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Dividends and Losses

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ABSTRACT

An annual loss is essentially a necessary condition for dividend reductions in firms with established earnings and dividend records: 50.9% of 167 NYSE firms with losses during 1980–1985 reduced dividends, versus 1.0% of 440 firms without losses. As hypothesized by Miller and Modigliani, dividend reductions depend on whether earnings include unusual items that are likely to temporarily depress income. Dividend reductions are more likely given greater current losses, less negative unusual items, and more persistent earnings difficulties. Dividend policy has information content in that knowledge that a firm has reduced dividends improves the ability of current earnings to predict future earnings.

LINTNER'S (1956) PIONEERING STUDY of dividend policy finds that a firm's bottom line net income is the key determinant of dividend changes, which in his sample are largely dividend increases since he primarily surveys healthy firms.[1] If one can extrapolate this finding to dividend decreases, it implies that low bottom line earnings drive dividend reductions. DeAngelo and DeAngelo (1990) document a high incidence of dividend reductions by firms with persistent (three or more) losses, but provide no evidence on dividend reductions for firms with transitory losses, or with low but positive earnings. The literature is also unclear about the relative importance of past, current, and future earnings in determining dividend changes. Lintner and Fama and Babiak (1968) emphasize the relevance of current and past earnings, while Miller and Modigliani's (1961) and Modigliani and Miller's (1959) analysis of the information content of dividends suggests that dividend changes also depend on management's expectations of future earnings.[2]

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[1] Lintner's (p. 107) survey revealed that "... net earnings were the predominant element which determines current changes in dividends..."

[2] According to Miller and Modigliani (1961, p. 430), "... where a firm has adopted a policy of dividend stabilization with a long-established and generally appreciated "target payout ratio," investors are likely to (and have good reason to) interpret a change in the dividend rate as a change in management's views of future profit prospects for the firm."

This paper analyzes the relation between dividend reductions and poor earnings performance by firms listed on the New York Stock Exchange (NYSE) with established track records of positive earnings and dividend payments. We focus on firms with established track records since, as Miller and Modigliani (1961, p. 430) point out, dividend changes for such firms are more reliably viewed as deliberate policy shifts undertaken by management (rather than continuation of a previously established policy to preserve stable dividends). For firms with established earnings records, moreover, we can readily isolate a material shift in profitability, e.g., a loss following a long string of positive earnings realizations. These attributes make our sample a particularly good one with which to assess the importance of poor earnings in determining dividend reductions and to test whether dividend reductions convey incremental information about future earnings (over and above that conveyed by current earnings).

We find that an annual loss is essentially a necessary, but not sufficient, condition for dividend reductions in firms with established earnings and dividend records. We compare the dividend decisions of 167 NYSE firms with at least one annual loss during 1980–1985 to those of 440 NYSE firms with no losses during the same period, where all firms have ten or more prior years of positive earnings and dividends. Approximately half (50.9%, or 85 of 167) of the loss firms reduced dividends in the initial loss year. The 50.9% dividend reduction rate for loss firms far exceeds the 1.0% incidence of dividend reductions for the 440 non-loss firms during 1980–1985. The relation between losses and dividend omissions is also dramatic: 25 (15.0%) of the 167 loss firms *omitted* dividends during their initial loss year, whereas only one of the 440 non-loss firms did so during the six-year sample period. Logit analysis of the dividend reduction decision in the pooled loss and non-loss sample indicates that the presence or absence of a loss has explanatory power over and above earnings levels or changes.

Negative net income is clearly not sufficient for a dividend reduction, since almost half the firms in our loss sample did not reduce dividends during their initial loss year. The apparent explanation is that the loss sample is comprised of two types of firms: (1) firms with continuing, severe earnings difficulties that reduce dividends, and (2) firms with one-time earnings problems that do not reduce dividends. Firms that reduce dividends during the initial loss year have significantly deeper current losses on average than firms that do not reduce dividends. Dividend reducers also typically experience greater future earnings problems than do non-reducers. In contrast, past earnings differences are second order. Logit analysis indicates that both the depth and persistence of losses are important determinants of the decision to reduce dividends for the 167 firms in our loss sample.

As hypothesized by Modigliani and Miller (1959, p. 667), analysis of the components of bottom line earnings materially improves our ability to explain which firms reduce dividends. Dividend reductions occur significantly less often when losses include unusual income items such as special writedowns associated with corporate restructurings. Such losses are less likely to generate dividend reductions because unusual items will tend to have a more

transitory earnings impact and/or to be less indicative of ongoing operating difficulties. Thus, while Lintner (1956) is likely still correct that bottom line net income is the key determinant of dividend changes for generally healthy firms, our evidence indicates that dividend reductions are significantly better explained by net income augmented by consideration of unusual income items.

Our data also support Miller and Modigliani's (1961) and Modigliani and Miller's (1959) hypothesis that dividend reductions convey information that future earnings prospects are poor. For our sample, knowledge that a firm has reduced dividends significantly improves the ability of current earnings to predict future earnings. This finding holds whether current earnings are measured as bottom line net income, net income augmented by information about unusual items, operating earnings, or operating cash flow. We conjecture that this finding reflects the fact that dividends and current earnings are substitute means of forecasting earnings, so that dividends have information content primarily when firms have extreme or otherwise unusual earnings realizations that inherently have limited predictive power.[3] This argument may help explain why Watts (1973) finds little evidence of information content for dividend changes of randomly selected firms, while recent event study evidence of Leftwich and Zmijewski (1991) indicates that dividends have information content, but only when company announcements reveal good news about earnings and bad news about dividends.[4]

Section I describes sample selection procedures and documents dividend reductions for the 167 firms in our loss sample. Section II contrasts the incidence of dividend reductions in loss firms with that for the comparison sample of 440 firms with no losses. It also reports results of logit analyses on the pooled sample that relate the decision to reduce dividends to the presence or absence of a loss, and to earnings levels and changes. Section III provides evidence that dividend-reducing firms in the loss sample have deeper and more persistent losses than do firms that experience a loss, but do not reduce dividends. Section IV reports evidence that the decision to reduce dividends is influenced by whether current losses include unusual income items. Section V presents our analysis of the information content of dividend reductions. Section VI concludes with a brief summary.

I. The Incidence of Dividend Reductions in Loss Firms

Our primary sample (the *loss sample*) contains 167 industrial firms listed on the NYSE that reported at least one annual loss during 1980–1985. We

[3] Warther (1991) develops a signaling model which predicts that dividends will have information content primarily when dividends are cut. In his model, only the "worst" firms cut dividends, so that the dividend decisions of non-cutting firms reveal only that they are not among the worst firms. This coarse sorting equilibrium implies that dividend reductions are more informative about earnings prospects than are dividend changes in general.

[4] Brown, Choi, and Kim (1991) also present evidence consistent with this view. Section V discusses these and other empirical studies of the information content of dividends.

constructed this sample by searching COMPUSTAT's annual primary and research tapes for NYSE-listed firms with complete net income and dividend data for 1980–1985 that reported negative net income for at least one year of this six-year period.[5] We restrict attention to firms that reported positive net income and paid cash dividends (per COMPUSTAT) in each of the 10 years immediately prior to their first annual loss during 1980–1985. We focus on firms with established track records because (1) as Miller and Modigliani point out, dividend changes for such firms are more reliably viewed as deliberate policy shifts, and (2) a loss unambiguously represents a low earnings realization for such firms.

DeAngelo and DeAngelo (1990) study firms with protracted financial distress (defined as three or more net or operating losses after a single year of positive earnings and dividends) and find a high incidence of dividend cuts. Since their sample is limited to firms with protracted losses, they do not analyze the impact of transitory losses or low but positive earnings on dividend policy. In contrast, our sample contains firms with varying degrees of earnings difficulties (single versus multiple losses in the loss sample, and earnings declines or not in the non-loss comparison sample described below).[6] The advantage of the current sampling algorithm is that it enables us to investigate the dividend policy implications of substantial cross-sectional variation in the nature, depth, and persistence of earnings problems. As one would expect, there is some, but not great, sample overlap: 42 (25.1%) of the 167 firms in our loss sample are included in DeAngelo and DeAngelo's sample of 80 persistently troubled firms. None of the 440 firms in our comparison sample is in their sample.

Our use of annual rather than quarterly data is consistent with the focus of prior dividend studies (e.g., Fama and Babiak (1968), Watts (1973)), and reflects Lintner's (1956, p. 103) survey of managers' views of dividend policy which revealed that "... dividends were uniformly considered in terms of annual periods." The distribution of initial loss years in the loss sample is: 1980, 12 firms; 1981, 9 firms; 1982, 48 firms; 1983, 31 firms; 1984, 19 firms; 1985, 48 firms. The 167 firms in the loss sample are spread over 87 different four-digit SIC industries. The only industries with a seemingly large number of sample firms are 3310 (blast furnaces and steel works) with 10 firms, and 3560 (general industry machinery and equipment) with nine firms.

We identified reductions in regular dividends[7] by checking COMPUSTAT's

[5] Industrial firms on COMPUSTAT's primary or research tapes are defined as those with COMPUSTAT exchange codes 1, 3, or 4 whose NYSE-traded shares are not American Depositary Receipts, and whose primary SIC classification is not a financial company (SIC in the 6000's) or a utility (SIC in the 4900's). An annual loss is defined as a negative value for the sum of COMPUSTAT Item 18, income before extraordinary items and discontinued operations, and Item 48, extraordinary items and discontinued operations.

[6] Of the 167 firms in the loss sample, 94 (56.3%) reported exactly one loss, 41 (24.6%) reported two losses, and 32 (19.2%) reported three or more losses during 1980–1985. Of the 440 firms in the non-loss sample (described below), 340 firms reported at least one earnings decline during 1980–1985.

record of annual (split-adjusted) dividends per share against dividend entries in *The Wall Street Journal Index* for the year of the initial loss and the immediately prior and subsequent years. As in Watts (1973), we use an "overlap" definition of dividends, so that a dividend reduction is allocated to a particular (loss) year if it occurs in the second, third, or fourth fiscal quarter of that year, or in the first quarter of the following fiscal year. The rationale for using the overlap definition is that first quarter dividend adjustments probably reflect annual earnings realizations (Watts (1973), p. 195).

Eighty-five (50.9%) of the 167 firms in the loss sample announced reductions in regular cash dividends during the initial loss year. Approximately 85% of these dividend reductions were announced during the second, third, or fourth fiscal quarters of that year (announcements for 23, 28, and 21 firms, respectively). The remaining 15% (announcements for 13 firms) occurred during the first fiscal quarter of the following year. Hereafter we refer to the 85 dividend reductions as occurring "during the initial loss year" without reference to the overlap definition discussed above.

Sixty (70.6%) of the 85 dividend reductions in the loss sample are cuts to a still positive level, while the remaining 25 (29.4%) reductions are complete omissions of dividend payments. For the 85 dividend-reducing firms, the mean and median reductions are -66.0% and -57.1%, which are much larger in absolute value than the typical dividend increases of listed firms. (For comparison, Brickley (1983, Table 2) reports a 15.0% median increase in regular dividends for randomly selected New York and American Stock Exchange firms.) The magnitude of dividend reductions in our loss sample indicates that reported losses are associated with substantial dividend reductions by NYSE firms with established dividend and earnings records.[8]

II. Dividend Reductions in Loss Versus Non-Loss Samples

The importance of losses in generating dividend reductions stands out in bold relief when we compare the incidence of dividend reductions in our sample to that in firms with no annual losses. For this analysis, we searched COMPUSTAT to construct a comparison sample of NYSE firms that (1) is similar to the loss sample in that it contains non-financial and non-utility firms with at least ten prior years of positive dividends and earnings, but that (2) differs from the loss sample in that it excludes firms with any annual

[7] We focus on regular dividends since changes in special/extra dividends are less clearly indicative of a shift in dividend policy. In any case, the issue is not important empirically since few sample firms paid specially designated dividends. For example, in the three years before our sample period, an average of six firms per year paid extra or special dividends.

[8] The relation between losses and dividend reductions is probably stronger than indicated by the 85 dividend reductions during the initial loss year since another 19 firms announced dividend reductions in the year before or year after. Thus, annual losses may have generated dividend reductions at as many as 104 firms (62.3% of the sample). We conservatively treat as loss-related only the 85 dividend reductions announced during the initial loss year.

losses during 1980–1985.[9] This *non-loss sample* contains all 440 NYSE firms (with 2,364 firm-years of dividends and earnings on COMPUSTAT during 1980–1985) that satisfy conditions (1) and (2). Again, we identify dividend reductions by first screening COMPUSTAT for decreases in annual (split-adjusted) dividends per share, and then verifying in *The Wall Street Journal Index* that the COMPUSTAT-indicated decrease represents a reduction in the firm's regular cash dividend.

Table I documents a very low incidence of regular dividend reductions and a trivial incidence of dividend omissions in the non-loss sample. For this sample, we find a total of 23 dividend reduction announcements (by 20 different firms) and only one dividend omission within the 2,364 firm-years with positive earnings. These totals translate to a 1.0% dividend reduction rate and an essentially zero (well below 0.1%) dividend omission rate for the non-loss sample.[10] This benchmark is appropriate for assessing the incremental effect of an annual loss on dividend policy, over and above the effect of random positive earnings realizations, for firms with established earnings and dividend records.

Since dividend reductions seem unlikely when earnings are positive and increasing, it is useful to compare the loss sample's 50.9% dividend reduction rate with the reduction rate for non-loss firms in years of declining income. The non-loss sample has a dividend reduction rate of 2.7% for the subset of 768 firm-years with earnings declines, and a 1.5% reduction rate when we limit attention to the 340 firm-years in which annual earnings first declined during 1980–1985. The difference between the loss sample's 50.9% dividend reduction rate and the corresponding 2.7% (or 1.5%) rate for the non-loss sample represents an estimate of the incremental effect of an initial annual loss on dividend policy, over and above an earnings decline. Clearly, relative to all these benchmarks, dividend reduction rates for the non-loss sample are remarkably low compared to the 50.9% reduction rate for loss firms.

The 50.9% dividend reduction rate for loss firms measures the incidence with which firms cut dividends in their first year of negative earnings after at least ten years of positive income and dividend payments. Thus, these dividend cuts were not precipitated by years of mounting losses, although it seems reasonable that such a scenario would lead to an even greater incidence of dividend cuts or omissions. In any case, the advent of a loss (even

[9] A profile analysis of loss versus non-loss firms provides some indication that loss firms are smaller. For example, loss firms have mean sales of $1.9 billion in the initial loss year, versus $3.3 billion in the year of the first earnings decline for the subset of 340 non-loss firms with at least one annual earnings decline during 1980–1985. (The t-statistic for the difference in means test is -2.38.) However, differences in median sales and in mean and median total assets are not significant at conventional levels. Loss firms are more highly levered, with a mean total debt to total assets ratio of 0.48, compared to 0.40 for non-loss firms. The difference in means has a t-statistic of 6.81, while the Z-statistic for a Wilcoxon rank sum test is 7.40.

[10] The average reduction in dividends per share is 48.6% in the non-loss sample, which is roughly comparable to the 66.0% mean dividend reduction by loss firms. The median reduction of 50.0% for non-loss firms is also comparable to the 57.1% median reduction for loss firms.

Table I

Incidence of Reductions in Regular Common Stock Dividends for (1) 167 NYSE Firms With at Least One Annual Loss During 1980–1985, and (2) 440 NYSE Firms With Positive Earnings Throughout 1980–1985

Each dividend reduction was first identified from COMPUSTAT's report of annual (split-adjusted) dividends per share, and then verified in the *Wall Street Journal Index* as a reduction in the regular dividend. The dividend reduction counts include both cuts to a still-positive level and omissions. For the 167 firms in the loss sample, we report the incidence of dividend reductions in the initial loss year during 1980–1985. This sample consists of firms that had at least ten years of positive income and dividend payments prior to its first annual loss during 1980–1985. For the 440 firms in the non-loss sample, we report the incidence of dividend reductions for all firm-years during 1980–1985 (beginning with the first year during this period that the firm had positive earnings and dividend payments for at least the ten prior years). The 23 reductions in this sample are for 20 different firms.

	Number of Firm-Years	Number (Percent) of Cases With	
		Dividend Reductions	Dividend Omissions
Loss firms	167	85 (50.9%)	25 (15.0%)
Non-loss firm-years	2,364	23 (1.0%)	1 (< 0.1%)

after a long history of positive earnings) is apparently a sufficiently serious event that it implies a high likelihood that managers will examine the company's future prospects and decide to reduce the dividend.[11]

Table II provides evidence that it is losses per se—and not simply a low but positive level of earnings—that generate dividend reductions in our sample firms. The table describes the incidence of dividend reductions conditional on different levels of return on equity (ROE), defined as net income divided by the book value of stockholders' equity at the end of the immediately prior year. The Table II data are for the pooled sample of 2,531 firm-years (167 corresponding to initial loss years for the loss sample and 2,364 from the non-loss sample).

Table II reveals a substantially higher incidence of dividend reductions for all intervals of negative ROE (losses) than for all positive ROE intervals. For example, small losses (ROE in the interval from −2% to 0%) are associated with a dividend reduction rate of 40.0%, which far exceeds the 3.4% reduction rate for firms with small positive earnings (ROE in the interval from 0%

[11] It is worth noting that causality can also run in the opposite direction. Reported losses may in part reflect accounting choices that portray the firm as troubled and hence help managers convince stockholders that a dividend cut is warranted and not simply an attempt to appropriate free cash flow (Jensen (1986), DeAngelo, DeAngelo, and Skinner (1993)). Also, dividend reductions and reported losses may be complementary elements of a managerial strategy to convince stakeholders such as unionized labor that the firm is seriously troubled and therefore requires contract concessions (DeAngelo and DeAngelo (1991)).

Table II

Incidence of Regular Dividend Reductions for Different Levels of Return on Equity: Pooled Sample of (1) 167 Initial Loss Years During 1980–1985 for the 167 NYSE Firms in the Loss Sample, and (2) 2,364 Firm-Years During 1980–1985 for the 440 NYSE Firms in the Non-Loss Sample

Each dividend reduction was first identified from COMPUSTAT's report of annual (split-adjusted) dividends per share, and then verified in the *Wall Street Journal Index* as a reduction in the regular dividend. The return on equity is net income divided by the prior year's book value of stockholders' equity (per COMPUSTAT). For each interval of standardized earnings, the table gives the number and percentage of firm-years for which we observe a reduction in cash dividends. For example, dividends were reduced in 23 of the 38 (60.5%) firm-years with standardized earnings falling between −20% and −10%.

Return on Equity	Number of Reductions	Percent of Category	Total Firm-Years
− 20% or lower	19	57.6%	33
−20% to −10%	23	60.5	38
−10% to −8%	10	62.5	16
−8% to −6%	9	52.9	17
−6% to −4%	11	55.0	20
−4% to −2%	5	21.7	23
−2% to 0%	8	40.0	20
0% to 2%	1	3.4	29
2% to 4%	4	6.9	58
4% to 6%	5	6.3	80
6% to 8%	4	3.3	122
8% to 10%	5	3.0	165
10% to 15%	3	0.5	629
above 15%	1	0.0	1281

to +2%). For positive ROE firm-years, the reduction rate ranges from 0% to 6.9%; for negative ROE firm-years, it ranges from 21.7% to 62.5%. Thus, it seems clear that the zero earnings level is a significant "break point" in the relation between earnings and dividend reductions, with positive earnings uniformly showing a low incidence of dividend reductions and negative earnings consistently indicating a much higher incidence of dividend reductions.

Table III's logit analysis provides further support for the importance of annual losses in generating dividend reductions. This analysis employs a pooled sample of (1) the 167 observations corresponding to initial loss years for firms in the loss sample, and (2) the 340 observations corresponding to initial years during 1980–1985 that firms in the non-loss sample report an earnings decline. (Again, we focus on declining income years for non-loss firms because firms seem unlikely to cut dividends when earnings are positive and increasing.) In all specifications, the dependent variable equals zero if the firm announces a dividend reduction and one otherwise. The loss dummy variable takes a value of one if the firm is in the loss sample, and a

Table III

Logit Analysis of the Decision to Reduce Dividends for Pooled Sample of (1) 167 NYSE Firms With at Least One Annual Loss During 1980–1985, and (2) 340 NYSE Firms With at Least One Year of Declining Earnings, But Positive Net Income Throughout 1980–1985

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 change in and level of net income are standardized by the book value of stockholders' equity for the prior year. For firms in the loss sample, the event year is the firm's initial loss year. For firms in the non-loss sample, the event year is the first year during 1980–1985 that the firm reported a decline in net income. Firms are eligible for the loss and non-loss samples only if they have ten or more years of positive earnings and dividends prior to their event year during 1980–1985. All model specifications are significant, with p-values less than 0.001.

	Coefficient (t-statistic)						
Constant	−4.20 (−9.33)	−3.75 (−7.76)	−4.33 (−9.51)	−3.52 (−5.31)	−0.81 (−2.28)	−1.59 (−10.46)	−2.89 (−13.16)
Loss dummy	−4.24 (−8.90)	−3.36 (−5.73)	−3.80 (−7.40)	−3.26 (−5.32)	—	—	—
Level of net income	—	3.51 (2.45)	—	4.91 (1.61)	16.75 (6.51)	11.65 (9.58)	—
Change in net income	—	—	2.65 (2.14)	−1.49 (−0.52)	−6.67 (−2.34)	—	10.69 (8.59)
Pseudo R^2	27.3%	28.2%	27.9%	28.2%	24.7%	24.1%	17.7%

value of zero if it is in the non-loss sample. The other explanatory variables are the level of net income and the change in net income in the current period, each of which is standardized by the prior year's book value of stockholders' equity.

The loss dummy is negative and highly significant ($t = -8.90$) when the presence or absence of a loss is the only explanatory variable included in the model. This finding, which indicates that firms that report an annual loss have a significantly higher probability of a dividend reduction, continues to hold when the level of earnings and/or the change in earnings are included as explanatory variables (with t-statistics on the loss dummy that range from -5.32 to -7.40). Under a simple comparison of pseudo R^2's, the loss dummy alone has greater explanatory power (27.3%) than either current earnings alone (24.1%) or the change in earnings alone (17.7%). While pseudo R^2 comparisons have well-recognized limitations (Aldrich and Nelson (1984)), it is nonetheless clear that the presence or absence of a loss has a surprising amount of explanatory power in the logit regressions, especially since it conveys no information about the magnitude of a given loss.

The magnitude of current earnings (or of the change therein) does provide additional explanatory power over and above the simple presence of a loss. For example, the second specification exhibits a significantly positive coefficient on the level of net income (t-statistic = 2.45), which indicates that higher earnings (or smaller losses) are associated with a lower chance that the firm will reduce dividends. The earnings level is highly significant (t-statistic = 9.58) when it is the only explanatory variable included in the regression, as is the earnings change (t-statistic = 8.59). (The t-statistics for earnings levels and changes fall when both are included in the regressions because they are highly collinear.)[12] These findings imply that the magnitude of the firm's current earnings problems as proxied, e.g., by the depth of its current loss, significantly affects the probability of a dividend reduction.

Overall, the data presented thus far indicate that annual losses are an important determinant of dividend reductions in firms with established earnings and dividend records. Moreover, the low (1.0%) incidence of dividend reductions in the non-loss sample suggests that an annual loss is, to a first approximation, a necessary condition for a dividend reduction, as does the incidence of dividend reductions in the pooled sample conditional on ROE. (The essentially zero incidence of dividend omissions for non-loss firms indicates an even closer relation between annual losses and dividend omissions.) Losses, however, are not by themselves sufficient to generate dividend reductions, since 82 (49.1%) of the 167 loss firms failed to cut dividends in the initial loss year. This finding suggests that dividend reduction decisions may depend on other earnings differences across reducers and non-reducers, a possibility we investigate next.

III. Earnings Performance and the Dividend Reduction Decision in Loss Firms

Figure 1 provides an overview of the earnings performance of the 167 firms in the loss sample for years surrounding their initial loss during 1980–1985. For each firm, we designate the initial loss year as year 0 and align all firms' earnings in common "event time." For each firm in a given event year t, earnings are standardized by the book value of stockholders' equity in year -1. The figure presents the mean value of standardized earnings for the ten-year pre-loss period ($t = -10$ through -1), the initial loss year ($t = 0$), and the two subsequent years ($t = 1$ and 2). Mean earnings are presented separately for the 85 firms that reduced dividends during the initial loss year and the 82 firms that did not.

[12] The simple correlation between the level and change in earnings is 0.90. This high correlation can plausibly explain why the sign of the coefficient on earnings changes is negative when both earnings levels and changes are included in the Table III regressions. Also, when earnings levels and/or changes are added to the model, the resulting modest decline in the t-statistic on the loss dummy may similarly reflect collinearity. The simple correlation between the loss dummy and (1) the level of earnings is -0.76 and (2) the change in earnings is -0.61.

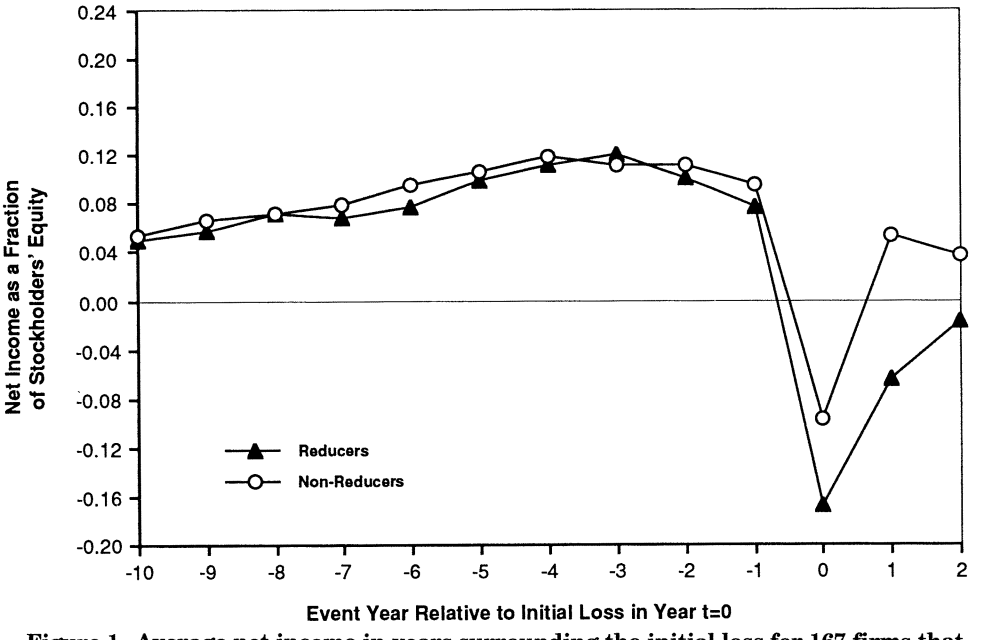

Figure 1. Average net income in years surrounding the initial loss for 167 firms that reported at least one loss during 1980–1985: Sample partitioned into firms that reduced and that did not reduce dividends. The figure presents the mean value of net income divided by stockholders' equity (per COMPUSTAT) in year −1, the year before the firm's initial loss during 1980–1985. The full sample consists of 167 NYSE-listed industrial firms with at least ten years of positive earnings and dividend payments before their initial annual loss during 1980–1985. The "reducer" subsample contains the 85 firms that announced reductions in regular cash dividends during year 0, their initial loss year. The "non-reducer" subsample contains the remaining 82 firms. For years −10 through 0, there are 85 observations in the reducer subsample and 82 observations in the non-reducer subsample. The reducer subsample has 84 and 83 observations for years 1 and 2 respectively, while the non-reducer subsample has 80 and 76 observations in those years.

A. Earnings Differences Between Dividend Reducers and Non-Reducers

Figure 1 shows little difference in the earnings of dividend reducers and non-reducers over the nine years prior to the year before the initial annual loss (i.e., years −10 through −2).[13] Consistent with this picture, mean and median earnings are statistically different across the two subsamples only in

[13] A profile analysis of dividend reducers versus non-reducers provides some evidence that dividend reducers tend to be smaller than non-reducers, with mean sales of $1.6 billion (versus $2.2 billion for non-reducers) in the initial loss year. While the difference in mean sales is not significant, the difference in median sales ($0.6 billion versus $1 billion) is, at the 0.033 level under a Wilcoxon rank sum test. A comparison of total assets yields a similar picture; the median but not the mean difference is significant (at the 0.027 level). There are no significant leverage differences across the two groups, with mean total debt to total assets ratios of 0.49 for reducers, versus 0.47 for non-reducers.

one year (year −6) of that nine-year period.[14] (For year −6, the difference in means test yields a *t*-statistic of 2.60, while the Wilcoxon rank sum test yields a *Z*-statistic of 2.47.) Figure 1 indicates that the earnings difference between dividend reducers and non-reducers begins to widen in year −1, the year before sample firms' initial annual loss during 1980–1985, and the difference persists (at least visually) through year 2.[15]

Table IV confirms this visual impression with data on mean and median earnings (standardized by pre-loss stockholders' equity) for the 85 dividend reducers and the 82 non-reducers for the five years centered on the initial loss. The right-hand column of the table reports *t*- and *Z*-statistics for parametric and nonparametric comparisons across the two subsamples. Mean and median earnings of dividend reducers and non-reducers are not materially different in year −2, but they begin to exhibit differences in year −1, the year before the initial loss. In year −1, the mean (median) earnings of the 82 non-reducers are 9.5% (9.1%) of pre-loss stockholders' equity, compared to 7.7% (6.9%) for the 85 dividend reducers (*t*-statistic = −2.24, *Z*-statistic = −2.12).

Figure 1 and Table IV indicate that dividend reducers typically report a much larger initial loss in year 0, although the earnings performance of both dividend reducers and non-reducers declines radically at that time. In year 0, dividend reducers report mean earnings of −16.8% of pre-loss stockholders' equity (median, −9.9%). Non-reducers report mean earnings of −9.8% (median, −6.7%). The difference in earnings performance across the two groups is significant under both parametric and nonparametric statistical tests (*t*-statistic = −2.75, *Z*-statistic = −2.67).

Both subsamples exhibit earnings increases in years 1 and 2, but the non-reducers recover to a small positive profit, whereas the typical dividend-reducing firm continues to report losses. In year 1, the mean earnings of dividend reducers recover to a still-sizable loss of −6.5% of pre-loss equity (median, −4.7%). The mean earnings of non-reducers rebound to a positive 5.3% (median +8.3%), and the differences across subsamples are highly significant (*t*-statistic = −4.48, *Z*-statistic = −5.08). In year 2, dividend reducers report mean earnings of −1.8% (median, +2.2%) of pre-loss stockholders' equity, versus +3.7% (median, +6.7%) for non-reducers. The differences in year 2 are again significant across subsamples, but less so than in year 1 (*t*-statistic = −1.91, *Z*-statistic = −2.50).

[14] The same picture emerges when we deflate earnings in each year −10 through −1 by stockholders' equity in the immediately prior year. The use of the smaller deflators makes the standardized earnings figures higher for both reducers and non-reducers, but there remains little indication of significant differences in any year −10 through −2.

[15] Figure 1 has 164 and 159 observations for years 1 and 2 respectively because some firms (two dividend reducers and six non-reducers) have missing earnings data due to six acquisitions and two going private transactions. There is no significant difference in year 0 standardized earnings across the two excluded reducers and six non-reducers (the mean value for the former firms is −15.2% versus −15.9% for the latter). We re-ran the analysis for Figure 1 and for Tables IV, V, VII, VIII, and IX using the subset of 159 firms with complete data through year 2, and found no material change in results; the strongest indication of a change is for the dividend dummy in Table VIII, which we report in Section VI.

Table IV

Average Standardized Earnings in Years Around the Initial Loss for 167 NYSE Firms With at Least One Loss During 1980–1985: Sample Partitioned Into Firms that Reduced and that Did Not Reduce Dividends During the Initial Loss Year

Standardized earnings in year t is the level of net income in that year, divided by the book value of stockholders' equity in year -1, the year before the firm's first loss during 1980–1985. The sample is restricted to NYSE firms with ten or more years of positive earnings and dividends prior to reporting their first loss during 1980–1985. The t-statistic is for a parametric test for equality of means, and the Z-statistic is for a nonparametric Wilcoxon rank sum test. All data are taken from COMPUSTAT. There are 164 observations for year 1 and 159 observations for year 2, with the sample size decline due to six acquisitions and two going private transactions. The reducer subsample has 84 and 83 observations for years 1 and 2 respectively, while the non-reducer subsample has 80 and 76 observations in those years.

Year Relative to Initial Loss in Year $t = 0$	Mean and Median Standardized Earnings for		t-statistic Z-statistic
	Dividend Reducers	Non-Reducers	
-2	10.8%	11.2%	-0.44
	9.9	10.6	-0.04
-1	7.7	9.5	-2.24
	6.9	9.1	-2.12
0	-16.8	-9.8	-2.75
	-9.9	-6.7	-2.67
1	-6.5	5.3	-4.48
	-4.7	8.3	-5.08
2	-1.8	3.7	-1.91
	2.2	6.7	-2.50

The earnings rebound for dividend-reducing loss firms parallels findings in Healy and Palepu (1988, Table 5), who document significant average earnings increases for two years following dividend omissions. Healy and Palepu note this pattern is puzzling because it indicates that managers are systematically reducing dividends in anticipation of an apparently substantial improvement in future earnings. Our study provides a plausible explanation: dividend reduction decisions reflect the low *level* of current and expected future earnings, and not simply year-to-year earnings changes.

In our sample, 74.1% of dividend reducers report an earnings increase following the initial loss, with an average year 1 earnings change of +10.3% (median, +7.5%) of pre-loss equity.[16] Despite this substantial earnings in-

[16] For non-reducers, 87.8% report earnings increases in year 1, with a mean change in earnings of 14.9% (median 14.0%). The mean earnings changes are insignificantly different across reducers and non-reducers (t-statistic = 1.31), but the non-parametric test indicates a material difference (Z-statistic = 2.77).

crease, dividend reducers nonetheless have an unsatisfactory return in year 1 —on average, their earnings represent a loss of 6.5% (median loss, 4.7%) of pre-loss equity.[17] Thus, while earnings typically increase following dividend reductions, their level is inarguably low (negative) in the dividend reduction year and, even after taking into account future earnings increases, the average firm continues to report losses. Hence, consideration of year 1 earnings levels helps explain why these firms reduced dividends in year 0, while year 1 earnings changes might seem to imply that managers had irrationally reduced dividends.

B. Dividend Reductions and the Depth and Persistence of Earnings Problems

Overall, dividend-reducing loss firms typically experience greater earnings difficulties than non-reducers, and the differences tend to persist for at least the following two years. These findings are consistent with the view that the decision to reduce dividends is determined by both the current depth (Lintner (1956)) and management's view of the likely persistence of the firm's earnings problems (Miller and Modigliani (1961), Modigliani and Miller (1959)). (Earnings persistence as a determinant of dividend changes is also emphasized by Marsh and Merton (1987), who report evidence that aggregate dividends reflect the likely persistence of earnings improvements, as measured by the stock market's aggregate capitalized value of those improvements.)

As a direct test of this view, Table V reports results of a logit analysis of the relation between sample firms' past, current, and future earnings and their dividend reduction decisions. As before, the dependent variable equals zero if the firm reduced dividends in its initial loss year, and one otherwise. The four specifications in Table V include earnings (standardized by pre-loss stockholders' equity) for various years from year -1 (the year before the initial loss year) through year 2 (two years after the initial loss). Of course, future earnings are not known with certainty by managers at the time they adjust dividend policy. The rationale for inclusion of future earnings as a determinant of dividend policy is that (1) dividend changes reflect managers' informed assessments of the firm's probable future profitability (per Miller and Modigliani), so that (2) future earnings realizations are a reasonable empirical proxy for managers' expectations of future earnings at the time they make their dividend decisions.

Table V indicates that sample firms' dividend reductions depend significantly on earnings in the initial loss year and the immediately following year (years 0 and 1), and to a lesser degree on earnings in the immediately prior year (year -1). When net income in the year before the first loss, NI(-1), is the only earnings variable included in the regression, its coefficient is significantly positive (t-statistic = 2.19), but the pseudo R^2 value is only 2.9%. This value is substantially below the pseudo R^2 values obtained when current and future earnings are included in the model. When we add year 0

[17] Approximately 57% of dividend reducers report a net loss in year 1, compared to 23% for non-reducers.

Table V

Logit Analysis of the Decision to Reduce Dividends for Sample of 167 NYSE Firms With at Least One Annual Loss During 1980–1985 After Ten or More Years of Positive Earnings and Dividends

The dependent variable equals zero if the firm announced a reduction in its regular cash dividend during its initial loss year, and one otherwise. Eighty-five of the 167 sample firms announced dividend reductions during this year, and 82 did not. Event time is defined such that year 0 is the firm's initial loss year during 1980–1985, year −1 is the immediately prior year, etc. NI(t) refers to the level of standardized net income in event year t (and is equal to the firm's earnings in year t, divided by the book value of stockholders' equity in year −1). All data are taken from COMPUSTAT. There are 164 and 159 observations respectively for the third and fourth specifications, with the sample size decline due to six acquisitions and two going private transactions. The third specification excludes one dividend-reducing firm and two non-reducing firms, while the fourth specification excludes two reducers and six non-reducers.

	Coefficient (t-statistic)			
Constant	0.61	0.16	0.16	0.19
	(2.00)	(0.43)	(0.45)	(0.51)
NI(−1)	6.70	6.34	5.56	5.72
	(2.19)	(2.02)	(1.64)	(1.68)
NI(0)	—	3.43	3.09	3.43
		(2.32)	(2.18)	(2.25)
NI(1)	—	—	5.09	4.51
			(3.73)	(3.07)
NI(2)	—	—	—	0.42
				(0.39)
Model p-value	0.025	0.002	0.0000	0.0000
Pseudo R^2	2.9%	7.3%	15.8%	15.4%

earnings, we obtain a significant positive coefficient as expected (the deeper the current loss, the greater the likelihood of a dividend reduction), and the pseudo R^2 rises to 7.3%. In this model, the coefficient on year −1 earnings loses little significance (t-statistic = 2.02).

When we add future earnings (for year 1 alone, or for both years 1 and 2), the explanatory power of the model climbs again, this time to over 15%.[18] In these regressions, year 1 earnings are a significant determinant of dividend reductions (t-statistics of 3.73 and 3.07 in the two specifications), and year −1 and year 0 earnings remain so, although only marginally so in the case of year −1 earnings. However, in contrast to the strong significance of year 1 earnings, year 2 earnings are not significant (t-statistic = 0.42). The latter finding may reflect the fact (reported in Table IV) that dividend reducers and non-reducers have substantially different year 1 average earnings (12–13% of stockholders' equity) while the difference in year 2 average earnings is

[18] When we add NI(2) to the logit specification, the pseudo R^2 declines from 15.8% to 15.4%. This decline reflects a sample size reduction generated because five firms were acquired or taken private before reporting year 2 earnings.

much smaller (4–5%). Another possibility is that managers making dividend decisions either have quite limited ability to predict earnings beyond one year, or they choose not to implicitly reveal such forecasts via their dividend decisions.

While pseudo R^2 comparisons do not account for changes in the degrees of freedom (Aldrich and Nelson (1984, p. 57)), the "best" model specification in Table V suggests that the important determinants of loss firms' dividend reductions are earnings in the initial loss year and in the two surrounding years—i.e., sample firms' immediate past, current, and immediate future earnings performance.

IV. Dividend Reductions and the Components of Earnings

Modigliani and Miller (1959) and Fama and Babiak (1968) recognize that dividend decisions may reflect aspects of earnings other than simply bottom line net income, because the latter measures a firm's long run earnings prospects with error. For example, Modigliani and Miller (1959, p. 667) hypothesize that dividend reductions are less likely when low earnings result from special writeoffs, since managers will tend to view such earnings realizations as indicative of temporary, rather than continuing difficulties. This observation raises the possibility that we can improve the model's ability to explain dividend reductions by including adjustments for components of earnings that are likely to represent transitory earnings shocks.

Our empirical analysis focuses on three types of unusual income items that affect bottom line net income. *Extraordinary items* are defined by accountants as those that are *both* unusual and nonrecurring, and therefore reasonably rare. The most common extraordinary items during our sample period are gains/losses from early extinguishment of debt and realizations of tax loss carryforwards. *Discontinued operations* relate to identifiable business segments that have been sold, discontinued, or for which a firm plan of disposal exists. They include the results of operating the discontinued segment and any gain or expected loss on disposal. By their nature, discontinued operations would be expected to have little impact on firms' future earnings. *Special items*, as defined by COMPUSTAT, are items which are unusual *or* nonrecurring but not both; they include noncash writeoffs, restructuring charges, and gains/losses from asset sales and settled litigation.

Table VI reports mean and median net income and unusual income items (special items, extraordinary items, and discontinued operations) in the initial loss year for the loss sample partitioned into dividend reducers (85 firms) and non-reducers (82 firms). Net income and the Panel A data on unusual income items are standardized by the book value of stockholders' equity the year before the firm's initial loss. Panel B reports unusual income items standardized by the absolute value of net income in the initial loss year. All data are taken from the COMPUSTAT tapes, except that missing values are obtained directly from annual reports. The table also reports t-statistics for tests that mean values differ across the two subsamples, and Z-statistics for Wilcoxon rank sum tests.

Table VI

Unusual Income Items and Earnings in Initial Loss Year for 167 NYSE Firms With at Least One Annual Loss During 1980–1985: Sample Partitioned Into Firms that Reduced and that Did Not Reduce Dividends During the Initial Loss Year

Net income is "bottom line" earnings after all charges in the firm's initial loss year, standardized by the book value of stockholders' equity in the prior year. Special items, extraordinary items, and discontinued operations are the values of these unusual income items in the initial loss year, each standardized either by stockholders' book equity in the prior year (Panel A) or by the absolute value of year 0 earnings (Panel B). All data are taken from COMPUSTAT, except that missing values on COMPUSTAT are obtained from annual reports. There are 85 firms in the dividend reducer subsample and 82 firms in the non-reducer subsample. The *t*-statistic is for a parametric test for equality of means across the two subsamples. The *Z*-statistic is for a nonparametric Wilcoxon rank sum test.

	Mean and Median Values for		*t*-statistic
	Dividend Reducers	Non-Reducers	*Z*-statistic
Net income	−16.8%	−9.8%	−2.75
	−9.9	−6.7	−2.67
Panel A: Unusual Income Items Standardized by Stockholders' Equity			
Special items	−10.1	−11.4	0.44
	−3.2	−3.6	1.34
Extraordinary items	−0.7	−0.4	−0.69
	0.0	0.0	−0.42
Discontinued operations	−3.8	−4.5	0.38
	0.0	0.0	1.05
Panel B: Unusual Income Items Standardized by the Absolute Value of Earnings			
Special items	−60.2	−216.3	2.76
	−23.5	−61.2	2.50
Extraordinary items	−9.6	−7.5	−0.20
	0.0	0.0	−0.44
Discontinued operations	−15.9	−108.3	2.70
	0.0	0.0	1.47

Panel A of Table VI reveals that sample firms typically have large unusual income items measured relative to stockholders' equity.[19] For example, non-reducers have mean special items of −11.4% of pre-loss equity, which exceeds mean net income of −9.8%. Dividend reducers have mean special

[19] Special items are the most negative of the three unusual items, and the only one whose median is non-zero. The larger absolute values for special items are partially explained by the fact that, unlike discontinued operations and extraordinary items, special items are reported before corporate income tax. Our sample exhibits a large incidence of special items for both dividend reducers and non-reducers, with 57 (67.1%) of the former and 54 (65.9%) of the latter reporting them in the initial loss year. The zero median values for discontinued operations and extraordinary items reflect their much lower sample incidence: 25 (29.4%) of the reducers and 29 (35.4%) of the non-reducers report discontinued operations in the initial loss year, and ten (11.8%) of the reducers and ten (12.2%) of the non-reducers report extraordinary items.

items of −10.1% of pre-loss equity which, although substantial, is less than mean net income of −16.8%. Median special items of −3.2% for dividend reducers and −3.6% for non-reducers are also large compared to median net income of −9.9% and −6.7% for the two subsamples. Mean discontinued operations are material relative to net income for the two subsamples, and again especially so for non-reducers (at −4.5% of pre-loss equity).19

Panel B of Table VI indicates that unusual income items are large relative to the absolute value of current earnings, with special items and discontinued operations having a materially larger impact for non-reducers than for reducers. Mean special items are a substantial −216.3% of absolute earnings for non-reducers, which is significantly greater than the corresponding −60.2% for reducers (t-statistic = 2.76). The nonparametric test also shows that special items are significantly larger relative to income for non-reducers than for reducers. A similar finding holds for discontinued operations under the parametric, but not the nonparametric, test. However, reducers and non-reducers have quite similar mean and median extraordinary items. In sum, the Panel B data on special items (and, to a lesser degree, discontinued operations) indicate that unusual income items are a larger factor in the losses of non-reducers than of reducers.

Table VII reports logit regressions of the dividend reduction decision on (1) earnings in the year before, year of, and year after the firm's initial annual loss (years −1, 0, and 1), and on (2) special items, extraordinary items, and discontinued operations in the initial loss year (year 0). As before, the dependent variable equals zero if the firm announced a dividend reduction during its initial loss year, and one otherwise. The first specification includes earnings for years −1 and 0 and unusual income items, while the second also includes year 1 earnings. These specifications include both earnings and unusual income components because there is more information in the disaggregated figures than would be provided by a measure of income that is calculated gross of unusual items. (The latter measure would also introduce measurement error because special items are reported before tax, and firm disclosures are generally not complete enough to allow a precise calculation of earnings before special items.)

We expect the coefficients on unusual income items to be *negative*, i.e., the opposite sign of that predicted for earnings. Numerically, a larger writedown means a negative unusual item value that is further below zero. Accordingly, when a more negative unusual item value is multiplied by a negative regression coefficient, the result is a larger predicted value of the dependent dummy variable, or a higher probability that dividends are *not* reduced. Thus, a negative coefficient indicates that the more a given loss is due to unusual charges, the more likely it is that the firm did not reduce dividends.

As predicted, the logit specifications in Table VII indicate negative coefficients for all three types of unusual income items, with the coefficients on special items and discontinued operations significantly negative at conventional levels. Depending on the specification, the coefficients for the latter unusual income items have t-statistics that range from −2.62 to −4.20. (The negative coefficients for extraordinary items are not statistically significant

Table VII

The Effect of Earnings and Unusual Income Items on the Decision to Reduce Dividends for 167 NYSE Firms With at Least One Annual Loss During 1980–1985

The dependent variable equals zero if the firm announced a reduction in its regular cash dividend during its initial loss year, and one otherwise. Eighty-five of the 167 sample firms announced dividend reductions during this year, and 82 did not. Year 0 is the firm's initial loss year during 1980–1985, year −1 is the immediately prior year, etc. NI(t) is the level of standardized net income in year t (and equals earnings in year t, divided by year −1 stockholders' book equity). Special items, extraordinary items, and discontinued operations are the values for year 0 (each standardized by year −1 stockholders' equity). Special items are reported before taxes. Extraordinary items and discontinued operations are reported after taxes. There are 164 observations for the second specification, with the sample size decline due to two acquisitions and one going private transaction (one dividend-reducing and two non-reducing firms).

	Coefficient (t-statistic)	
Constant	0.02	0.02
	(0.06)	(0.04)
NI(−1)	4.49	4.18
	(1.31)	(1.19)
NI(0)	13.98	11.84
	(4.54)	(3.68)
NI(1)	—	3.32
		(2.30)
Special items	−8.20	−6.60
	(−4.20)	(−3.20)
Extraordinary items	−7.23	−5.56
	(−1.13)	(−0.92)
Discontinued operations	−10.58	−7.85
	(−3.73)	(−2.62)
Model p-value	< 0.0001	< 0.0001
Pseudo R^2	19.4%	21.0%

at conventional levels, perhaps reflecting the fact that few sample firms report them in their initial loss year.) Viewed collectively, these regression coefficients indicate that the unusual item components of earnings are significant determinants of sample firms' decisions to reduce dividends.

Table VII further indicates that both current and future earnings retain significant explanatory power, even when the model includes unusual income items. Consistent with Table V, the magnitude of earnings in year 0 (the initial loss year) is a highly significant determinant of the dividend reduction decision, with t-statistics of 4.54 and 3.68 in the two specifications. Prior year earnings are insignificant in Table VII (t-statistics of 1.31 and 1.19), and their influence is slightly less than their influence in the Table V analysis (in which the t-statistics ranged from 1.64 to 2.19). Future earnings continue to be a significant determinant of dividend reductions, with a t-statistic of 2.30.

The theoretical rationale for the model specifications in Table VII is that a low earnings realization that includes unusual accounting charges is more likely to reflect transitory as opposed to continuing financial difficulties. We

also find some evidence of cross-sectional variation in the extent to which unusual items persist over time: dividend reducers report *future* special items that are more negative on average than those reported by non-reducers.[20] This finding suggests that the special charges taken by dividend-reducing firms are themselves more indicative of persistent difficulties (e.g., that require a multi-year restructuring effort) than are the special charges taken by firms with reported losses that do not reduce dividends.

One way to assess the incremental explanatory power of unusual income items is to compare pseudo R^2 values across specifications that include and exclude such items. Table VII indicates that, when we include unusual items in our logit analysis, the pseudo R^2 is 19.4% for the model without future earnings and 21.0% for the model with future earnings. These figures compare to a pseudo R^2 of 15.8% for the "best" logit model that incorporates earnings in all three years, but excludes unusual items in the dividend reduction year (Table V). Thus, consistent with the arguments of Modigliani and Miller (1959), taking unusual income items into account provides a better explanation of sample firms' dividend reduction decisions than is obtained by considering bottom line earnings alone.

This conclusion differs from that of Fama and Babiak (1968) who find that adjusting earnings to remove noncash depreciation charges does not materially improve their ability to explain dividend decisions. The different conclusions reflect the fact that we examine adjustments for unusual income items, which can have a substantial, largely transitory impact on bottom line earnings, and can therefore inject economically important distortions into the reported income series. In contrast, depreciation is a recurring charge that normally has second-order variation from year-to-year. Hence it is quite plausible that depreciation adjustments add little to help explain firms' dividend decisions.[21]

V. Information Content: Dividend Reductions as Predictors of Future Earnings

The "information content of dividends" is the term typically used for the hypothesis that dividends convey information, above that conveyed by cur-

[20] Dividend reducers have mean special items in year 1 of -3.25% of pre-loss equity, versus -0.49% for non-reducers, with a t-statistic of 2.36 indicating a significant difference between the two. However, cross-sectional analysis of dividend reducers indicates that the persistence in special items is not firm-specific: for reducers, a chi-square test reveals no significant relation between the presence of special items in year 0 and the presence of such items in year 1. Extraordinary items and discontinued operations show no significant indication of persistence in any statistical test.

[21] Bowen, Burgstahler, and Daley (1986) provide evidence that first differences in earnings are very highly (median, 0.98) correlated with first differences in earnings + depreciation. This evidence suggests that adding depreciation to earnings is largely equivalent to adding a constant to earnings. They also find that earnings + depreciation is not highly (median, 0.158) correlated with operating cash flows, thus is probably a poor proxy for that number.

rent earnings, which "enables market participants to predict future earnings more accurately" (Watts (1973), p. 191). The information content hypothesis was first advanced by Miller and Modigliani (1961) and Modigliani and Miller (1959) and further developed by various others (see, e.g., Bhattacharya (1979), Miller and Rock (1985), John and Williams (1985)). Miller and Modigliani reasoned that outsiders could infer management's presumably superior assessment of the firm's prospects from dividend changes, with dividend increases signalling good news and dividend reductions signalling bad news about future earnings. (Miller and Modigliani's argument also provides the foundation for the hypothesis tested and supported above that future earnings (taken as a proxy for management's expectations about the persistence of the firm's problems) are an important determinant of the decision to reduce dividends.)

We conjecture that the information content of dividends will vary, depending on the characteristics of current earnings. Specifically, current earnings and dividend policy are likely substitute means of forecasting future earnings. If so, then the less reliable are current earnings, the more useful will dividends be as a means of forecasting future earnings. Dividends should therefore have significant information content when current earnings are extreme or otherwise unusual, i.e., when current earnings represent an especially unreliable indicator of probable future earnings. At the same time, dividends should have little information content in random samples, because current earnings would seem to be an essentially sufficient means of forecasting earnings for most firms in most circumstances.[22]

Extant evidence on the information content hypothesis is generally consistent with this reasoning. For randomly selected firms, Watts (1973) finds a weakly positive relation between unexpected earnings and dividend changes, and concludes that at best the latter convey trivial information about future earnings. Some, but not uniform, support for the information content hypothesis in random samples comes from studies by Pettit (1972), Kane, Lee and Marcus (1984), Brickley (1983), and Ofer and Siegel (1987), who study the stock market's reaction to dividend announcements.[23] More recently, Leftwich and Zmijewski (1991), Brown, Choi, and Kim (1991), Healy and Palepu (1988), and Bajaj (1991) find dividends have information content in

[22] A complementary argument is advanced by Warther (1991) whose signaling model implies that dividends have information content primarily when dividends are reduced (see footnote 3).

[23] Pettit concludes that, after controlling for earnings, stock price performance is stronger when dividend news is more favorable. However, the robustness of this finding was the subject of much debate (Watts (1976), Pettit (1976)). Kane, Lee and Marcus find that stock price reactions in the ten days around dividend and earnings announcements are stronger when dividend and earnings surprises are of the same sign. But Leftwich and Zmijewski (1991) do not find such a relation when a three-day window is employed. Brickley documents a stronger stock market reaction to regular dividend changes than to comparable specially designated dividends. Ofer and Siegel find that earnings forecast errors (on analysts' forecasts made pre-dividend change) are positively related to the stock price reaction at the time of the change.

unusual circumstances.[24] Hence extant evidence generally supports our conjecture that dividends have information content in special contexts, but not in random samples.

The loss firms we study have clearly experienced extreme earnings, and therefore offer a good sample to test (in an experimental design analogous to that of Watts (1973)) whether dividends convey incremental information about future earnings. One reason is that loss firms typically experience an earnings rebound after the initial loss (Table III), which suggests that current earnings will be less useful in forecasting future earnings (than in more normal circumstances where earnings follow a random walk). Moreover, since managers are reluctant to cut dividends, a dividend reduction offers a reliable signal that managers expect the firm's problems to persist. Consistent with this view, although earnings rebound substantially on average after the initial loss year for both dividend reducers and non-reducers, reducers have significantly lower future earnings (again, see Table III).

To assess whether dividends have incremental information content, we want to use the "best" current earnings number as a benchmark, and not simply rely on bottom line earnings to forecast future earnings. Our concern here is that consideration of unusual items might serve as a close substitute for knowledge of dividend changes as a predictor of future earnings. If so, then dividend changes will convey little incremental information about future earnings above that conveyed by current earnings and its unusual item components. If this is not the case, then we can be more confident that dividend reductions have information content in their own right, over and above the best available current earnings-based predictor of future earnings.

Table VIII provides evidence that the ability to predict earnings is improved by *both* dividend information and adjustments for unusual income items, with the latter having an especially strong effect. The table reports ordinary least squares (OLS) regressions for the loss sample in which the dependent variable is future earnings (in the year after the initial loss), and the explanatory variables are current earnings, a dummy for whether or not dividends were reduced in the initial loss year, and current-year special items, extraordinary items, and discontinued operations.[25]

[24] Leftwich and Zmijewski find that stock price and analyst forecast reactions to simultaneous announcements of earnings and dividends are reliably more negative only when the announcement reveals good news about earnings and bad news about dividends. Brown, Choi, and Kim find that stock price changes indicate that dividends have information content when the dividend surprise is opposite the earnings surprise. Healy and Palepu find that firms that initiate (omit) dividends have systematically positive (negative) earnings changes. Bajaj reports that dividend omissions are followed by declines in long term *Value Line* earnings forecasts.

[25] An alternative specification based on the random walk model would treat earnings changes as the dependent variable (the proxy for unexpected earnings), and omit current earnings as an explanatory variable. Since our data indicate that sample firms tend to experience earnings increases following their initial loss, we have not adopted the random walk specification.

Table VIII

OLS Regression of Future Earnings on Current Earnings, Unusual Income Items, and Changes in Dividends: 164 NYSE Firms With at Least One Annual Loss During 1980–1985

Current earnings, special items, extraordinary items, and discontinued operations are standardized values for year 0, the year of the firm's first loss during 1980–1985. The dependent variable is standardized net income in year 1. (All variables are standardized by the year −1 book value of stockholders' equity.) The dividend dummy takes a value of zero if the firm announced a reduction in its regular dividend during its initial loss year, and a value of one otherwise. The sample is reduced from 167 to 164 because two firms were acquired and one was taken private before reporting earnings in year 1 (the three excluded firms consist of one dividend-reducing and two non-reducing firms).

	Coefficient (*t*-statistic)			
Constant	0.01	−0.05	0.00	−0.03
	(0.51)	(−2.29)	(0.01)	(−1.33)
Current earnings	0.14	0.08	0.95	0.84
	(1.77)	(0.97)	(7.75)	(6.36)
Special items	—	—	−0.66	−0.59
			(−7.13)	(−6.10)
Extraordinary items	—	—	−0.97	−0.92
			(−2.80)	(−2.68)
Discontinued operations	—	—	−1.02	−0.93
			(−7.16)	(−6.26)
Dividend dummy	—	0.11	—	0.05
		(4.15)		(1.95)
Adjusted R^2	1.3%	10.3%	28.5%	29.7%

Table VIII indicates that dividend reductions have incremental information content over and above that in bottom line earnings. The first model, which includes only current earnings as an explanatory variable, has a low adjusted R^2 of 1.3%, but nonetheless reveals that current and future earnings are positively associated (t-statistic = 1.77). The second model, which includes earnings and the dividend dummy, has a much higher adjusted R^2 of 10.3%. As predicted by the information content hypothesis, the dividend variable is highly significant (t-statistic = 4.15). Also, inclusion of the dividend dummy removes the significance of bottom line earnings (t-statistic = 0.97), consistent with the view that dividends and current earnings are substitute means of forecasting future earnings.

The explanatory power of the regression almost triples when we add unusual income items: the adjusted R^2's increase to 28.5% and 29.7% in the specifications that respectively exclude and include the dividend dummy. All three unusual item variables are significant, with notably large t-statistics on special items and discontinued operations (the smallest absolute t-statistic is −6.10 in the last specification). Moreover, the current earnings variable itself becomes highly significant once we control for the extent to which it reflects

unusual income items (t-statistics of 7.75 and 6.36 in specifications three and four).[26]

Inclusion of unusual income items diminishes, but does not remove, the significance of dividend changes: the t-statistic on the dividend dummy falls from 4.15 to 1.95 when unusual items are included. The latter test statistic indicates that dividend changes retain some incremental information content, in the sense of improving the ability to predict future earnings, even after including unusual income items. The dividend dummy remains significant when we use White's (1980) method to adjust the variance-covariance matrix, with respective t-statistics for specifications two and four of 4.58 and 2.10.[27] It also remains significant (although less so, with a t-statistic of 1.67) when we employ the sample of 159 firms with complete data through year 2 (see footnote 15).

Table IX indicates that the same conclusion holds when we repeat the analysis using operating cash flow and/or current operating income in lieu of bottom line earnings and unusual income items.[28] The rationale for these alternative specifications is that unusual income items are often one-time writedowns that more likely generate transitory earnings declines, whereas persistent difficulties are more likely manifested in poor operating performance. Thus, one might conjecture that operating cash flow or operating income might yield better predictions of future earnings because they convey more reliable information about persistent determinants of firm profitability.

In terms of overall explanatory power, the operating income and cash flow models do not do as well in predicting future earnings as the model that employs current bottom line earnings augmented by unusual income items. The largest R^2 value in Table IX is 21.9% (for the specification with both operating income and cash flow in addition to the dividend dummy), which is well below the R^2 of 29.7% for the "best" model of future earnings that incorporates current net earnings, unusual items, and the dividend dummy (column 4 of Table VIII). This finding is consistent with Lintner's (1956) emphasis on bottom line earnings, and indicates that bottom line earnings (augmented in the current study by consideration of unusual income items) is the most important income figure in determining dividend policy changes in loss firms with established dividend and earnings records.

[26] For what it may be worth, the coefficient on net earnings in these regressions is insignificantly different from one, which is the value one would expect if earnings followed a random walk. It thus appears that, after including adjustments for unusual income items, current earnings are a reasonable predictor of future earnings.

[27] White's test for specification error/heteroskedasticity is insignificant at conventional levels for all four models in Table VIII, with respective p-values of 0.12, 0.11, 0.35, and 0.20.

[28] Operating cash flow is defined as net income in year 0, adjusted for depreciation, deferred income taxes, and other noncash (e.g., working capital) items. Operating income is defined as year 0 net sales minus cost of goods sold, general and administrative expense, depreciation expense, interest expense, and income taxes. In the initial loss year, 25.9% of the dividend reducers and 13.6% of the non-reducers had negative operating cash flow, while 76.2% of the dividend reducers and 60.0% of the non-reducers had negative operating income.

Table IX

OLS Regression of Future Earnings on Current Operating Income, Current Operating Cash Flow, and Changes in Dividends for Sample of NYSE Firms With at Least One Annual Loss During 1980–1985

Current operating income and current cash flow from operations are standardized values for year 0, the year of the firm's first loss during 1980–1985. Operating income is calculated as net sales minus cost of goods sold, general and administrative expense, depreciation expense, interest expense, and corporate income taxes. Cash flow from operations is calculated as funds from operations minus the changes in accounts receivable, inventories, and other current assets, plus the changes in accounts payable, taxes payable, and other current liabilities. The dependent variable is standardized net income in year 1. (All variables are standardized by the book value of stockholders' equity in year −1.) The dividend dummy takes a value of zero if the firm announced a reduction in its regular dividend during its initial loss year, and a value of one otherwise. The sample is reduced from 167 firms because (1) two firms were acquired and one was taken private before reporting earnings in year 1 and (2) some operating data were unavailable for three firms.

	Coefficient (*t*-statistic)					
Constant	−0.00	−0.12	−0.06	−0.18	−0.04	−0.07
	(−0.22)	(−2.92)	(−3.48)	(−4.60)	(−2.20)	(−3.28)
Current operating income	0.50	0.41	—	—	0.39	0.33
	(5.42)	(4.31)			(4.03)	(3.36)
Current operating cash flow	—	—	0.34	0.27	0.23	0.20
			(4.68)	(3.83)	(3.07)	(2.67)
Dividend dummy	—	0.08	—	0.09	—	0.07
		(2.99)		(3.49)		(2.55)
Number of observations	162	162	163	163	161	161
Adjusted R^2	15.1%	19.1%	11.6%	17.2%	19.2%	21.9%

Consistent with the information content hypothesis, the dividend dummy remains significantly positively related to future earnings, regardless of whether operating income, operating cash flow, or both are included as the relevant current earnings measure (*t*-statistics = 2.99, 3.49, and 2.55 respectively). Again, these findings are robust to use of White's (1980) variance-covariance adjustment, with *t*-statistics for the dividend dummy of 3.30, 3.56, and 2.84 for specifications two, four, and six, respectively.[29] Thus, dividends retain incremental information content independent of whether our regressions include bottom line earnings adjusted or not adjusted for unusual income items (Table VIII), or operating income or cash flow (Table IX).

[29] For the models that include the dividend dummy, the White specification test is not significant, with *p*-values of 0.12, 0.21, and 0.26 for models two, four, and six, respectively. When the dividend dummy is omitted, there is mixed evidence on misspecification, with *p*-values of 0.06 for the White test for models one and three, but 0.22 for model five.

VI. Summary and Conclusions

An annual loss is essentially a necessary condition for dividend reductions in NYSE firms with established earnings and dividend records. Approximately half (50.9%) the 167 firms in our loss sample reduced dividends during their initial loss year. This dividend reduction rate greatly exceeds the 1.0% incidence of dividend reductions in a comparison sample of 440 NYSE firms with no losses during the 1980–1985 sample period (the non-loss sample). Losses are even more important in determining dividend omissions: only one firm in the non-loss sample omitted its dividend during the 1980–1985 sample period (for an omission rate well below 1.0%), whereas 25 (15.0%) of the 167 loss firms omitted dividends during the initial loss year.

While essentially necessary, a loss is not a sufficient condition for a dividend reduction, since about half (49.1%) the loss sample did not reduce dividends in the initial loss year. Logit analysis indicates that our sample firms are significantly more likely to reduce dividends the greater their current loss (consistent with Lintner (1956)), and the greater their future earnings problems (consistent with Miller and Modigliani (1961) and Modigliani and Miller (1959)). Moreover, as hypothesized by Modigliani and Miller (1959), firms reduce dividends significantly less often when their bottom line loss includes unusual income items which more likely indicate transitory earnings problems. Additionally, consistent with Miller and Modigliani's "information content of dividends" hypothesis, knowledge of whether a firm has reduced dividends significantly improves the ability of current earnings to predict future earnings. The latter finding holds even after we augment bottom line earnings with unusual income items, and when we consider operating income or cash flow as predictors of future earnings.

Viewed broadly, our evidence supports Lintner's (1956) general view of corporate dividend policy, which indicates that (1) current income (in our study, not bottom line earnings but income adjusted for unusual items) is a critical determinant of dividend changes, and (2) managers' reluctance to reduce dividends should lead them to do so only when earnings are especially poor. The former implication is supported by the finding that a loss is essentially a necessary condition for dividend reductions by firms with established earnings and dividend records. The latter implication is supported by the findings that not all firms with losses reduce dividends, and those that do have deeper and more persistent earnings problems.

Finally, our evidence also points to the general importance of considering two attributes of earnings realizations that may help explain various corporate finance decisions. The first is that the *level* of earnings—especially, losses versus positive income—and not just the magnitude of the unanticipated change in earnings may affect managers' decisions to change particular financial decisions, e.g., to recapitalize the firm. The second is that the *nature* of reported earnings—especially, the inclusion of unusual items that can impart transitory shocks to reported earnings—may influence the manner in which both earnings levels and changes impact financial policies.

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