

What Do Dividends Tell Us About Earnings Quality?*

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March 2008

Abstract:

We provide evidence on whether dividends provide information about the quality of reported earnings. We find that the reported earnings of dividend paying firms are more persistent in future periods, and that this effect is more pronounced for firms with larger dividend payouts. We also find that dividend payers are less likely to report losses and those losses that they do report tend to be transitory losses driven by accounting charges. These results do not hold as strongly for stock repurchases, consistent with repurchases not being fully substitutable for dividends with respect to their implications for future earnings.

*Earlier versions of this paper benefited from comments by workshop participants at Columbia (Burton Workshop), the London Business School Accounting Symposium (especially Peter Pope, the discussant), Michigan, MIT and Washington University as well as Ray Ball, Dan Bens, Harry DeAngelo, Linda DeAngelo, Gene Fama, Mei Feng, Rich Frankel, Gene Imhoff, Doron Nissim, and Paul Zarowin.

1. Introduction

A longstanding literature in corporate finance, dating back to at least Miller and Modigliani (1961), addresses the ‘information content of dividends’ hypothesis, under which managers’ dividend decisions convey information about their firms’ future earnings prospects. There is a large empirical literature on the information content of dividends hypothesis, although there is little clear evidence in support of the hypothesis.¹

This paper reexamines the empirical validity of the information content of dividends hypothesis by providing evidence on the relation between dividends and reported earnings since the 1970s. The principal goal is to investigate whether dividends provide information about the quality of reported earnings. Following Lintner’s (1956) classic work, we know that managers are reluctant to increase dividends unless they believe that dividends can be sustained at the new level. By committing to pay a dividend, especially an economically meaningful dividend, firms can help convince investors of the quality of the earnings numbers they report. This question seems especially important in recent years, during which there has been a dramatic increase in reported losses, increasing dispersion in the cross-section of reported earnings, and increasing questions about the quality of reported earnings.² The evidence presented here shows that dividends provide

¹ The terms ‘information content of dividends’ and ‘dividend signaling’ tend to be used interchangeably in the literature, which is discussed further in Section 2 below.

² One of the recommendations contained in Richard Breeden’s report on the accounting and corporate governance problems at WorldCom is for the company to pay out at least 25% of net income each year as a regular cash dividend (Breeden, 2003). The report says in this regard that “dividends are another method of gauging the reality of reported earnings” and that “significant differences between the levels of reported earnings and the availability of cash for dividends would eventually be a red flag of potential problems” (pp. 127-129).

information about earnings quality, where high quality earnings are more likely to be sustainable in future periods (e.g., Penman, 2001).³

There have been important changes in corporate payout policy and in the nature of reported earnings over the last 25 years, both of which potentially impact the information content of dividends. With regard to earnings, recent papers document: (1) a large increase in the frequency and magnitude of reported losses (in fiscal 2001 aggregate Compustat earnings were negative and over half of Compustat firms reported losses),⁴ (2) an accompanying increase in the frequency and magnitude of negative special items (e.g., Collins, Maydew and Weiss, 1997), (3) a substantial increase in the concentration of corporate earnings (in fiscal 2000 over half of aggregate Compustat earnings are due to the 25 firms reporting the largest earnings; DeAngelo et al., 2004), (4) a surge in the number of new lists, increasing left skewness in the profitability of these firms, and a corresponding increase in the left skewness of the overall earnings distribution (Fama and French, 2004). Overall, this is evidence that the cross-section of earnings has become considerably more variable since the 1970s.

There have also been significant changes in corporate payout policy over this period. Fama and French (2001) report that the proportion of U.S. firms paying regular cash dividends declines from 67% in 1978 to 21% in 1999. In spite of this, DeAngelo et al. (2004) report that aggregate real dividends paid by U.S. firms increase over the same period, and show that this is due to a large increase in the concentration of dividend

³ Under other definitions of earnings quality (e.g., Basu, 1997; Ball, Robin and Wu, 2003; Watts, 2003) increasingly frequent loss recognition is interpreted as evidence of higher earnings quality, at least to the extent that the recognized losses reflect the timely recognition of underlying negative economic shocks.

⁴ Aggregate Compustat earnings for 2001 were negative \$61 billion, with 53% of firms reporting losses (Table 1). See also Hayn, 1995; Basu, 1997; Givoly and Hayn, 2000; Deangelo et al. , 2004; Joos and Plesko, 2005; Klein and Marquardt, 2006.

payments. In addition, stock repurchases emerged as an alternative payout vehicle in the early 1980s, and are now both more prevalent than dividends and of approximately the same aggregate dollar magnitude (Skinner, 2008). The fact that dividends are now largely the domain of large, well-established firms is hard to reconcile with the traditional view of dividend signaling under which managers use dividends to provide information about their firms' future earnings prospects.

Theory suggests that managers' dividend decisions are based on their assessment of their firms' long-run sustainable earnings. To investigate the information content question, we examine the relation between dividend policy and various properties of firms' reported earnings. We first confirm and expand an extant result (DeAngelo et al., 1992) that dividends are seldom paid by firms reporting losses: we show that in spite of the substantial increase in reported losses (losses are now reported by over 40% of firms), dividend-paying firms are still unlikely to report losses, especially when we condition on the "quality" of reported losses. Specifically, if we adjust for those losses that are largely attributable to special items we find that dividend payers report losses 5% of the time, compared to 40% of the time for other firms. We also find that firms that make repurchases are less likely to report losses than firms that do not make payouts to shareholders, but that the relationship is not nearly as strong as that for dividends, supporting our argument that repurchases are not equivalent to dividends in terms of the information they provide about earnings quality. This is consistent with the notion that managers are reluctant to reduce dividends (but not repurchases), and so only pay dividends when they are confident of being consistently profitable.

To further investigate the relation between dividend policy and earnings quality, we estimate regressions of future earnings on current earnings using firm-level data after conditioning on payout policy in various ways. These regressions show that dividend payers have higher earnings quality than non-payers. The relation between current earnings and future earnings depends on the magnitude as well as the existence of dividends – firms that pay large dividends (defined using payout ratios) have higher earnings quality than other dividend-payers. Both the magnitude and existence of dividend payments continue to be informative when losses are excluded. All of these results hold for both one- and two-year-ahead earnings. Overall, the evidence supports the idea that dividends are informative about earnings quality.

We also estimate regressions that examine the relation between earnings quality and stock repurchases, an alternative and increasingly popular way of distributing cash to stockholders (e.g., Grullon and Michaely, 2002; Skinner, 2008). Because regular dividends represent an ongoing commitment to distribute cash that managers are especially loathe to break (e.g., Lintner, 1956; Brav et al., 2005), we do not expect stock repurchases to be as informative with respect to earnings quality as dividends. Consistent with this prediction, firms that make stock repurchases are more likely to report losses, including losses that are not attributable to special items, than firms that pay regular dividends. Nevertheless, we do find evidence that firms that make repurchases have more persistent earnings than firms that do not make payouts to stockholders. This result also holds when we exclude repurchasing firms that pay regular dividends and so is not driven by dividend-payers (previous research finds that firms that pay dividends also tend to make stock repurchases). Interestingly, however, we find that repurchases are only informative about

earnings quality in recent years (since 1998), consistent with suggestions in Skinner (2008) that repurchases are now being used in place of dividends by some firms as a way of paying out earnings. Overall, the results for repurchases are not as strong or robust as those for dividends, as expected given the stronger commitment inherent in dividends.

Section 2 reviews previous research and presents the predictions in more detail. Section 3 examines the link between dividend policy and the persistence of reported earnings to investigate whether dividends provide information about earnings quality. Section 4 concludes.

2. Empirical Predictions

Many empirical papers investigate the notion that managers use dividends to signal the future earnings prospects of their firms.⁵ Although it is well known that stock prices react when firms announce unexpected changes in dividends (e.g., Aharony and Swary, 1980; Asquith and Mullins, 1983; Michaely, Thaler and Womack, 1995), the evidence generally does not support the idea that unexpected changes in dividends provide information about future earnings changes.

According to the information content of dividends hypothesis, managers' dividend decisions provide information about the earnings prospects of their firms. Theory does not provide much guidance about what earnings attributes firms signal through their dividend policies. Under the most common interpretation of this hypothesis, changes in firms' dividends should map directly into changes in future earnings.⁶ As noted above, however,

⁵ For summaries, see Allen and Michaely (2002) and Brav et al. (2003). Relevant papers include Watts, 1973; Penman, 1983; Healy and Palepu, 1988; Leftwich and Zmijewski, 1994; Deangelo et al. , 1996; Benartzi et al., 1997; Nissim and Ziv, 2001; Grullon et al., 2005.

⁶ Allen and Michaely (2002, section 7.1) indicate that the signaling hypothesis implies that "...Dividend changes should be followed by subsequent earnings changes in the same direction" and many studies test signaling in this way.

that idea is not strongly supported in the data. Part of the reason for this is the fact that dividend policy has become increasingly smooth and conservative over time. Dividend increases occur much more often than dividend decreases, and the magnitude of decreases in dividends is much larger than that of increases. This leads Allen and Michaely (2002, section 7.1) to conclude that “the empirical evidence provides a strong prima facie case against the traditional dividend signaling models.” The survey evidence in Brav et al. (2005) also firmly rejects the traditional notion of signaling.⁷

We examine the possibility that dividends provide information about the sustainability of reported earnings (their “quality”). This idea has also been in the dividends literature for some time (e.g., Miller, 1986). Following Miller (1986), the hypothesis can be motivated by the earnings ‘persistence parameter’ from Miller and Rock (1985); specifically, that dividends provide information about the extent to which current period changes in reported earnings are permanent. Increases in earnings that managers consider to be permanent will be accompanied by dividend increases, while earnings increases that are largely transitory will not.⁸ The prediction also follows from the empirically robust finding that managers are reluctant to cut dividends and so will only increase dividends when they can be very sure that there is a sustainable increase in their firms’ long-run earnings generating ability.

⁷ The increasingly conservative nature of dividend policy may be related to covenants that make dividends a function of retained earnings in bond covenants, to the asymmetric incentives in these contracts, and to the associated conservatism in reported earnings (e.g., see Ball, Robin and Wu, 2003; Watts, 2003).

⁸ Brav et al.’s (2003) survey indicates that the “stability of future earnings” and “a sustainable change in earnings” are two of the three most important factors in determining firms’ dividend policies (the other is “maintaining consistency with historic dividend policy” – see their Table 6, which lists 17 separate factors). An alternative way of thinking about the hypothesis is that dividends provide information about the variability/risk of the firm’s earnings distribution. Viewed in this way, the argument is related to that of Grullon, Michaely and Swaminathan (2002), who argue that dividends provide information about changes in the systematic risk of firms and in particular that dividend increases signal firm ‘maturity’.

This logic also implies that stock repurchases, which have grown enormously since the early 1980s and are now potential substitutes for dividends (Grullon and Michaely, 2002; Skinner, 2008), will not provide the same type of signal because they are fundamentally less persistent than regular dividends. That is, the evidence shows that repurchases provide managers with a great deal of flexibility as to the timing, amount, and regularity of payout, and so cannot be viewed as providing investors with the same level of assurance about the ongoing persistence of earnings. Consistent with this, Guay and Harford (2000) find that cash flow shocks associated with dividend increases are more permanent than those associated with stock repurchases, and that the market's reaction to dividend increase announcements is correspondingly more positive. Similarly, Jagannathan et al. (2000) finds that dividend payers are likely to have relatively high "permanent" operating cash flows while repurchasers are more likely to have "temporary" non-operating cash flows.

The hypothesis that dividends provide information about earnings quality is also salient in light of the recent accounting scandals – while managers can certainly manage earnings upward to paint an overly favorable picture of current firm performance, it is likely to be much more costly for managers to pay regular cash dividends that support managed increases in earnings. Sivakumar and Waymire (1993) find that the association between dividends and stock prices is very strong just after 1900 (1905-1910) while that between reported earnings and stock prices is weak. They posit that earnings reports lacked credibility in the pre-SEC era, and so only moved stock prices when firms paid cash dividends to validate their earnings reports.

3. Sampling and Descriptive Data

We sample all available Compustat firm/years between 1974 and 2006 with non-missing data on annual dividends and earnings for firms that are listed on the NYSE, Amex, or NASDAQ and incorporated in the U.S. We exclude utilities and financial firms. Basic descriptive information on earnings, losses, and payouts (dividends and stock repurchases) for these firms is shown in Table 1.⁹ It is clear from this table that aggregate Compustat earnings have grown considerably over this period but that there has also been a substantial increase in the fraction of Compustat firms reporting losses, as documented in previous research (e.g., Hayn, 1995; Givoly and Hayn, 2000; Joos and Plesko, 2005; Klein and Marquardt, 2006). The magnitude of losses, in aggregate, has also increased substantially, especially in recent years, due to a corresponding increase in the frequency and magnitude of special items. In 2001, for example, aggregate special items exceed \$300 billion, which explains most of the aggregate losses (of \$380 billion) reported in that year. These losses, in turn, cause aggregate Compustat earnings to be negative (-\$61 billion) in this year.

Table 1 also shows that, consistent with Fama and French (2001), the number of dividend-payers has declined substantially since the late 1970s, from over 60% of Compustat firms in 1976-1979 to around 20% in 2000-2002. There has been a modest rebound in the number of dividend-payers since 2002 (to around 29% in 2006) which may

⁹ Following Fama and French (2001), we measure repurchases as net repurchases; i.e., after removing from share purchases the effect of shares issued for employee stock option programs, to fund acquisitions, and for other corporate purposes. We follow their approach of using the increase in common treasury stock (Compustat #226) if the firm uses the treasury stock method for repurchases. If the firm uses the 'retirement' method instead (which I infer from the fact that treasury stock is zero in the current and prior year), I measure repurchases as the difference between stock purchases (#115) and stock issuances (#108) from the statement of cash flows. If either of these amounts (the change in treasury stock or the difference between #115 and #108) is negative, repurchases are set to zero. It is preferable to use the change in treasury stock, if available, rather than net purchases (#115 - #108) because the change in treasury stock nets out any associated issuances, including non cash issuances.

be due to a 2003 change in the tax law (see, e.g., Blouin et al., 2004; Chetty and Saez, 2005). In spite of the large decrease in the number of dividend payers, aggregate real dividends have increased steadily since the 1970s, as documented by DeAngelo et al. (2004), who show that this is due to a large increase in the concentration of dividend payments. Moreover, the earnings of dividend-payers still account for a very substantial fraction of overall Compustat earnings (80% or more in recent years). Table 1 also shows the growth of repurchases during this period, from their emergence in 1983 (Bagwell and Shoven, 1988; Grullon and Michaely, 2002) to the point in the 1990s when the number of firms making repurchases first exceeds the number paying dividends (1997) and aggregate repurchases first exceed aggregate dividends (1999). In recent years, repurchases have been around the same aggregate magnitude as dividends. In 2004, for example, dividends total \$157 billion while repurchases are \$151 billion; by 2006, repurchases had swelled to \$372 billion compared to \$197 billion for dividends. It is clear then that repurchases are at least as economically significant as dividends.

4. Empirical Evidence on the Information Content of Dividends

4.1 Dividends and Losses

Table 2 investigates the relation between losses, dividend payments, and the quality of reported losses. We expect that dividend payments are strongly associated with losses, as well as the “quality” of losses. Table 1 shows that the large increase in the frequency and magnitude of losses in recent years has been accompanied by a correspondingly large increase in the magnitude and frequency of special items (see, e.g., Collins, Maydew and Weiss, 1997; Bradshaw and Sloan, 2002).¹⁰ We measure the quality of losses as the extent

¹⁰ Since special items often comprise gains and losses, write-offs, restructuring charges, and so forth, and since these items are more likely to reflect managers’ accounting discretion than other components of

to which a loss is attributable to special items. Specifically, for all firm/years with losses we create an indicator variable for when the (gross) amount of special items equals or exceeds 50% of the reported loss.¹¹ To show overall trends in these time series, the table summarizes the data in five year subperiods.

Table 2 first confirms the results reported above: since the 1970s there has been a systematic increase in the frequency of losses and a systematic decrease in the number of dividend payers. There is also a strong relation between dividend payment and losses: the proportion of dividend-payers reporting losses is always substantially lower than the proportion of non-dividend payers reporting losses. In the 1974-79 subperiod only 3.5% of dividend-payers report losses. This fraction increases to around 10% in the 1980s but then stabilizes at around that level (the fraction is 7% in 1980-84, 11% in 1985-89, 11% in 1990-94, 10% in 1995-99, and 11% in 2000-2005). In contrast, the fraction of losses reported by non-dividend payers is always well above the corresponding fraction for dividend-payers and increases substantially over this period: for non-dividend payers the fraction of losses is 28% in 1974-79, 42% in 1980-84, 49% in 1985-89, 46% in 1990-94, 47% in 1995-99, and 52% in 2000-2005.

Table 2 also shows that reported losses decline in “quality” through time: the number of losses driven largely by special items is 14% in 1974-79, but then increases steadily, to 16% in 1985-89, 22% in 1990-94, and 24% in 1995-1999 and 2000-2005. Moreover, consistent with the idea that losses reported by dividend payers are likely to be of lower quality, dividend payers report a substantially higher relative proportion of losses due largely to special items. The fraction of losses due to special items reported by

earnings, losses due principally to special items are more likely to be transitory or of ‘low quality’ (e.g., Deangelo et al., 1992; Burgstahler, Jiambalvo, and Shevlin, 2002).

¹¹ The 50% definition is arbitrary; results do not change very much when different fractions are used.

dividend payers is 22% in 1974-79, 28% in 1980-84, 38% in 1985-89, 50% in 1990-94, 57% in 1995-1999, and 56% in 2000-2005. Thus, in recent years over half of the losses reported by dividend payers are of low “quality” in the sense that they are mainly attributable to largely transitory special items.

In summary, it is clear that at one time losses were rare among dividend payers (occurring less than 5% of the time) but that this is no longer the case. It is still true, however, that losses are much less frequent among dividend-payers than non-dividend payers, for which losses are now reported over 50% of the time. Moreover, the losses that dividend payers do report are much more likely to be transitory losses due to special items; over half of these firms’ losses are now in this category. This means that, after controlling for quality, dividend-payers still only report losses around 5% of the time, consistent with dividends being informative about the quality of losses.

4.2 The Implications of Current Earnings and Dividends for Future Earnings

To test the prediction that dividends are informative about the quality of firms’ reported earnings more generally, we first estimate the following regression:

$$(E_{it+1}/TA_{it-1}) = \alpha_0 + \alpha_1.DP_{it} + \alpha_2.(E_{it}/TA_{it-1}) + \alpha_3.DP_{it}.(E_{it}/TA_{it-1}) + \varepsilon_{it} \dots\dots\dots (1)$$

where E_{it} is earnings for firm i in year t (after adding back after-tax net interest costs), TA_{it} is total assets for firm i in year t , and DP_{it} is an indicator variable that is set to 1 if a dividend is paid by firm i in year t and 0 otherwise. In this regression, α_2 measures the persistence of earnings. Under the hypothesis that dividends are informative about the quality of reported earnings, we expect the coefficient on current earnings to be larger for dividend paying firms, indicating that their earnings are more persistent ($\alpha_3 > 0$). We later adopt this same specification to test whether stock repurchases are informative about the

quality of earnings (that is, we use a repurchase dummy that is defined similarly to the dividend payer dummy).

An alternative specification is motivated by the idea that the magnitude as well as the existence of dividend payments is likely to be important in signaling earnings quality. The evidence in DeAngelo et al. (2004) suggests that cross-sectional dispersion in dividend payouts has increased over the last 25 years. To test the idea that more substantial payments are likely to signal higher quality earnings, we estimate regressions that include indicator variables for firm/years in which no dividends are paid (NDP) and in which large dividends are paid (BDP).

$$(E_{it+1}/TA_{it-1}) = \alpha_0 + \alpha_1.NDP_{it} + \alpha_2.BDP_{it} + \alpha_3.(E_{it}/TA_{it-1}) + \alpha_4.NDP_{it}.(E_{it}/TA_{it-1}) + \alpha_5.BDP_{it}.(E_{it}/TA_{it-1}) + \varepsilon_{it} \dots \dots \dots (2)$$

Large dividends are defined as firm/years in which payout ratios exceed .25 but do not exceed 2.0.¹² Negative payout ratios (loss firm/years) are set to .01, although we also report results for samples that exclude loss firm/years.

Finally, we estimate a variation of (2) in which an indicator variable is added for firms above a certain size threshold (BIG).

$$(E_{it+1}/TA_{it-1}) = \alpha_0 + \alpha_1.NDP_{it} + \alpha_2.BDP_{it} + \alpha_3.BIG_{it} + \alpha_4.(E_{it}/TA_{it-1}) + \alpha_5.NDP_{it}.(E_{it}/TA_{it-1}) + \alpha_6.BDP_{it}.(E_{it}/TA_{it-1}) + \alpha_7.BIG_{it}.(E_{it}/TA_{it-1}) + \alpha_8.BIG_{it}.BDP_{it}.(E_{it}/TA_{it-1}) + \varepsilon_{it} \dots \dots \dots (3)$$

The motivation for this specification is twofold. First, this will help to separate the effect of firm size from the effect of large dividend payout to the extent that they are correlated. Second, it may be that there is a positive interaction between these effects: large firms that pay relatively large dividends may have more sustainable earnings than either large firms

¹² The results are not greatly sensitive to these cutoffs. The reason for the upper bound is that unreasonably high payout ratios are typically due to a “small denominator” problem, and so are hard to conceive of as being indicative of high quality earnings.

that do not pay dividends or smaller firms with large payouts. BIG is set to one if the firm is in the top decile of the size distribution and zero otherwise.¹³

All regressions are estimated using OLS with two-way robust standard errors (i.e., clustered by firm and time) which should account for cross-sectional or time series dependence. The results of estimating (1), (2), and (3) are reported in Tables 3A, 4A, and 5A, respectively. We also estimate these specifications using two-year-ahead earnings (E_{it+2}/TA_{it-1}) as the dependent variable and report these results in Tables 3B, 4B, and 5B, respectively.

Table 3, Panel A reports the results of estimating equation (1). As expected if earnings are relatively persistent, the coefficient on earnings is .81, similar to results reported in previous research.¹⁴ More importantly, and consistent with our prediction, the coefficient on the dividend-payer slope dummy is reliably positive (.05, $t = 5.7$), implying that earnings are more persistent for dividend-payers, with an overall slope coefficient of .86. The R-squared is .67, and the dividend-payer intercept dummy is also positive and statistically significant, suggesting that dividend-payers tend to have higher earnings.

Because the results in Table 2 show that there is a strong relation between dividends and losses, and because negative earnings revert more quickly than positive earnings, especially when losses contain special items (e.g., Freeman et al., 1982; Fama and French, 2000), we also estimate these regressions after excluding firms that report losses in year t .¹⁵ The results are very similar after we exclude losses. The coefficient on

¹³ This variable has also been defined using the top quartile and largest 5% of the size distribution, with similar results.

¹⁴ For example, Sloan (1996) reports a coefficient of .84 using similar methods.

¹⁵ The tendency of losses to contain transitory items and to reverse is well known. See Brooks and Buckmaster (1976) and Freeman, Ohlson, and Penman (1982). Fama and French (2000) show that this reversal is stronger for negative earnings. See Joos and Plesko (2005) for a more recent paper on loss reversals.

earnings is again 0.81 and the coefficient on the dividend-payer slope coefficient is again .05 ($t = 6.4$). The adjusted R-square increases slightly to 0.69.

Table 3, Panel B reports the same regressions estimated for two-year-ahead earnings. Results are similar to those reported in Panel A, although earnings are generally less persistent two years ahead, as we might expect. We find that the coefficient on earnings is .70 overall and increases by .06 ($t = 4.3$) for dividend payers. The adjusted R-squared for this regression is .49. We again obtain similar results when losses are excluded from the sample.

We report the results of estimating equation (2) in Table 4. Once again, we report results for one-year-ahead earnings in Panel A and for two-year-ahead earnings in Panel B. We expect a negative α_4 coefficient if earnings are less persistent for non-dividend payers than for dividend payers and a positive α_5 coefficient if earnings are more persistent for large dividend payers than for other dividend payers. The results are consistent with both predictions. The slope coefficient on earnings is .86 for dividend paying firms generally (consistent with Table 3). This slope coefficient decreases to .81 for non-dividend payers (incremental $t = -4.7$) and increases modestly (to .87) for large dividend payers (incremental $t = 2.3$). The results are again very similar when we exclude losses.

The results are similar but not as strong for two-year-ahead earnings in Panel B. Here we find, once again, that earnings are significantly less persistent for non-dividend payers compared to dividend payers, but that the earnings persistence result for large dividend payers is only marginally significant ($t = 1.8$). These results are, again, largely invariant to whether the loss observations are included.

We report the results of estimating equation (3) in Table 5. The motivation for this specification is to investigate the role of firm size in the relation between earnings persistence, dividend payments, and losses. The results in Panel A show that earnings tend to be higher for large firms (the intercept dummy is positive and significant) but that the results for dividends, including for large dividends, are robust to the firm size control. As before, earnings persistence is reliably lower for non-dividend payers than dividend payers (incremental coefficient of $-.03$, $t = -3.9$) but the result for large dividend payers is now stronger (incremental coefficient of $.05$, $t = 4.76$). The coefficients on the firm size slope dummy and the firm size \times large dividend interaction term are both small and insignificant. As was the case above, these results do not change once losses are excluded.

When we examine equation (3) for two-year-ahead earnings (Panel B) the results are very similar, with highly significant slope dummies to show that earnings are more persistent for dividend payers than non-dividend payers (incremental coefficient for non dividend payers $-.04$, $t = -2.94$), and for large dividend payers relative to dividend payers (incremental coefficient, $t = 4.78$). There is again no evidence that large firms have more or less persistent earnings after controlling for the dividend effects.

Overall, the results reported in Tables 3, 4, and 5 indicate that dividend payers tend to have more persistent earnings than non-payers, and that this result is stronger for firms that report large dividends. These results are robust to considering the separate effect of firm size, as well as to whether we include loss observations.

Because stock repurchases are now an alternative means of paying out earnings to stockholders (e.g., Grullon and Michaely, 2002) and because there is evidence that repurchases are also largely driven by earnings (Skinner, 2008), we next investigate the

relation between earnings quality and stock repurchases. As discussed in Section 2, because repurchases are inherently more flexible than dividends, we do not expect that repurchases will be associated with earnings persistence to the same degree as dividends.

Table 6 reports the results of regressions in which we substitute stock repurchases for dividend payment in (1); that is, we examine whether earnings are more persistent for those firms that make stock repurchases in year t . The evidence in our first specification shows that, similar to dividends, earnings are significantly more persistent for firms that make stock repurchases than for firms that do not. The overall coefficient on earnings is, naturally, quite similar here to that reported above (.82). Interestingly, however, and apparently inconsistent with our prediction, earnings are more persistent for firms that make repurchases than for other firms and the magnitude of this effect is similar to that for dividends in Table 3 (coefficient of .04, $t = 8.1$). This result is again robust to the exclusion of losses. We also explore whether this result depends on the frequency with which firms make repurchases. Unlike dividends, which are usually paid on a regular basis, stock repurchases can be made in one year without creating an expectation of future payment (Guay and Harford, 2000; Jagannathan, 2000). Consequently, we might expect the signal value of repurchases to be stronger for firms that make repurchases regularly, and so refine the repurchase dummy to capture firms that make repurchases in at least five years. Consistent with the notion that firms that make more frequent repurchases have more persistent earnings, the results for this specification are somewhat stronger than those in our first specification, with an incremental slope dummy of .06 ($t = 9.9$). Overall then, similar to dividends, repurchases seem to provide a signal about earnings quality.

One problem with interpreting this evidence is the fact that firms that make stock repurchases, especially those that repurchase in significant amount and on a regular basis, also tend to pay dividends (Fama and French, 2001; Skinner, 2008). So the repurchase variables used above are likely to be correlated with dividend payment. To address this, we specify a repurchase dummy that captures firm/years with repurchases but no dividends, which is the fourth specification reported in Table 6. Consistent with our expectations, the slope coefficient on this variable, while positive and significant ($t = 3.3$) is about half as large as that reported for the specification that examines firms that make regular (five or more) repurchases (coefficient of .031 vs. .061). This means that some but not all of the repurchase effect is attributable to firms that make both types of payouts.

Finally, because previous research shows that the relation between repurchases and earnings has become stronger over time (Skinner, 2008), we also investigate whether the results for repurchases are attributable to specific sample subperiods. We find that they are. In particular, the last specification in Table 6 shows that the repurchases result does not hold for the set of firm/year observations ending in 1998 (the coefficient on the repurchases slope dummy is insignificant), which means that the significance observed above is largely due to firm/years after 1998. This is consistent with the substantial growth in the magnitude of repurchases since the mid-1990s and with there being an increasingly close link between repurchases and earnings over time (Skinner, 2008). Overall then, we do find a relation between earnings quality and stock repurchases, but that this relation is not as strong as that for dividends and has emerged only recently.

5. Conclusion

This paper provides new evidence on whether dividends provide information about firms' future earnings prospects, and in particular about the quality of reported earnings. These questions are of interest given increasing questions about earnings quality, as well as wholesale changes in both the nature of payout policy and in the cross-sectional distribution of corporate earnings.

There is now some agreement that the traditional view of signaling – that managers use dividends to signal future earnings prospects – is no longer descriptive (e.g., Allen and Michaely, 2002; Brav et al., 2005). The evidence against the traditional signaling story does not say, however, that dividends do not provide useful information to investors, especially if there are questions about the credibility of managers' reporting practices. Consistent with the idea that dividends provide information about the quality of reported earnings, we find that the relation between current earnings and future earnings is stronger for firms that pay dividends, and is somewhat stronger again for firms that pay large dividends. In part, these results are tied to losses: firms are unlikely to pay dividends in years they report losses, especially “high quality” losses not attributable to special items. This says that dividends are informative about the quality of reported losses. Losses are not the whole story, however, because the dividend variables provide information about future earnings after we exclude losses. Overall, the evidence shows that dividends are informative with respect to firms' earnings prospects, although not in the traditional sense of signaling future earnings changes, consistent with what Miller and Modigliani (1961) originally suggested.

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Table 1
Earnings, Losses, Dividends, and Repurchases 1974-2006

Year	Number Firms	Aggregate Earnings (\$m)	Number Loss Firms	Aggregate Losses (\$m)	Aggregate SI (\$m)	Aggregate Dividends (\$m)	Number DP Firms	Aggregate DP Earnings (\$m)	Number Firms w/ Repurchases	Aggregate Repurchases (\$m)
1974	3,683	63,344	512 (14%)	-2,623	-765	24,001	2,083 (57%)	62,142	0 (0%)	0
1975	3,704	61,294	588 (16%)	-2,678	-320	25,654	2,138 (58%)	61,051	0 (0%)	0
1976	3,729	80,764	459 (12%)	-1,426	-56	30,689	2,280 (61%)	79,264	0 (0%)	0
1977	3,710	90,006	448 (12%)	-2,289	-1,385	37,105	2,338 (63%)	88,507	0 (0%)	0
1978	3,633	102,879	403 (11%)	-2,391	-1,390	41,031	2,299 (63%)	100,694	0 (0%)	0
1979	3,585	123,588	481 (13%)	-4,059	178	46,018	2,211 (62%)	120,515	0 (0%)	0
1980	3,646	118,876	612 (17%)	-11,417	837	49,931	2,123 (58%)	119,649	0 (0%)	0
1981	3,891	126,893	815 (21%)	-8,591	1,337	54,802	2,015 (52%)	125,763	0 (0%)	0
1982	3,903	101,820	1,099 (28%)	-15,319	-2,245	56,822	1,898 (49%)	106,580	0 (0%)	0
1983	4,286	121,512	1,234 (29%)	-13,952	-4,621	60,766	1,831 (43%)	121,273	637 (15%)	5,444
1984	4,348	147,082	1,273 (29%)	-10,676	-7,379	64,770	1,748 (40%)	145,171	928 (21%)	22,619
1985	4,347	120,903	1,526 (35%)	-19,885	-23,757	67,282	1,656 (38%)	123,076	901 (21%)	28,864
1986	4,505	109,898	1,656 (37%)	-28,260	-22,028	74,504	1,554 (34%)	117,503	964 (21%)	27,673
1987	4,678	149,981	1,703 (36%)	-19,328	-10,944	82,489	1,495 (32%)	148,005	1,325 (28%)	38,269
1988	4,507	187,548	1,597 (35%)	-15,341	-12,087	92,832	1,447 (32%)	178,851	1,224 (27%)	37,278
1989	4,361	179,940	1,609 (37%)	-17,848	-15,256	90,065	1,416 (32%)	174,415	1,064 (24%)	32,856
1990	4,303	154,972	1,583 (37%)	-30,354	-21,838	91,396	1,367 (32%)	158,041	1,191 (28%)	30,136
1991	4,390	100,175	1,681 (38%)	-53,146	-51,496	91,752	1,346 (31%)	107,892	874 (20%)	15,789
1992	4,555	130,016	1,572 (35%)	-45,732	-45,694	92,651	1,390 (31%)	132,644	840 (18%)	22,440
1993	4,956	151,442	1,756 (35%)	-42,838	-71,561	94,487	1,403 (28%)	152,677	899 (18%)	20,806
1994	5,217	240,956	1,692 (32%)	-25,461	-24,122	97,908	1,396 (27%)	227,168	1,042 (20%)	30,894
1995	5,405	262,546	1,870 (35%)	-29,664	-53,961	113,747	1,426 (26%)	244,305	1,163 (22%)	60,254
1996	5,815	298,357	2,096 (36%)	-39,201	-38,232	117,596	1,426 (25%)	273,963	1,254 (22%)	65,955
1997	5,809	309,913	2,186 (38%)	-52,171	-69,944	121,717	1,365 (23%)	286,338	1,449 (25%)	94,389
1998	5,456	296,598	2,185 (40%)	-76,792	-45,123	129,389	1,264 (23%)	281,274	1,775 (33%)	122,311
1999	5,186	328,509	2,150 (41%)	-78,405	-22,890	122,827	1,113 (21%)	293,777	1,691 (33%)	139,095
2000	5,095	272,031	2,403 (47%)	-170,380	-85,575	123,611	995 (20%)	319,860	1,531 (30%)	132,495
2001	4,616	-60,960	2,451 (53%)	-379,664	-300,962	121,908	895 (19%)	184,779	1,356 (29%)	93,731
2002	4,261	120,935	1,978 (46%)	-246,358	-215,716	123,481	839 (20%)	259,146	1,221 (29%)	102,486
2003	3,980	349,252	1,629 (41%)	-87,422	-84,071	133,656	906 (23%)	327,415	1,045 (26%)	103,595
2004	3,930	441,436	1,390 (35%)	-104,034	-117,862	157,293	1,001 (25%)	395,846	949 (24%)	150,606
2005	3,806	509,312	1,336 (35%)	-121,129	-96,817	205,789	1,034 (27%)	468,624	1,053 (28%)	253,719
2006	3,253	632,555	1,068 (33%)	-89,034	-8,684	197,036	938 (29%)	507,062	1,049 (32%)	371,919

The number of firms is the number of NYSE, AMEX, and NASDAQ firms in a given year that are incorporated in the United States and have non-missing earnings (#18) and dividends (#21). Utilities and financial firms are excluded. Aggregate earnings are total earnings for all included firms. Number of loss firms is the number of firms with negative earnings for the year and aggregate losses are total earnings for these firms. Aggregate special items (SI) is total special items (#17) for the year and aggregate dividends is total dividends for the year (#21). Number of dividend paying (DP) firms is the number of firms paying non-zero dividends and aggregate DP earnings is total earnings for this set of firms. Number of firms with repurchases is the number of firms with repurchases (see note 9) and aggregate repurchases is total repurchases for this set of firms.

Table 2
The Relation Between Losses, Dividends, and Repurchases

Period	1974-1979	1980-1984	1985-1989	1990-1994	1995-1999	2000-2005	<i>TOTAL</i>
Number of Observations	22,044	20,074	22,398	23,421	27,671	28,941	144,549
Number (Fraction) of Firm Years w/ Losses	2,891 (13%)	5,033 (25%)	8,091 (36%)	8,284 (35%)	10,487 (38%)	12,255 (42%)	47,041
Number (Fraction) DP Firms Years	13,349 (61%)	9,615 (48%)	7,568 (34%)	6,902 (30%)	6,594 (24%)	6,608 (23%)	50,636
Number (Fraction) NDP Firms Years w/ Losses	2,425 (28%)	4,346 (42%)	7,276 (49%)	7,541 (46%)	9,832 (47%)	11,506 (52%)	42,926
Number (Fraction) DP Firms Years w/ Losses	466 (4%)	687 (7%)	815 (11%)	743 (11%)	655 (10%)	749 (11%)	4,115
Number (Fraction) of Loss Firm Years due to SI	405 (14%)	546 (11%)	1,257 (16%)	1,806 (22%)	2,559 (24%)	2,947 (24%)	9,520
Number (Fraction) of NDP Losses due to SI	302 (13%)	355 (8%)	945 (13%)	1,435 (19%)	2,184 (22%)	2,528 (22%)	7,749
Number (Fraction) of DP Losses due to SI	103 (22%)	191 (28%)	312 (38%)	371 (50%)	375 (57%)	419 (56%)	1,771
Number (Fraction) of RP Firm Years	-	1,565 (8%)	5,478 (25%)	4,846 (21%)	7,332 (27%)	8,204 (28%)	27,425
Number (Fraction) of RP Firm Years w/ Losses	-	270 (17%)	1,260 (23%)	1,070 (22%)	1,556 (21%)	1,989 (24%)	6,145
Number (Fraction) of RP Losses Due to SI	-	45 (17%)	289 (23%)	334 (31%)	592 (38%)	687 (35%)	1,947

The number of firms is the number of NYSE, AMEX, and NASDAQ firms in a given year that are incorporated in the United States and have non-missing earnings (#18) and dividends (#21). Utilities and financial firms are excluded. Number of loss firms is the number of firms with negative earnings for the year. Number of dividend paying (DP) and not dividend paying (NDP) firms are the number of firms paying non-zero dividends and zero dividends respectively. The number of repurchases (RP) is the number of firm years with a repurchase (see note 9). A loss is designated as due to special items (SI) when special items represent at least 50% of the amount of the loss.

Table 3
Earnings Persistence Regressions for Dividend and non-Dividend Payers

Panel A: One Year Ahead Earnings Persistence					
$(E_{it+1}/TA_{it-1}) = \alpha_0 + \alpha_1 \cdot DP_{it} + \alpha_2 \cdot (E_{it}/TA_{it-1}) + \alpha_3 \cdot DP_{it} \cdot (E_{it}/TA_{it-1}) + \varepsilon_{it}$					
	α_0	α_1	α_2	α_3	Adj. R2
All Firms (n=114,581)	-0.0764*** (0.0038)	0.0272*** (0.0042)	0.814*** (0.0049)	0.0478*** (0.0084)	.67
Excluding Losses in Year t (n=80,837)	-0.0811*** (0.0041)	0.0300*** (0.0045)	0.811*** (0.0049)	0.0513*** (0.0081)	.69
Panel B: Two Year Ahead Earnings Persistence					
$(E_{it+2}/TA_{it-1}) = \alpha_0 + \alpha_1 \cdot DP_{it} + \alpha_2 \cdot (E_{it}/TA_{it-1}) + \alpha_3 \cdot DP_{it} \cdot (E_{it}/TA_{it-1}) + \varepsilon_{it}$					
	α_0	α_1	α_2	α_3	Adj. R2
All Firms (n=101,805)	-0.118*** (0.0063)	0.0355*** (0.0073)	0.704*** (0.0071)	0.0599*** (0.014)	.49
Excluding Losses in Year t (n=73,171)	-0.124*** (0.0066)	0.0389*** (0.0076)	0.696*** (0.0077)	0.0684*** (0.014)	.51

The sample includes all non-utility, non-financial firms which trade on the NYSE, AMEX, and NASDAQ from 1974-2006 with available data. Two-way robust standard errors are presented in parentheses. Et is earnings before extraordinary items (#18) after adding back after-tax interest expense (.6 x #15) net of after-tax interest income (.6 x #62) in year t; total assets is #6 and dividends is #2. The accounting rates of returns are winsorized at +/- 100%. DP is an indicator variable that is set to 1 if the firm declares a regular cash dividend in year t and 0 otherwise. *, **, *** indicate significance at 10%, 5%, and 1%.

Table 4**Earnings Persistence Regressions for Dividend, non-Dividend, and Large Dividend Payers**

Panel A: One Year Ahead Earnings Persistence							
$(E_{it+1}/TA_{it-1}) = \alpha_0 + \alpha_1 \cdot NDP_{it} + \alpha_2 \cdot BDP_{it} + \alpha_3 \cdot (E_{it}/TA_{it-1}) + \alpha_4 \cdot NDP_{it} \cdot (E_{it}/TA_{it-1}) + \alpha_5 \cdot BDP_{it} \cdot (E_{it}/TA_{it-1}) + \varepsilon_{it}$							
	α_0	α_1	α_2	α_3	α_4	α_5	Adj. R2
All Firms (n=114,581)	-0.0469*** (0.0034)	-0.0295*** (0.0040)	-0.00447 (0.0035)	0.855*** (0.0094)	-0.0404*** (0.0086)	0.0139** (0.0060)	.67
Excluding Losses in Year t (n=80,387)	-0.0506*** (0.0033)	-0.0305*** (0.0042)	-0.000697 (0.0036)	0.854*** (0.0098)	-0.0429*** (0.0087)	0.0145** (0.0064)	.69
Panel B: Two Year Ahead Earnings Persistence							
$(E_{it+2}/TA_{it-1}) = \alpha_0 + \alpha_1 \cdot NDP_{it} + \alpha_2 \cdot BDP_{it} + \alpha_3 \cdot (E_{it}/TA_{it-1}) + \alpha_4 \cdot NDP_{it} \cdot (E_{it}/TA_{it-1}) + \alpha_5 \cdot BDP_{it} \cdot (E_{it}/TA_{it-1}) + \varepsilon_{it}$							
	α_0	α_1	α_2	α_3	α_4	α_5	Adj. R2
All Firms (n=101,805)	-0.0794*** (0.0062)	-0.0386*** (0.0074)	-0.00596 (0.0052)	0.755*** (0.015)	-0.0512*** (0.014)	0.0160* (0.0089)	.49
Excluding Losses in Year t (n=73,171)	-0.0844*** (0.0066)	-0.0396*** (0.0078)	-0.00102 (0.0057)	0.754*** (0.017)	-0.0592*** (0.016)	0.0158* (0.0096)	.51

The sample includes all non-utility, non-financial firms which trade on the NYSE, AMEX, and NASDAQ from 1974-2006 with available data. Two-way robust standard errors are presented in parentheses. Et is earnings before extraordinary items (#18) after adding back after-tax interest expense (.6 x #15) net of after-tax interest income (.6 x #62) in year t; total assets is #6 and dividends is #2. The accounting rates of returns are winsorized at +/- 100%. DP is an indicator variable that is set to 1 if the firm declares a regular cash dividend in year t and 0 otherwise. NDP is an indicator variable that is set to 1 if the firm does not declare a regular cash dividend in year t and 0 otherwise. BDP is an indicator variable that is set to 1 if the firm declares a "large" regular cash dividend in year t and 0 otherwise. Large dividends are defined as those firm-years with payout ratios that exceed .25 and are not greater than 2.0. Negative payout ratios (dividends paid in loss years) are set to .01; these observations are dividend payers but not large dividend payers. *, **, *** indicate significance at 10%, 5%, and 1%.

Table 5

Earnings Persistence Regressions for Dividend, non-Dividend, and Large Dividend Payers with Large Firm Indicator

Panel A: One Year Ahead Earnings Persistence										
$(E_{it+1}/TA_{it-1}) = \alpha_0 + \alpha_1 \cdot NDP_{it} + \alpha_2 \cdot BDP_{it} + \alpha_3 \cdot BIG_{it} + \alpha_4 \cdot (E_{it}/TA_{it-1}) + \alpha_5 \cdot NDP_{it} \cdot (E_{it}/TA_{it-1}) + \alpha_6 \cdot BDP_{it} \cdot (E_{it}/TA_{it-1}) + \alpha_7 \cdot BIG_{it} \cdot (E_{it}/TA_{it-1}) + \alpha_8 \cdot BIG_{it} \cdot BDP_{it} \cdot (E_{it}/TA_{it-1}) + \varepsilon_{it}$										
	α_0	α_1	α_2	α_3	α_4	α_5	α_6	α_7	α_8	Adj. R2
All Firms (n=114,581)	-0.0501*** (0.0034)	-0.0272*** (0.0039)	-0.00736** (0.0036)	0.0207*** (0.0043)	0.847*** (0.0096)	-0.0343*** (0.0088)	0.0476*** (0.0100)	0.00781 (0.0059)	-0.00251 (0.0080)	.67
Excluding Losses in Year t (n=80,387)	-0.0534*** (0.0033)	-0.0285*** (0.0040)	-0.00357 (0.0037)	0.0193*** (0.0047)	0.846*** (0.010)	-0.0372*** (0.0090)	0.0487*** (0.011)	0.00881 (0.0061)	-0.00484 (0.0079)	.69
Panel B: Two Year Ahead Earnings Persistence										
$(E_{it+2}/TA_{it-1}) = \alpha_0 + \alpha_1 \cdot NDP_{it} + \alpha_2 \cdot BDP_{it} + \alpha_3 \cdot BIG_{it} + \alpha_4 \cdot (E_{it}/TA_{it-1}) + \alpha_5 \cdot NDP_{it} \cdot (E_{it}/TA_{it-1}) + \alpha_6 \cdot BDP_{it} \cdot (E_{it}/TA_{it-1}) + \alpha_7 \cdot BIG_{it} \cdot (E_{it}/TA_{it-1}) + \alpha_8 \cdot BIG_{it} \cdot BDP_{it} \cdot (E_{it}/TA_{it-1}) + \varepsilon_{it}$										
	α_0	α_1	α_2	α_3	α_4	α_5	α_6	α_7	α_8	Adj. R2
All Firms (n=101,805)	-0.0851*** (0.0065)	-0.0345*** (0.0073)	-0.0110** (0.0049)	0.0355*** (0.0073)	0.742*** (0.016)	-0.0412*** (0.014)	0.0764*** (0.016)	0.00685 (0.0097)	-0.00613 (0.015)	.49
Excluding Losses in Year t (n=73,171)	-0.0893*** (0.0070)	-0.0361*** (0.0077)	-0.00593 (0.0054)	0.0325*** (0.0081)	0.742*** (0.017)	-0.0498*** (0.016)	0.0786*** (0.017)	0.00761 (0.010)	-0.0110 (0.016)	.51

The sample includes all non-utility, non-financial firms which trade on the NYSE, AMEX, and NASDAQ from 1974-2006 with available data. Two-way robust standard errors are presented in parentheses. Et is earnings before extraordinary items (#18) after adding back after-tax interest expense (.6 x #15) net of after-tax interest income (.6 x #62) in year t; total assets is #6 and dividends is #2. The accounting rates of returns are winsorized at +/- 100%. DP is an indicator variable that is set to 1 if the firm declares a regular cash dividend in year t and 0 otherwise. NDP is an indicator variable that is set to 1 if the firm does not declare a regular cash dividend in year t and 0 otherwise. BDP is an indicator variable that is set to 1 if the firm declares a “large” regular cash dividend in year t and 0 otherwise. Large dividends are defined as those firm-years with payout ratios that exceed .25 and are not greater than 2.0. Negative payout ratios (dividends paid in loss years) are set to .01; these observations are dividend payers but not large dividend payers. BIG is an indicator variable that is set to 1 if the firm is in the top decile of the size distribution of firms in year t and 0 otherwise. *, **, *** indicate significance at 10%, 5%, and 1%.

Table 6
Earnings Persistence Regressions for Repurchasing Firms

Panel A: One Year Ahead Earnings Persistence					
$(E_{it+1}/TA_{it-1}) = \alpha_0 + \alpha_1 \cdot \text{Repurchase}_{it} + \alpha_2 \cdot (E_{it}/TA_{it-1}) + \alpha_3 \cdot \text{Repurchase}_{it} \cdot (E_{it}/TA_{it-1}) + \varepsilon_{it}$					
	α_0	α_1	α_2	α_3	Adj. R2
All Firms (n=114,581)	-0.0680*** (0.0033)	0.0122*** (0.0033)	0.824*** (0.0044)	0.0447*** (0.0055)	.67
Excluding losses in year t (n=80,387)	-0.0696*** (0.0037)	0.0112*** (0.0040)	0.824*** (0.0049)	0.0476*** (0.0068)	.69
Including Firms with at least 5 Repurchases (n=73,366)	-0.0676*** (0.0034)	0.0244*** (0.0038)	0.826*** (0.0051)	0.0612*** (0.0062)	.68
Repurchasing Firms which do not Pay Divdends (n=14,268)	-0.0723*** (0.0058)	0.0101 (0.0062)	0.827*** (0.0075)	0.0306*** (0.0094)	.69
Repurchasing Firms which do not Pay Divdends, pre 1998 (n=8,198)	-0.0737*** (0.0063)	0.000112 (0.0086)	0.823*** (0.0092)	0.0258 (0.014)	.67

The sample includes all non-utility, non-financial firms which trade on the NYSE, AMEX, and NASDAQ from 1974-2006 with available data. Two-way robust standard errors are presented in parentheses. Et is earnings before extraordinary items (#18) after adding back after-tax interest expense (.6 x #15) net of after-tax interest income (.6 x #62) in year t; total assets is #6 and dividends is #2. The accounting rates of returns are winsorized at +/- 100%. Repurchase is an indicator variable that is set to 1 if the firm repurchases shares in year t and 0 otherwise (see note 9). *, **, *** indicate significance at 10%, 5%, and 1%.