to managers, having already found that trading has been poor for the year and that a cut is inevitable, deciding to bury all the bad news in one year rather than letting the problems persist into subsequent accounting periods. This could severely depress profits in the year of the dividend reduction but provide an easy comparable to surpass the following year and thus prove the firm has 'turned the corner'.

The summary findings of Table 4 are tested more formally using logit regressions in Table 5. As in Table 3, the dependent variable is the dividend decision in year 0. It takes the value of zero if a dividend reduction occurred, and one otherwise. Following the method of DeAngelo et al (1992), profits in years –1 through +2 (standardized by shareholders' funds in year –1) are the independent variables in the various specifications.

It is found that profits in the year prior to the loss, whilst positively related to the dependent variable (i.e. lower profits equals greater probability of dividend cut), explain very little of the dividend decision and are not statistically significant in any of the models. The magnitude of the losses in the event year is again positively related to the dividend decision but these are statistically significant in each specification. There is also considerable improvement in the pseudo R^2 value following the introduction of year 0 losses. In the two years following the loss year there are positive relationships once more with the dividend decision in year 0 but these are again not significant. It thus appears that the loss year is the most important variable in the dividend decision. DeAngelo et al (1992) find that the loss year is important but also the earnings in year 1 are significant, and hence the UK results can offer only qualified corroboration in this case.

IV. The Impact of Unusual Accounting Items on Dividend Decisions

Lintner (1956) describes how management increase dividends only when they believe earnings have permanently increased. The reverse of this statement would imply that dividends are only cut when it is believed earnings are likely to be

depressed for a considerable period. This would suggest that an analysis of unusual accounting items in the loss year, for what were previously profitable companies, might shed light on the dividend decision. It would be presumed that these are likely to be only temporary fluctuations in the long-term profitability of firms (although there is considerable debate as to just how 'unusual' some unusual items are for particular firms).

Table 6 considers two of these unusual accounting items, namely exceptional items and extraordinary items. Mean and median figures are presented for each of the items in year 0 ranked according to the dividend decision made by the firm. Panel A standardizes the values by shareholders' funds in year 0, while Panel B standardizes the values by the absolute amount of the profit for the period (loss) in year 0. A quick glance at the median values for the extraordinary items in both Panels A and B reveals that these are all equal to 0%. In fact there were very few observations of extraordinary items within the loss sample; only 7 firms out of 108 reported extraordinary items during the initial loss year. As a result only the exceptional items will be discussed from here onwards.

Panel A of Table 6 shows that there is little difference in terms of the exceptional items between reducers and non-reducers. The *t*-statistic of –0.5 is statistically insignificant. When the figures are related to their respective profit values (shown at the top of Table 6), it is apparent that the mean exceptional items of non-reducers equalling –19.8% are in excess of the profit of –17.2%. It therefore seems likely that many of the non-reducers would have been profitable had it not been for the unusual items. Exceptional items for dividend reducers however, were –22.6%, some 10% less

than the profit for the period of –32.9%. Thus many of the dividend reducers would have posted losses irrespective of unusual items. These findings are consistent with the US evidence collected by DeAngelo et al (1992) for special items.

Panel B of Table 6 shows that the value for exceptional items relative to absolute profits is large. They are also considerably greater for non-reducers than reducers at 414.5% versus 103.8% on a comparison of means. This confirms the results of Panel A in that unusual items play a more significant role in the losses of non-reducers than for dividend reducing firms.

Table 7 reports logit regressions of the dividend decisions made by firms in the loss sample in year 0 using profits in years –1, 0 and +1 as explanatory variables. As in previous regressions, the dependent variable is the dividend decision that takes the value of zero if the dividend is reduced, and one otherwise. The specifications reported are consistent with DeAngelo et al (1992) except that the only unusual items are the exceptional items.

Despite the inclusion of exceptional items, the size of the loss is still a statistically significant factor in the dividend decision in year 0. As with previous models, the profits in years –1 and +1 are positively related but not significant. The exceptional items are negatively related to dividend cuts in year 0. This is consistent with the view that temporary changes in earnings do not cause managers to change dividends. In both specifications, however, the unusual items are not found to be significant. A comparison based on pseudo R^2 values with Table 5 shows that the specification with the dividend decision based on just profits in years –1, 0 and 1 has a value of 12.5%;

the inclusion of the exceptional items increases the pseudo R^2 to 14.5%. There is thus some degree of agreement with the findings of Modigliani and Miller (1959) and DeAngelo et al (1992) that the inclusion of exceptional items does improve the ability to explain dividend decisions compared to profitability alone.

V. The Role of Debt and Sales in Dividend Reductions

We extend the work of DeAngelo et al (1992) to include other variables that have been suggested in the literature as influencing dividends. Debt is one variable that would logically appear to be a consideration when managers are making a dividend decision. DeAngelo and DeAngelo (1990) find that for firms with multiple annual losses, debt covenants are a factor in dividend policy. Fama and French (2001) discover that *former* payers of dividends are more highly indebted than *current* payers of dividends. Benito and Young (2001) use UK data to show that a high degree of leverage is associated with dividend omission. The effect of leverage is even more strongly linked to the propensity to cut dividends. They argue that, "dividend cutting is a stronger indicator of financial fragility than is dividend omission".

Table 8 presents a logit analysis of the dividend decision in year 0 with, as previously, the dependent variable equalling zero if the dividend was cut, and one otherwise. Independent variables utilized are the level of profits in years –1 to +2, exceptional items, and two measures of debt available from the FAME database, namely the liquidity ratio and the gearing ratio. The liquidity ratio is a short-term measure of debt, calculated as the difference between current assets and stocks & works in progress, all divided by current liabilities, i.e. the more indebted the firm is,

the *lower* the liquidity ratio. For an overall measure of a firm's debt position, the gearing ratio is employed. The gearing ratio is calculated as the sum of short-term loans & overdrafts and long-term liabilities, all divided by shareholders' funds, i.e. the more indebted the firms is, the *higher* the gearing ratio.

Given the findings in previous models, it comes as no surprise that the size of the loss in year 0 is both positively related to the dividend decision and statistically significant. The liquidity ratio, whilst not significant at the 95% level, does exhibit a positive relationship, as hypothesized, in all specifications that it is used. However, it provides only a relatively small increase in the overall explanatory power of the regression. Similar findings are observed for the gearing ratio, with negative relationships throughout, consistent with greater indebtedness increasing the propensity to cut dividends. There is some evidence here though to support Benito and Young's (2001) conclusion that higher levels of debt increase the probability of a dividend cut.

Studies such as those by Barbee et al (1996) and Leledakis and Davidson (2001) have found evidence of higher returns to firms with high sales-to-price ratios (SPR). These firms typically have low margins (calculated as the sales for the year divided by the profits over the same period) or are loss-making. For example, consider two firms, both trading on a multiple of ten times earnings, the first firm has margins of 10% and thus has a SPR of 1, the second firm has margins of 2% and thus has a SPR of 5. Based on the evidence of previous studies, it might be expected that the second firm would return a greater amount in the future. If it were able to raise its margins to the

level of the first firm then it is very likely that shareholders would experience abnormally high returns.

Table 9 further investigates the ratio of profits to turnover by reworking Table 5 using profit margins rather than profits standardized by shareholders' funds. The results show that margins in years –1 and 0 are both positive and statistically significant in all specifications where the variables are included. This seems reasonable given that if a firm has demonstrated that it could earn a sizeable margin just a year before the loss, it would seem that the dip in profitability is more likely to be temporary than a firm with high costs that is only achieving 'wafer thin' margins. There is also a positive coefficient for the margin in year 1 although this is not significant. By year 2 the margin variable has little relevance to the model. Comparing the pseudo R^2 values with the equivalents from Table 5 shows considerably greater explanatory power for each specification when using the margin variables.

Table 10 contains the same margin variables as Table 9 but also includes the additional explanatory variables used in Table 8. Despite the additional variables, the margin coefficients remain positive and statistically significant in both the year prior to the loss and the year of the loss itself. The debt variables and the exceptional items retain their respective signs from previous regression equations; however they add relatively less explanatory power to these models compared to the standard profit specifications in Table 8. Overall, the evidence presented in this study shows that there is a higher level of risk associated with low margins in the form of an increased possibility of a dividend cut. Whether the dividend risk is adequately priced is not a

consideration in this study but it does highlight an issue surrounding high sales-to-price stocks. The extension of the work by DeAngelo et al (1992) through the incorporation of additional independent variables has increased the ability to explain dividend decisions.

VI. The Informational Content of Dividend Policy

The hypothesis that dividends contain information about future earnings was first proposed by Modigliani and Miller (1959) and Miller and Modigliani (1961). It was reasoned that if managers raised dividends, this inferred that the future prospects of those firms were likely to be better than firms where managers had reduced dividends. Watts (1973) found, using a random sample, a weakly positive relationship that explained little of the variation between dividends and future earnings. Healy and Palepu (1988) discovered some evidence consistent with the information hypothesis in that firms initiating dividends experienced significant earnings growth in the two years following the initiation. Perversely, however, they also report that for firms omitting dividends, earnings also increase in the years after omission. Bernatzi et al (1997) find only limited support for the information hypothesis. They observe that firms that increase dividends show no unexpected earnings growth and that the size of the dividend increase is not important either. Consistent with Healy and Palepu (1988), firms that cut dividends in year 0 show significant increases in earnings in year 1. DeAngelo et al (1992) also find similar results to Healy and Palepu (1988) but they argue that it is not year-on-year earnings changes that are important but that the overall level of earnings of reducers is lower than that of non-reducers.

Table 11 tests whether the inclusion of unusual accounting items and the dividend decision is able to improve the ability to predict future earnings. The dependent variable in the ordinary least squares (OLS) regressions is the profit in year 1, and the independent variables are the profits in year 0, exceptional items and a dividend dummy that takes the value of zero if dividends were reduced during the loss year, and one otherwise. All *t*-statistics have been adjusted using the White (1980) correction.

Year 0 profits are found to have a positive relationship with year 1 profits but the coefficient is not significant and the explanatory power of the regression is low. Following the introduction of the dividend dummy, the adjusted R^2 value does improve but remains low. The dividend dummy has a positive coefficient in every specification, but is only significant in one. Exceptional items do again improve the explanatory power of the model by a small increment and the negative coefficient is consistent with unusual items temporarily lowering profitability, but the statistical significance is low again. Whilst the relationships observed in these regressions are consistent with DeAngelo et al (1992), the statistical significance of the variables and the explanatory power is much reduced, and thus only qualified corroboration can be offered.

Table 12 uses alternative variables to represent the profitability of the firm in year 0, consistent with those of DeAngelo et al (1992). By using variables that are not bottom line profits it may provide a more stable estimate of the profitability of the firm, as one-off write-downs are not included. It is found from the OLS regressions that the operating income provides greater explanatory power as an individual variable than

the profit for the period. Operational cash flow, by contrast, provides less explanatory power. The dividend dummy variable retains its positive coefficient across all specifications, although it is not statistically significant in any scenario. A comparison of adjusted R^2 values shows that the final specification of Table 11 containing profits in year 0, exceptional items and the dividend dummy, with a value of 7.4%, is greater than any of the specifications in Table 12. This is consistent with DeAngelo et al (1992).

Table 13 uses the profit and dividend dummy variables from Table 11 but also includes the liquidity ratio and the gearing ratio, described in Table 8. It is anticipated that the higher the level of debt that a firm has, the lower future bottom line profitability will be due to larger interest payments. The OLS regressions show that the short-term measure of debt, the liquidity ratio, has very little impact on future earnings, regardless of the specification. As in previous models, the dividend dummy retains a positive coefficient but without statistical significance. By far the most important variable in the specifications is the gearing ratio, which measures the overall indebtedness of the firm. This has a highly significant negative coefficient that is consistent with lower gearing (i.e. lower debt) predicting higher future profitability. The inclusion of the gearing variable causes the profit variable to become almost entirely irrelevant to the model. It is also noticeable that the specification with the greatest explanatory power contains just the gearing ratio and the dividend dummy. The adjusted R^2 of this specification is 9.7% and is greater than any of the values shown in Tables 11 or 12, although still considerably lower than the best specifications of DeAngelo et al (1992). It thus appears that the overall level of debt is a factor that affects the future profitability of a firm.

VII. Conclusion

It is found that losses in the UK are a very important condition for dividend reductions in firms that previously had long track records of positive earnings and dividends. Around 29% of firms in the loss sample cut dividends in the initial loss year, whilst only 2% of firms in the non-loss sample reduced their dividends. Dividend omissions are almost entirely confined to firms posting losses. Approximately 10% of the loss sample omitted dividends in the first loss year; by contrast there was just one incidence of omission amongst 1130 firm years in the non-loss sample. These findings are consistent with those for the US reported by DeAngelo et al (1992), although they find a higher level of dividend cutting within the loss sample at around 50% of all firms. The lower propensity to reduce dividends in the UK relative to the US is consistent with the stronger culture of dividend payments.

Although losses were found to be important in dividend reductions, over two-thirds of firms that posted an initial loss did not cut their dividends. Other variables were thus also investigated in an attempt to improve the ability to explain managers' dividend decisions. It is found that the size of the loss plays an important factor in the decision to reduce dividends, although the greater the exceptional items in the year of the loss, the lower the probability of a dividend reduction. This inferred that managers viewed unusual accounting items as being consistent with merely a temporary decline in profitability.

Evidence demonstrated that the more heavily indebted a firm was, the greater the propensity to reduce dividends during the initial loss year. This supports the US findings of Fama and French (2001) and the UK results presented by Benito and Young (2001). Finally, profit margins were also considered in the dividend decision. These were observed to have very significant explanatory power in both the year of the loss and the year preceding the loss, with lower margins increasing the likelihood of a dividend reduction. Indeed, margins were found to provide a better explanation of the dividend decision than the equivalent profit measures standardized by shareholders' funds.

Dividend reductions were discovered to be consistent with lower future earnings compared to non-reducers, although the statistical significance of the results was found to be less than that reported by DeAngelo et al (1992). There was also evidence though of the rebound in profitability in the years after a dividend cut as previously described by Healy and Palepu (1988) and Bernatzi et al (1997). Exceptional items were observed as being negatively related to future earnings, albeit with little explanatory power, consistent with these unusual items being of a temporary nature. Finally, the overall indebtedness of a firm was found to be very significant in predicting the level of future profits. Higher debt levels led to lower profitability in future periods.

Notes

1. At the time of writing, the dividend yield on the US S&P 500 Index was around 1.5% compared to a yield of just over 3% on the UK FT-SE All Share Index

2. Prior to the Finance Act 1997, all tax-exempt investors were able to reclaim the dividend tax credit paid on their behalf by firms. After 2nd July 1997, pension funds and institutions were no longer allowed to reclaim the credit although individual investors still could. The Finance Act 1999, introduced on 6th April 1999, however virtually eliminated this and as such all dividends have subsequently been received net of tax.

3. All pseudo R^2 values are calculated using Estella (1998).

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Table 1
Incidence of Reduction in Regular Dividends for (1) 108 Firms With at Least One Annual Loss During 1996-2000, and (2) 289 Firms With Positive Earnings Throughout 1996-2000

Each dividend reduction was first identified from LSPD and then checked against the annual report of each individual firm using LexisNexis. The dividend reduction count includes both dividend cuts to a still-positive level and also omissions. Omissions are classed as no dividend payments throughout the entire financial year of the individual firm (both interim and final). There were nine observations amongst loss firms of dividend reductions where an interim dividend was paid but the final dividend was omitted. For the 108 firms in the loss sample, the dividend reductions are for the *initial* loss year 1996-2000. For the 289 firms in the non-loss sample *all* incidences of dividend reductions are reported during 1996-2000 (beginning with the first year that the firm had positive dividends and earnings for the prior seven years). The 25 reductions in this sample were for 21 different firms. A loss is defined as a negative profit for the year in question after exceptional items, interest, taxation, extraordinary items and minority interests, but excluding dividends.

	Number of Firm-Years	Number (Percent) of Cases With	
		Dividend Reductions	Dividend Omissions
Loss Firms	108	31 (28.7%)	11 (10.2%)
Non-Loss Firm Years	1131	25 (2.2%)	1 (<0.1%)

Table 2
Incidence of Dividend Reductions According to Return on Equity: Pooled Sample of (1) 108 Initial Loss Years During 1996-2000 for the 108 Firms in the Loss Sample and (2) 1,131 Firm-Years During 1996-2000 for the 289 Firms in the Non-Loss Sample

Each dividend reduction was first identified from LSPD and then checked against the annual report of each individual firm using LexisNexis. The return on equity is calculated as the profit for the period standardized by shareholders' funds for the previous year. The table shows the proportion of firm years in which a reduction occurred, i.e. in 43.6% of the years where ROE < -20% a dividend reduction was recorded.

Return on Equity	No. of Reductions	Percent of Category	Total Firm-Years
-20% or lower	17	43.6%	39
-20% to -10%	5	21.7%	23
-10% to -5%	3	21.4%	14
-5% to 0%	6	18.8%	32
0% to 5%	4	7.4%	54
5% to 10%	9	5.0%	180
10% to 20%	9	2.2%	409
20% or greater	3	0.6%	488

Table 3

Logit Analysis of the Decision to Reduce Dividends for Pooled Sample of (1) 108 Firms With at Least One Annual Loss During 1996-2000, and (2) 206 Firms with at Least One Year of Declining Profits, but Remaining Positive Throughout 1996-2000.

The dependent variable equals zero if the firm announced a reduction in its regular dividend, and one otherwise. The loss dummy equals one if the firm reports a loss in the year under study, and zero otherwise. The profit for the period and the change in profit are standardized by the value of shareholders' funds in the prior year. For firms in the loss sample, the event year is the first year during 1996-2000 that the firm reported a loss. For firms in the non-loss sample, the event year is the first year during 1996-2000 that the firm reported a decline in profit. Firms are only eligible for either of the samples if they have at least seven years of positive dividends and earnings prior to the event year.

	Coefficient (*t*-statistic)						
Constant	4.62 (6.51)**	4.65 (6.06)**	4.85 (6.59)**	4.51 (5.46)**	2.08 (4.80)**	2.38 (10.89)**	2.84 (10.70)**
Loss Dummy	-3.72 (-5.01)**	-3.36 (-4.29)**	-3.37 (-4.47)**	-3.46 (-4.17)**	-	-	-
Profit For Period	-	1.63 (2.92)**	-	2.80 (1.51)	5.39 (2.17)*	3.58 (5.19)**	-
Change in Profit	-	-	1.58 (2.29)*	-1.43 (-0.67)	-1.95 (-0.77)	-	2.93 (4.70)**
Pseudo R^2	19.8%	22.3%	21.5%	22.4%	11.6%	11.3%	7.9%

N.B. ** denotes significant at 99% level
* denotes significant at 95% level

Table 4
Average Standardized Earnings for 108 Firms with an Initial Loss Year During 1996-2000 by Dividend Policy

Standardized earnings in year *t* are the level of profit for that period divided by shareholders' funds in year – 1. The sample is restricted to firms with at least 7 years positive dividends and earnings prior to the initial loss year during 1996-2000. There are 108 observations in years –1 and 0 (31 reducers and 77 non-reducers). This declines to 104 observations in year 1 (30 reducers and 74 non-reducers) and 97 in year 2 (30 reducers and 67 non-reducers) due to delistings.

Year Relative to Initial Loss in Year $t = 0$	Mean and Median Standardized Earnings for		*t*-statistic
	Dividend Reducers	Non-Reducers	
- 1	10.9% 9.1%	13.3% 12.1%	-1.61
0	-32.9% -25.0%	-17.2% -10.9%	-2.70*
1	-5.5% 1.1%	6.1% 11.1%	-2.03*
2	-0.0% 1.9%	8.4% 5.3%	-2.05*

N.B. * denotes significant at 95% level

Table 5
Logit Analysis of the Decision to Reduce Dividends During an Initial Loss Year Following Seven or More Years of Positive Dividends and Earnings.

The dependent variable has a value of zero if the firm reduced its dividend during the initial loss year, and one otherwise. Year 0 is defined as the time of the firm's initial loss during 1996-2000. PFP(*t*) refers to the profit for the period of year *t* standardized by the value of shareholders funds in year –1. There are 108 observations in years –1 and 0 (31 reducers and 77 non-reducers). This declines to 104 observations in year 1 (30 reducers and 74 non-reducers) and 97 in year 2 (30 reducers and 67 non-reducers) due to delistings.

	Coefficient (*t*-statistic)			
Constant	0.31	0.82	0.62	0.72
	(0.73)	(1.68)	(1.24)	(1.36)
PFP(-1)	4.92	6.25	6.54	5.50
	(1.49)	(1.73)	(1.82)	(1.41)
PFP(0)	-	2.73	2.27	2.95
		(2.96)**	(2.30)*	(2.70)**
PFP(1)	-	-	1.50	0.67
			(1.61)	(0.59)
PFP(2)	-	-	-	1.51
				(1.04)
Pseudo R^2	2.3%	11.3%	12.5%	15.5%

N.B. ** denotes significant at 99% level
* denotes significant at 95% level

Table 6
Unusual Income Items for 108 Firms with an Initial Loss Year During 1996-2000 by Dividend Policy

The profit for the period in year *t* is the level of profit for that period divided by shareholders' funds in year – 1. Exceptional and extraordinary items are standardized by the value of shareholders' funds in year –1 (Panel A) or the absolute value of the profit for the period in year 0 (Panel B). The sample is restricted to firms with at least 7 years positive dividends and earnings prior to the initial loss year during 1996-2000. There are 108 observations in years –1 and 0 (31 reducers and 77 non-reducers). This declines to 104 observations in year 1 (30 reducers and 74 non-reducers) and 97 in year 2 (30 reducers and 67 non-reducers) due to delistings.

	Mean and Median Values for		
	Dividend Reducers	Non-Reducers	*t*-statistic
Profit for Period	-32.9%	-17.2%	-2.70*
	-25.0%	-10.9%	
Panel A: Unusual Income Items Standardized by Shareholders' funds			
Exceptional Items	-22.6%	-19.8%	-0.50
	-13.8%	-12.7%	
Extraordinary Items	0.2%	-2.6%	1.60
	0.0%	0.0%	
Panel B: Unusual Income Items Standardized by Absolute Value of Earnings			
Exceptional Items	-103.8%	-414.5%	1.88
	-54.8%	-113.7%	
Extraordinary Items	-7.1%	-9.9%	-0.28
	0.0%	0.0%	

N.B. * denotes significant at 95% level

Table 7

The Impact of Unusual Items and Earnings on the Decision to Reduce Dividends by Firms with an Initial Loss During 1996-2000 Following Seven or More Years of Positive Dividends and Earnings

The dependent variable has a value of zero if the firm reduced its dividend during the initial loss year, and one otherwise. Year 0 is defined as the time of the firm's initial loss during 1996-2000. PFP(*t*) refers to the profit for the period of year *t* standardized by the value of shareholders funds in year –1. Exceptional items are standardized by the value of shareholders' funds in year –1. There are 108 observations in years –1 and 0 (31 reducers and 77 non-reducers). This declines to 104 observations in year 1 (30 reducers and 74 non-reducers).

	Coefficient (*t*-statistic)	
Constant	0.92	0.74
	(1.86)	(1.46)
PFP(-1)	4.78	5.04
	(1.32)	(1.38)
PFP(0)	4.84	4.21
	(2.72)**	(2.26)*
PFP(1)	-	1.15
		(1.21)
Exceptional Items	-2.52	-2.35
	(-1.57)	(-1.40)
Pseudo R^2	13.9%	14.5%

N.B. ** denotes significant at 99% level
* denotes significant at 95% level

Table 8

Logit Analysis of the Decision to Reduce Dividends During an Initial Loss Year Following Seven or More Years of Positive Dividends and Earnings using Profitability, Debt Variables, Exceptional Items and Change in Turnover.

The dependent variable has a value of zero if the firm reduced its dividend during the initial loss year, and one otherwise. Year 0 is defined as the time of the firm's initial loss during 1996-2000. PFP(*t*) refers to the profit for the period of year *t* standardized by the value of shareholders funds in year –1. The liquidity ratio is defined as the difference between current assets minus the value of stocks & work in progress all divided by current liabilities. The gearing ratio is defined as the sum of short-term loans & overdrafts and long-term liabilities all divided by shareholders' funds (both ratios take values only from year 0). Exceptional items are standardized by the value of shareholders' funds in year –1.

	Coefficient (*t*-statistic)			
Constant	-0.12	0.13	0.85	0.37
	(-0.15)	(0.14)	(1.56)	(0.39)
PFP(-1)	5.30	7.66	3.79	4.91
	(1.33)	(1.70)	(0.93)	(1.04)
PFP(0)	2.69	3.54	4.61	8.94
	(2.43)*	(2.67)**	(2.45)*	(3.07)**
PFP(1)	0.63	0.44	0.27	-0.05
	(0.56)	(0.34)	(0.24)	(-0.04)
PFP(2)	1.49	0.97	1.74	1.17
	(1.04)	(0.34)	(1.17)	(0.75)
Liquidity Ratio	0.90	0.75	-	0.80
	(1.17)	(0.94)		(0.95)
Gearing Ratio	-	-0.28	-	-0.17
		(-0.67)		(-0.36)
Exceptional	-	-	-2.11	-5.27
Items			(-1.24)	(-2.32)*
Pseudo R^2	17.9%	20.1%	17.2%	26.5%

N.B. ** denotes significant at 99% level
* denotes significant at 95% level

Table 9
Logit Analysis of the Decision to Reduce Dividends During an Initial Loss Year Following Seven or More Years of Positive Dividends and Earnings using Margin Variables.

The dependent variable has a value of zero if the firm reduced its dividend during the initial loss year, and one otherwise. Year 0 is defined as the time of the firm's initial loss during 1996-2000. The margin in year *t* is the profit of the period in year *t* divided by the turnover of the firm in the same year. There are 108 observations in years –1 and 0 (31 reducers and 77 non-reducers). This declines to 104 observations in year 1 (30 reducers and 74 non-reducers) and 97 in year 2 (30 reducers and 67 non-reducers) due to delistings.

	Coefficient (*t*-statistic)			
Constant	-0.37	0.12	0.16	-0.01
	(-0.81)	(0.24)	(0.32)	(-0.01)
MGN(-1)	0.33	0.38	0.33	0.37
	(2.88)*	(3.14)**	(2.78)**	(2.94)**
MGN (0)	-	0.09	0.08	0.10
		(2.76)**	(2.36)*	(2.56)*
MGN (1)	-	-	0.06	0.06
			(1.84)	(1.45)
MGN (2)	-	-	-	-0.01
				(-0.20)
Pseudo R^2	11.0%	18.5%	20.2%	23.3%

N.B. ** denotes significant at 99% level
* denotes significant at 95% level

Table 10
Logit Analysis of the Decision to Reduce Dividends During an Initial Loss Year Following Seven or More Years of Positive Dividends and Earnings using Margin Variables, Debt Variables and Exceptional Items.

The dependent variable has a value of zero if the firm reduced its dividend during the initial loss year, and one otherwise. Year 0 is defined as the time of the firm's initial loss during 1996-2000. The margin in year *t* is the profit of the period in year *t* divided by the turnover of the firm in the same year. The liquidity ratio is defined as the difference between current assets minus the value of stocks & work in progress all divided by current liabilities. The gearing ratio is defined as the sum of short-term loans & overdrafts and long-term liabilities all divided by shareholders' funds (both ratios take values only from year 0). Exceptional items are standardized by the value of shareholders' funds in year –1.

	Coefficient (*t*-statistic)					
Constant	-0.56	-0.33	-0.63	0.17	-0.08	-0.42
	(-0.64)	(-0.33)	(-0.73)	(0.28)	(-0.12)	(-0.41)
MGN(-1)	0.35	0.39	0.37	0.41	0.46	0.45
	(2.78)**	(2.90)**	(2.87)**	(2.99)**	(3.18)**	(3.08)**
MGN (0)	0.09	0.11	0.12	0.12	0.17	0.16
	(2.40)*	(2.64)**	(2.45)*	(2.72)**	(2.92)**	(2.81)**
MGN (1)	0.06	0.05	0.06	0.05	0.05	0.05
	(1.41)	(1.16)	(1.41)	(1.15)	(1.21)	(1.22)
MGN (2)	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02
	(-0.17)	(-0.34)	(-0.31)	(-0.33)	(-0.62)	(-0.61)
Liquidity	0.69	0.57	0.58	-	-	0.39
Ratio	(0.78)	(0.62)	(0.66)			(0.43)
Gearing	-	-0.20	-	-0.24	-0.29	-0.26
Ratio		(-0.58)		(-0.68)	(-0.73)	(-0.65)
Exceptional	-	-	-1.26	-	-2.15	-2.07
Items			(-0.98)		(-1.54)	(-1.48)
Pseudo R^2	23.9%	25.7%	24.9%	25.3%	27.9%	28.0%

N.B. ** denotes significant at 99% level
* denotes significant at 95% level

Table 11
OLS Regressions of Future Earnings on Current Earnings, Exceptional Items and Changes in Dividends for Firms with an Initial Loss During 1996-2000.

The profit for the period and exceptional items in year 0 are standardized by shareholders' funds in year –1. The dependent variable is the profit for the period in year 1 is also standardized by shareholders' funds in year –1. The dividend dummy has a value of zero if the firm reduced its dividend during the initial loss year, and one otherwise. The sample is reduced to 104 observations since three firms were lost from the sample in year 1. All *t*-statistics have been adjusted using the White (1980) correction.

	Coefficient (*t*-statistic)			
Constant	0.08	0.00	-0.06	0.00
	(2.30)*	(0.05)	(-1.25)	(0.09)
PFP(0)	0.23	0.18	-	0.36
	(1.55)	(1.32)		(1.79)
Exceptional Items	-	-	-0.04	-0.26
			(-0.28)	(-1.31)
Dividend Dummy	-	0.09	0.12	0.07
		(1.85)	(2.07)*	(1.25)
Adjusted R^2	3.4%	4.8%	2.3%	7.4%

N.B. * denotes significant at 95% level

Table 12
OLS Regressions of Future Earnings on Current Operating Income, Operating Cash Flow and Changes in Dividends for Firms with an Initial Loss During 1996-2000.

Current operating income and current operating cash flow are values for year 0, standardized by shareholders' funds in year –1. The dependent variable is the profit for the period in year 1 is also standardized by shareholders' funds in year –1. The dividend dummy has a value of zero if the firm reduced its dividend during the initial loss year, and one otherwise. The sample is reduced to 104 observations since three firms were lost from the sample in year 1. All *t*-statistics have been adjusted using the White (1980) correction.

	Coefficient (*t*-statistic)					
Constant	0.00	-0.03	-0.03	-0.08	0.01	-0.03
	(0.07)	(-0.87)	(-0.56)	(-1.32)	(0.25)	(-0.47)
Current Operating Income	0.29	0.24	-	-	0.32	0.27
	(1.50)	(1.14)			(1.50)	(1.16)
Current Operating Cash Flow	-	-	0.21	0.15	-0.04	-0.05
			(1.09)	(0.78)	(-0.20)	(-0.24)
Dividend Dummy	-	0.06	-	0.09	-	0.06
		(1.02)		(1.86)		(1.05)
Adjusted R^2	6.1%	6.2%	2.3%	3.7%	5.2%	5.4%

N.B. ** denotes significant at 99% level
* denotes significant at 95% level

Table 13
OLS Regressions of Future Earnings on Current Earnings, Liquidity Ratio, Gearing Ratio and Changes in Dividends for Firms with an Initial Loss During 1996-2000.

The profit for the period and exceptional items in year 0 are standardized by shareholders' funds in year –1. The dependent variable is the profit for the period in year 1 is also standardized by shareholders' funds in year –1. The liquidity ratio is defined as the difference between current assets minus the value of stocks & work in progress all divided by current liabilities. The gearing ratio is defined as the sum of short-term loans & overdrafts and long-term liabilities all divided by shareholders' funds (both ratios take values only from year 0). The dividend dummy has a value of zero if the firm reduced its dividend during the initial loss year, and one otherwise. The sample is reduced to 106 firms in some instances since data for the gearing ratio was unavailable for two firms. The *t*-statistics in the first specification have been adjusted using the White (1980) correction; this was not necessary for the remaining specifications.

	Coefficient (*t*-statistic)					
Constant	0.07 (1.97)*	-0.06 (-1.20)	0.12 (3.18)**	0.06 (1.21)	0.07 (1.09)	0.07 (1.09)
PFPB0	0.23 (1.52)	-	0.03 (0.28)	-	0.00 (0.02)	0.00 (0.03)
Liquidity Ratio	0.00 (0.86)	0.00 (0.28)	-	-	-	-0.00 (-0.19)
Gearing Ratio	-	-	-0.09 (-3.12)**	-0.09 (-3.14)**	-0.09 (-2.99)**	-0.09 (-2.98)**
Dividend Dummy	-	0.11 (2.04)*	-	0.06 (1.13)	0.06 (1.08)	0.06 (1.08)
Number of Observations	108	108	106	106	106	106
Adjusted R^2	2.6%	2.3%	8.6%	9.7%	8.8%	7.9%

N.B. ** denotes significant at 99% level
* denotes significant at 95% level