

What do dividends tell us about earnings quality?

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Abstract Over the past 30 years, there have been significant changes in the distribution of earnings—cross-sectional variation has increased, with increasing left skewness—as well as in corporate payout policy, with many fewer firms paying dividends and the emergence of stock repurchases. We investigate whether the informativeness of payout policy with respect to earnings quality changes over this period. We find that the reported earnings of dividend-paying firms are more persistent than those of other firms and that this relation is remarkably stable over time. 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 special items. These results do not hold as strongly for stock repurchases, consistent with them representing less of a commitment than dividends.

Keywords Dividends · Earnings quality · Payout policy · Stock repurchases

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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' earnings

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prospects.¹ There is a large empirical literature on this hypothesis, although there is little clear evidence in support of it.²

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.³ 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. Consequently, by committing to pay a dividend, managers can help convince investors of the quality of the earnings numbers that they report. This question seems especially important in recent years, during which there has been a substantial increase in reported losses, increasing dispersion in the cross-section of reported earnings, and increasing questions about the quality of reported earnings.⁴ The evidence presented here shows that dividends provide information about earnings quality, where high quality earnings are more likely to be sustainable in future periods.⁵

There have been important changes in corporate payout policy and in the nature of reported earnings over the last 30 years, both of which potentially affect the information content of dividends. With regard to earnings, recent papers document that (1) reported losses among public companies have become larger and more frequent (in fiscal 2001 aggregate Compustat earnings were negative and over half of Compustat firms reported losses),⁶ (2) the frequency and magnitude of negative special items have also increased substantially (for example, Collins et al. 1997), (3) the concentration of corporate earnings has increased,⁷ and (4) a surge in the

¹ Miller and Modigliani (1961, p. 430) state that "...where a firm has adopted a policy of dividend stabilization...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".

² The terms "information content of dividends" and "dividend signaling" tend to be used interchangeably in the literature, which is discussed further in Sect. 2.

³ As discussed below, we also consider the informational role of repurchases, widely considered to be an alternative mechanism for paying out earnings.

⁴ One of the recommendations 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).

⁵ A number of definitions of earnings quality exist. We believe that the persistence of earnings is well accepted as a measure of earnings quality (e.g., Penman 2001) and captures salient features of the underlying construct. Dechow and Schrand (2004, p. 5) define a high quality earnings number as one that "...accurately reflects the company's current operating performance, is a good indicator of future operating performance, and is a useful summary measure for assessing firm value". We examine the relation between this measure of earnings quality and another prominent measure, the extent to which earnings are comprised of cash flows versus accruals (Sloan 1996; Richardson et al. 2005), later in the paper. Under another definition that we see as unlikely to be related to firms' payout policy, timely loss recognition is interpreted as evidence of earnings quality (e.g., Basu 1997; Ball et al. 2003; Watts 2003).

⁶ Aggregate Compustat earnings for 2001 were negative \$69 billion, with 52% 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).

⁷ In fiscal 2000 over half of aggregate Compustat earnings are due to the 25 firms reporting the largest earnings (DeAngelo et al. 2004).

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, the earnings cross-section 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) provide evidence of a substantial decline in the fraction of U.S. firms that pay regular dividends, from 67% in 1978 to 21% in 1999. DeAngelo et al. (2004) report, however, 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 payments. Stock repurchases emerged as an alternative payout vehicle in the early 1980s and are now more prevalent than dividends and often larger in aggregate dollar magnitude (Bagwell and Shoven 1988; Grullon and Michaely 2002; Skinner 2008). Skinner (2008) reports that many firms use repurchases in conjunction with dividends to pay out earnings.⁸

Theory suggests that managers' dividend decisions depend on their assessment of their firms' long-run sustainable earnings and so are likely to be informative about earnings quality. We investigate this hypothesis using annual Compustat data for U.S. industrial firms over the 1974 through 2005 period. We first show that an extant result, that dividends are seldom paid by firms reporting losses (DeAngelo et al. 1992), continues to hold in spite of the substantial increase in reported losses, which are now reported by 40–50% of firms. In the 1974 through 1983 period, reporting a loss reduces the likelihood of paying a dividend from 68 to 16%; the corresponding reductions in 1984 through 1993 and 1994 through 2005 are from 50 to 8% and from 39 to 4%, respectively.

We also show that the likelihood of paying dividends depends on the *quality* of the loss—losses reported by dividend payers are more likely to be attributable to special items (and so of low quality) than those reported by nonpayers. In particular, during the 1974 through 1983 period, the probability of loss firms paying dividends increases from 16 to 33% when the loss is due to special items; the corresponding increases are from 8 to 25% and from 4 to 14% in the 1984 through 1993 and 1994 through 2005 subperiods, respectively. Overall, we find that dividend payers report losses around 5% of the time after we condition on earnings quality and that this fraction is approximately stable over the full sample period in spite of the large overall increase in the likelihood of losses and negative special items.

We find that losses are also related to repurchases but not as strongly as for dividends. This suggests that repurchases do not provide the same level of assurance about earnings quality as dividends, as expected given the lower level of commitment involved when firms make repurchases.

To investigate the general relation between dividend policy and earnings quality, we estimate regressions of future earnings on current earnings using firm-level data

⁸ In general, Skinner (2008) provides evidence to support the idea that repurchases are now used as a substitute for dividends. He shows that dividend policies have become increasingly conservative, with increases in dividends becoming smaller and less frequent and that many dividend payers now use repurchases to pay out transitory increases in earnings. He also shows that repurchases are linked to current and past earnings in a manner similar to dividends under the Lintner model, which supports the idea that, like dividends, repurchases are used to pay out earnings.

after conditioning on payout policy in various ways. These regressions show that dividend-payers have higher earnings quality than nonpayers and that this relation does not depend on the magnitude of the dividend. This suggests that once firms exceed a threshold level of earnings quality they can commit to a regular dividend but that payout magnitude does not depend on earnings quality beyond this point. This result is robust across various specifications, including controls for firm size, the use of an accruals-based measure of earnings quality, and is stable over time in spite of the substantial changes in both the earnings cross-section and the nature of payout policy. All of the results hold for both one- and two-year-ahead earnings. Overall, the evidence supports the idea that dividends are informative about earnings quality.

We estimate similar regressions to examine the relation between earnings quality and stock repurchases. Because regular dividends represent a commitment to distribute cash that managers are especially loathe to break (for example, Lintner 1956; Brav et al. 2005), we do not expect stock repurchases to be as informative about earnings quality as dividends. Consistent with this prediction, firms that make repurchases have less persistent earnings than firms that pay regular dividends but more persistent earnings than firms that do not make any payouts to stockholders. Firms that both pay regular dividends and make regular repurchases, which now dominate the distribution of payouts and earnings, have more persistent earnings than any other group of firms.

Section 2 reviews previous research and presents the predictions in more detail. Section 3 provides details about the sampling methodology. Section 4 examines the link between dividend policy and the persistence of reported earnings to investigate whether dividends provide information about earnings quality. Section 5 concludes.

2 Empirical predictions

Many empirical papers investigate the notion that managers use dividends to signal the earnings prospects of their firms.⁹ Although it is well known that stock prices react when firms announce unexpected changes in dividends (Aharony and Swary 1980; Asquith and Mullins 1983; Michaely et al. 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. Under the most common interpretation of this hypothesis, changes in firms' dividends map directly into changes in future earnings. As noted above, however, 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 have become less frequent and smaller over time while dividend

⁹ For summaries, see Allen and Michaely (2002) or DeAngelo et al. (2008). Relevant papers include Watts (1973), Penman (1983), Healy and Palepu (1988), Leftwich and Zmijewski (1994), DeAngelo et al. (1996), Bernartzi et al. (1997), Nissim and Ziv (2001), Grullon et al. (2005).

decreases occur rarely but are much larger in magnitude. It is hard to see how these patterns map into future earnings changes. The fact that dividends are now primarily the domain of large mature firms (DeAngelo et al. 2004) is also inconsistent with managers using dividends to communicate their firms' earnings prospects; if anything, the demand for signaling would seem to be highest among younger, growth firms with more volatile earnings. DeAngelo et al. (2008, p. 99) conclude that "extant empirical evidence is strongly incompatible with the notion that the primary purpose of dividends is to signal managers' views of future earnings to outside investors". Survey evidence in Brav et al. (2005) also firmly rejects the traditional notion of signaling.¹⁰

We examine the possibility that dividends provide information about the sustainability of reported earnings (that is, their "quality"). 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.¹¹ The prediction also follows from the empirically robust finding that managers are reluctant to cut dividends and only increase dividends when they are sure that there is a sustainable increase in their firms' long-run ability to generate earnings. Kormendi and Zarowin (1996) provide evidence on this idea (which they term a "permanent earnings" model of dividend behavior) and find strong empirical support for the model in a sample of 337 firms over the 1950 through 1989 period.

This logic also implies that stock repurchases, which have grown enormously since the early 1980s, do not provide the same type of signal because they are fundamentally less persistent than regular dividends. Repurchases offer managers 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 persistence of earnings as dividends. 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 increases is correspondingly more positive. Similarly, Jagannathan et al. (2000) find 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.

¹⁰ 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 et al. 2003; Watts 2003).

¹¹ Brav et al.'s (2005) 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 7, 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 et al. (2002), who argue that dividends provide information about changes in the systematic risk of firms and in particular that dividend increases signal firm maturity. See also Chen et al. (2007), who argue that changes in dividends capture changes in the information risk that is associated with the firm's accrual quality and find that this information risk is priced.

Nevertheless, recent evidence shows that repurchases are increasingly being used as dividend-substitutes (for example, Grullon and Michaely 2002; Skinner 2008). Skinner (2008) finds that many firms that pay regular dividends supplement their payouts with repurchases, consistent with the idea that these firms use repurchases to pay out transitory increases in earnings. He also finds that some newer technology firms, such as Dell, Oracle, and Cisco Systems, eschew dividends in favor of a policy of making regular repurchases and that firms' total payouts (dividends plus repurchases) track earnings more closely than dividends alone. We therefore examine the relation between firms' payout policies, broadly defined to include both dividends and repurchases, and earnings quality to see how the emergence of repurchases affects the information content argument.

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 more costly for managers to pay regular cash dividends if earnings do not reflect their firms' underlying economic performance. Sivakumar and Waymire (1993) find that the association between dividends and stock prices is strong just after 1900 (1905 through 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.¹²

3 Sampling and descriptive data

We sample all firm/years between 1974 and 2005 with non-missing Compustat data on annual dividends and earnings for firms listed on the NYSE, AMEX, or NASDAQ and incorporated in the United States. 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 1.¹³ 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 (Hayn 1995; Givoly and Hayn 2000; Joos and Plesko 2005; Klein and Marquardt 2006). The aggregate magnitude of losses 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 are \$288 billion, which explains most of the

¹² This idea is also tested by Caskey and Hanlon (2005), who investigate whether dividends are associated with the likelihood that the firm's management will engage in accounting fraud (i.e., dividends are a credible signal that the firm's earnings are not fraudulent).

¹³ Following Banyi et al. (2008), we measure repurchases as stock purchases from Compustat (item #115). As discussed by Banyi et al. (2008), a number of measures of repurchases are used in the literature. They argue that using the Compustat measure of stock purchases is the most reliable of these measures. Fama and French (2001) use a more complicated algorithm based on the difference between stock purchases and stock issuances (#108) from the statement of cash flows and the change in treasury stock. As it turns out, however, the choice does not matter a great deal for our analyses: we have performed our analyses using both measures without much difference in the results.

aggregate losses (of \$353 billion) reported in that year. These losses, in turn, cause aggregate Compustat earnings to be negative (−\$69 billion) in this year, with just over 50% of firms reporting losses.

Table 1 also shows that, consistent with Fama and French (2001), the number of dividend payers has declined substantially since the late 1970s, from around two-thirds of Compustat firms in the late 1970s to 20% in 2001 and 2002. There has been a modest rebound in the number of dividend payers since 2002, to around 29% in 2005, which may be due to a 2003 change in the tax law (see, for example, 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, due in turn to a corresponding increase in the concentration of earnings. Table 1 also shows the growth of repurchases during this period, from their emergence in economically significant quantities during the early 1980s (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 (1995) and aggregate repurchases first exceed aggregate dividends (1997). In recent years, repurchases have been larger than dividends. In 2004, for example, dividends totaled \$134 billion, while repurchases were \$205 billion; in 2005, repurchases had swelled to \$316 billion compared with \$183 billion of dividends. It is therefore clear that repurchases are now at least as significant economically as dividends.

4 Empirical evidence on the information content of dividends

This section provides evidence on two dimensions of the relation between firms' payout policy and the quality of their reported earnings. In Sect. 4.1, we report on the relation between payout policy and reported losses and find that whether the firm reports a loss (rather than its magnitude) and the quality of the loss (whether it reflects an economic loss, as opposed to being due to transitory accounting charges) are both strongly related to payout policy. In Sect. 4.2, we provide more general evidence on the relation between reported earnings and the nature of firms' payout policy. Here we find evidence that earnings are more persistent for firms that pay dividends (and, to a lesser extent, make repurchases) and that this relation does not depend on the magnitude of firms' dividend payouts. In Sect. 4.3, we show that the basic findings are robust when we account for the role of losses and special items.

4.1 The relation between payout policy and reported losses

Tables 2 and 3 provides evidence on the relation between payout policy, losses, and the quality of reported losses. We know from Table 1 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

Table 1 Earnings, losses, dividends, and repurchases 1974–2005

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	3,093	57,268	348 (11%)	-2,223	-681	20,502	1,917 (62%)	56,024	1,031 (33%)	1,761
1975	3,368	53,995	502 (15%)	-2,030	-277	21,303	2,015 (60%)	53,319	991 (29%)	1,133
1976	3,358	67,948	384 (11%)	-1,255	-68	24,530	2,137 (64%)	66,521	901 (27%)	1,940
1977	3,343	74,473	375 (11%)	-1,957	-1,417	29,114	2,195 (66%)	72,903	922 (28%)	3,962
1978	3,252	86,256	324 (10%)	-1,676	-1,157	32,217	2,157 (66%)	84,231	912 (28%)	4,026
1979	3,204	105,093	392 (12%)	-2,850	175	35,978	2,077 (65%)	102,424	902 (28%)	5,241
1980	3,169	105,607	460 (15%)	-6,712	866	39,792	1,986 (63%)	104,912	866 (27%)	5,976
1981	3,237	109,890	608 (19%)	-6,028	1,167	43,723	1,870 (58%)	108,657	869 (27%)	6,086
1982	3,439	86,564	956 (28%)	-12,372	-1,556	45,261	1,754 (51%)	88,759	996 (29%)	9,927
1983	3,499	97,628	959 (27%)	-12,428	-3,792	47,270	1,658 (47%)	97,382	904 (26%)	9,969
1984	3,748	112,060	1,054 (28%)	-9,928	-5,671	46,194	1,603 (43%)	110,494	1,142 (30%)	29,756
1985	3,775	96,241	1,288 (34%)	-17,851	-22,672	51,602	1,522 (40%)	97,660	1,147 (30%)	43,941
1986	3,734	85,210	1,366 (37%)	-25,167	-19,859	56,863	1,393 (37%)	92,077	1,117 (30%)	38,421
1987	3,940	121,915	1,412 (36%)	-17,551	-9,037	62,548	1,337 (34%)	120,360	1,469 (37%)	48,358
1988	4,016	153,029	1,397 (35%)	-14,126	-10,915	76,517	1,317 (33%)	147,855	1,334 (33%)	47,884
1989	3,878	146,912	1,407 (36%)	-15,828	-13,546	72,240	1,295 (33%)	144,061	1,157 (30%)	45,767
1990	3,844	132,534	1,415 (37%)	-25,527	-18,385	73,803	1,250 (33%)	137,486	1,257 (33%)	38,544
1991	3,841	93,326	1,462 (38%)	-39,103	-43,826	74,974	1,219 (32%)	99,309	1,039 (27%)	22,777
1992	3,892	112,877	1,332 (34%)	-37,749	-38,231	74,929	1,235 (32%)	113,947	996 (26%)	28,654
1993	4,151	127,063	1,447 (35%)	-35,835	-61,175	77,507	1,234 (30%)	125,063	1,030 (25%)	32,350

Table 1 continued

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)
1994	4,507	199,382	1,456 (32%)	-22,184	-20,254	79,752	1,250 (28%)	186,588	1,153 (26%)	38,574
1995	4,688	217,431	1,599 (34%)	-26,248	-49,351	91,168	1,278 (27%)	199,083	1,299 (28%)	67,144
1996	4,885	250,929	1,677 (34%)	-34,266	-35,634	92,793	1,243 (25%)	229,255	1,401 (29%)	82,107
1997	5,164	258,297	1,902 (37%)	-46,662	-62,212	93,993	1,214 (24%)	234,555	1,590 (31%)	119,261
1998	4,972	240,368	1,958 (39%)	-72,036	-56,509	101,347	1,173 (24%)	225,064	1,969 (40%)	157,350
1999	4,589	294,458	1,751 (38%)	-62,915	-15,829	99,574	1,043 (23%)	250,229	1,934 (42%)	156,633
2000	4,488	239,876	1,966 (44%)	-150,405	-75,183	99,115	943 (21%)	274,440	1,754 (39%)	149,421
2001	4,253	-69,425	2,222 (52%)	-353,140	-288,149	99,706	842 (20%)	162,619	1,625 (38%)	122,195
2002	3,926	90,256	1,798 (46%)	-237,426	-213,029	103,369	795 (20%)	227,902	1,431 (36%)	118,494
2003	3,604	320,956	1,418 (39%)	-75,850	-79,154	112,802	868 (24%)	293,673	1,277 (35%)	133,523
2004	3,474	407,211	1,135 (33%)	-92,715	-109,643	133,587	947 (27%)	357,344	1,133 (33%)	205,130
2005	3,397	502,450	1,118 (33%)	-84,123	-73,115	182,576	978 (29%)	440,340	1,216 (36%)	316,127

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 (item #115), and aggregate repurchases is total repurchases for this set of firms

Table 2 The relation between payout policy, reported losses, and special items, 1974–2005

Period	1974–1979	1980–1984	1985–1989	1990–1994	1995–1999	2000–2005	Total
Number of observations	19,618	17,092	19,343	20,235	24,298	23,142	123,728
Number (fraction) of firm years w/losses	2,325 (12%)	4,037 (24%)	6,870 (36%)	7,112 (35%)	8,887 (37%)	9,657 (42%)	38,888
Number (fraction) DP firms years	12,498 (64%)	8,871 (52%)	6,864 (35%)	6,188 (31%)	5,951 (24%)	5,373 (23%)	45,745
Number (fraction) NDP firms years w/losses	1,881 (26%)	3,390 (41%)	6,110 (49%)	6,420 (46%)	8,293 (45%)	9,032 (51%)	35,126
Number (fraction) DP firms years w/losses	444 (4%)	647 (7%)	760 (11%)	692 (11%)	594 (10%)	625 (12%)	3,762
Number (fraction) of loss firm years due to SI	348 (15%)	499 (12%)	1,168 (17%)	1,658 (23%)	2,325 (26%)	2,449 (25%)	8,447
Number (fraction) of NDP losses due to SI	248 (13%)	316 (9%)	870 (14%)	1,315 (20%)	1,977 (24%)	2,102 (23%)	6,828
Number (fraction) of DP losses due to SI	100 (23%)	183 (28%)	298 (39%)	343 (50%)	348 (59%)	347 (56%)	1,619
Number (fraction) of RP firm years	5,659 (29%)	4,777 (28%)	6,224 (32%)	5,475 (27%)	8,193 (34%)	8,436 (36%)	38,764
Number (fraction) of RP firm years w/losses	444 (8%)	737 (15%)	1,421 (23%)	1,142 (21%)	1,765 (22%)	2,122 (25%)	7,631
Number (fraction) of RP losses due to SI	87 (20%)	121 (16%)	338 (24%)	385 (34%)	648 (37%)	749 (35%)	2,328

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 non 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 (item #115). 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 Logit regressions of firm payout, losses, and special items

Dividend _{it} = α ₀ + α ₁ Loss _{it} + α ₂ (Loss _{it} * SI _{it}) + ε _{it}				
	α	α ₁	α ₂	Pseudo R ²
1974–1983	0.753***	−2.419***	0.975***	0.108
(n = 32,962)	(0.029)	(0.051)	(0.092)	
1984–1993	−0.111***	−2.382***	1.373***	0.125
(n = 38,819)	(0.030)	(0.052)	(0.067)	
1994–2005	−0.612***	−2.610***	1.435***	0.121
(n = 51,469)	(0.032)	(0.063)	(0.071)	
Repurchase _{it} = α ₀ + α ₁ Loss _{it} + α ₂ (Loss _{it} * SI _{it}) + ε _{it}				
	α ₀	α ₁	α ₂	Pseudo R ²
1974–1983	−0.843***	−0.719***	0.457***	0.009
(n = 32,962)	(0.024)	(0.050)	(0.098)	
1984–1993	−0.570***	−1.009***	0.555***	0.030
(n = 38,819)	(0.023)	(0.037)	(0.056)	
1994–2005	−0.291***	−1.247***	0.617***	0.047
(n = 51,469)	(0.021)	(0.034)	(0.042)	

The sample includes all non-utility, non financial domestic firms that trade on the NYSE, AMEX, and NASDAQ from 1974 to 2005 with available data. The dependent vars are indicators where dividend is set to 1 if the firm pays a dividend and repurchase is set to 1 if the firm repurchases shares, and Div&Rep is set to 1 if the firm both pays a dividend and repurchases shares in year *t*. Loss is an indicator set to 1 if earnings are less than zero. SI is an indicator set to 1 if special items represent at least 50% of the amount of the loss. Dividends are item #21, Earnings are item #18, Special Items are item #17, and Repurchases are #115 on Compustat. Standard errors are clustered by firm

*. **. *** Indicate significance at 10, 5, and 1%

(see, for example, Collins et al. 1997; Bradshaw and Sloan 2002).¹⁴ Because special items often comprise gains and losses, write-offs, restructuring charges, and so forth, and because these items are more likely to reflect managers’ accounting discretion than other components of earnings, losses due principally to special items are more likely to be transitory, or of “low quality” (DeAngelo et al. 1992; Burgstahler et al. 2002). We measure the quality of losses as the extent to which a loss is attributable to special items. Specifically, for all firm/years with losses, we create an indicator variable for whether the (gross) amount of special items equals or exceeds 50% of the reported loss.¹⁵ Because we are also interested in trends in

¹⁴ Corporate law, which varies by state of incorporation, can restrict a firm’s ability to pay a dividend, potentially creating a link between payout policy and losses. The majority of firms in the sample are incorporated in Delaware or New York. Delaware law allows the payment of a dividend out of surplus or, if there is no surplus, net profits from current and preceding years. New York permits the payment of dividends out of surplus as long as the net assets after the payment are at least equal to the stated capital (Wald and Long 2007). Thus, payout restrictions help explain why firms with multiple losses are less likely to pay dividends.

¹⁵ The 50% definition is arbitrary; our main results do not change very much when somewhat different fractions are used.

these time series, Table 2, summarizes the data in non-overlapping 5 year subperiods.

Table 2, confirms that since the 1970s there has been a steady increase in the frequency of losses—from 12 to 42% of firm/years—and a corresponding decrease in the fraction of firms that pay dividends—from 64 to 23% of firm/years. There is also a strong and consistent relation between dividend payment and losses: dividend payers are substantially less likely to report losses than nonpayers. In the 1974 through 1979 subperiod dividend payers report losses in only 4% of firm/years while nonpayers report losses in 26% of firm/years. The fraction of firm/years in which dividend payers report losses increases over time but stabilizes at around 10%: this fraction is 7% in 1980 through 1984, 11% in 1985 through 1989, 11% in 1990 through 1994, 10% in 1995 through 1999, and 12% in 2000 through 2005. For nonpayers the corresponding fractions are substantially higher, at 41% in 1980 through 1984, 49% in 1985 through 1989, 46% in 1990 through 1994, 45% in 1995 through 1999, and 51% in 2000 through 2005.

Table 2, also shows that reported losses decline in quality through time: the fraction of losses attributable largely to special items increases from 15% in 1974 through 1979 to 17% in 1985 through 1989, 23% in 1990 through 1994, 26% in 1995 through 1999, and 25% in 2000 through 2005. Consistent with the idea that the losses sustained by dividend payers are more likely to be of lower quality (and less likely to indicate serious financial difficulties), dividend payers report a substantially higher relative proportion of losses due to special items. This fraction is 23% in 1974 through 1979, 28% in 1980 through 1984, 39% in 1985 through 1989, 50% in 1990 through 1994, 59% in 1995 through 1999, and 56% in 2000 through 2005. These fractions are two to three times those for nonpayers, which are 13, 9, 14, 20, 24, and 23%, respectively.

Table 3 establishes these results more formally by estimating logit models of payout policy. The dependent variable is an indicator variable for whether the firm pays dividends in a particular firm/year, which is regressed on a loss indicator (which measures the unconditional effect of losses) and an interaction term obtained by multiplying the loss indicator by an indicator for whether the loss is mainly attributable to special items (as defined above). This specification better explains payout decisions than a similar model that includes lagged ROA in place of the loss dummy. That is, as in DeAngelo et al. (1992), what matters for dividend policy is the sign of earnings rather than the magnitude.¹⁶ To gauge the effect on our results of the long-term changes that have occurred in both the nature of payout policy and

¹⁶ To verify this we have estimated logit regressions that regress the likelihood of paying a dividend on earnings deflated by total assets, a loss dummy, and an interaction between these variables. The coefficient on the interaction term tests whether the slope on earnings is larger when the firm reports a loss. Our results generally show that the coefficient on earnings is reliably positive (higher earnings increase the likelihood of dividends), the coefficient on the loss dummy is reliably negative (losses reduce the likelihood of dividends), while the coefficient on the interaction term is reliably positive (the slope is higher for losses than positive earnings). The exceptions are in the first subperiod (interaction negative and insignificant) and in the third subperiod (earnings variable positive and insignificant). The result on the interaction term is analogous to the Basu (1997) result on asymmetric timeliness because it indicates that dividends respond more to losses than to positive earnings. Results are similar for repurchases, although for these regressions the interaction is never reliably positive.

the cross-sectional distribution of earnings discussed above, we estimate these regressions for three subperiods: 1974 through 1983, 1984 through 1993, 1994 through 2005. We use these subperiods in subsequent tables as well.

These regressions show that the unconditional effect of losses on dividend payment is consistently strong but declines somewhat in magnitude over time. The estimated coefficients on the loss dummy are consistently large and negative for all three subperiods and highly statistically significant. They are also economically meaningful: in the first subperiod, reporting a loss reduces the likelihood of paying a dividend from 68 to 16%; in the second subperiod, from 50 to 8%; and in the third subperiod, from 39 to 4%.¹⁷ These regressions also support our prediction that losses due to special items are less likely to affect dividend payment. For the first subperiod, the logit coefficients imply that the likelihood of paying a dividend increases from 16 to 33% when the loss is due to special items; corresponding numbers for the other subperiods are 8–25% and 4–14%, respectively.

To the extent that repurchases are dividend substitutes, we expect the same type of relation between losses and repurchases as we observed for dividends, although we also expect that this effect is not as strong as that for dividends, especially earlier in our sample period when repurchases were not as large or frequent and were less likely to be dividend substitutes. The results in Tables 2 and 3 largely bear this out. In Table 2, we find that (1) the fraction of firm/years with losses in which firms also make repurchases is half or less that of the overall fraction of losses but still around twice the fraction for dividend payers, while (2) the fraction of these losses due to special items is well above the overall fraction but still substantially below that for dividend payers. In Tables 3, we find that reporting a loss reduces the probability of making repurchases from 30 to 18% in the first subperiod, from 37 to 18% in the second subperiod, and from 44 to 19% in the third subperiod (the relation becomes stronger over time), while the likelihood of making repurchases in the same year as reporting a loss due to special items increases from 17 to 25%, 17 to 26%, and 18 to 29%, respectively. While these effects are economically material, they are not as large as those reported above for dividends (the pseudo *R*-squares for the dividend regressions, of around 11–12%, are larger than those for the repurchase regressions, of 1–5%). Notice also that the magnitude of the relation between losses and repurchases increases over time, consistent with the increased use of repurchases as dividend substitutes. (The pseudo *R*-squared for the repurchase regression increases from 1% in the first subperiod to 5% in the most recent subperiod.)

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 nonpayers, for which losses are now reported approximately 50% of the time. Moreover, the losses that dividend payers do report are 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%

¹⁷ These probabilities are based on the estimated logit regressions reported in Table 3. For example, in the first subperiod the estimated probability of a dividend when there is not a loss is $e^{0.753}/(1 + e^{0.753}) = 0.68$.

of the time, consistent with dividends being informative about the quality of reported losses.¹⁸ We find that these effects also hold for repurchases, although not as strongly as for dividends, consistent with repurchases providing a lower level of assurance than dividends.

4.2 The implications of current earnings and dividends for future earnings

Section 4.1 provides evidence on the relation between payout policy and losses. To test the prediction that dividends are informative about the quality of firms' reported earnings more generally, we first estimate the following regression:

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

where E_{it} is earnings for firm i in year t (after adding back after-tax net interest costs so that the deflated variable can be interpreted as ROA); TA_{it} is total assets for firm i in year t ; and DP_{it} is an indicator variable 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 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 repurchases are informative about the quality of earnings (that is, we use a repurchase dummy that is defined similarly to the dividend-payer dummy).

We report the results of estimating (1) in Table 4. Except where noted otherwise, we estimate all regressions using OLS with two-way robust standard errors (that is, clustered by firm and year), to account for cross-sectional and time series dependence. We report results for the same subperiods used in Tables 2 and 3.

The results that we report in Table 4, Panel A, are consistent with our predictions. As expected if earnings are relatively persistent, the coefficient on earnings is around 0.8, similar to results reported in previous research.¹⁹ There is evidence of a modest increase in persistence over time, with the coefficient on earnings increasing from 0.78 in the earlier subperiod (1974 through 1983) to 0.84 in the most recent subperiod (1994 through 2005). The coefficient on the dividend-payer slope dummy is positive and statistically significant in all three subperiods, implying that earnings are more persistent for dividend payers. The results are stronger in the later subperiods, where the coefficients on the slope dummy are 0.079 and 0.064, both significant at the 1% level. These results indicate that the earnings coefficient has been around 0.90 for dividend payers since 1984. The R-squared in this regression increases from 0.63 in the first subperiod to 0.70 in each of the later subperiods. These results also hold in Panel B, which shows the persistence of year t earnings with respect to year $t + 2$ earnings. Here we find that the earnings persistence coefficient is 0.66 in the first subperiod and that the coefficient on the slope dummy is insignificant. In the latter two

¹⁸ Five percent is obtained by multiplying the fraction of dividend payers' losses by the fraction of those losses that are not due to special items ($0.44 \times 0.12 = 0.053$ for 2000 through 2005 and $0.59 \times 0.10 = 0.059$ for 1995 through 1999).

¹⁹ For example, Sloan (1996) reports a coefficient of 0.84 using similar methods.

Table 4 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. R^2
1974–1983	-0.0626*** (0.0071)	0.00137 (0.0039)	0.781*** (0.0072)	0.0314*** (0.011)	0.63
1984–1993	-0.0732*** (0.0039)	0.0308*** (0.0028)	0.812*** (0.0098)	0.0795*** (0.0084)	0.70
1994–2005	-0.0741*** (0.0065)	0.0386*** (0.0053)	0.835*** (0.0050)	0.0643*** (0.0068)	0.70

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. R^2
1974–1983	-0.0909*** (0.0132)	-0.00588 (0.0068)	0.655*** (0.014)	0.0245 (0.019)	0.43
1984–1993	-0.111*** (0.0064)	0.0344*** (0.0061)	0.699*** (0.013)	0.0985*** (0.012)	0.53
1994–2005	-0.120*** (0.011)	0.0607*** (0.010)	0.730*** (0.0094)	0.0992*** (0.010)	0.54

The sample includes all non-utility, non financial domestic firms that trade on the NYSE, AMEX, and NASDAQ from 1974 to 2005 with available data. Two-way robust standard errors are presented in parentheses. E_t is earnings before extraordinary items (#18) after adding back after-tax interest expense ($0.6 \times \#15$) net of after-tax interest income ($0.6 \times \#62$) in year t ; total assets is #6; and dividends is #21. The accounting rates of return are winsorized at $\pm 100\%$. 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%

subperiods, however, the earnings coefficients are 0.70 and 0.73, respectively, and increase to 0.80 and 0.83, respectively, for dividend payers (both increases are statistically significant at the 1% level).

These results provide clear evidence that earnings are more persistent for dividend payers, especially since 1984. However, they don't address the related question of whether the magnitude of the dividend matters. Dividends are more likely to be persuasive about the quality of earnings when those dividends are economically meaningful. To provide evidence on this question, we sort firm/year observations for each subperiod into five equal-sized portfolios based on dividend payout ratios (for dividend payers) as well as a sixth portfolio for firms that do not pay dividends.^{20,21} Untabulated results indicate that this procedure results in good

²⁰ We use dividend payout ratios rather than dividend yields to calibrate the magnitude of dividends because the dividend literature (based on Lintner 1956) suggests that managers think about their firms' dividend policy in payout ratio terms, i.e., as a fraction of earnings rather than stock price.

²¹ We exclude firm/years with negative payout ratios (dividend payers that report losses) from these tests because it is not obvious how to characterize these payout ratios. However, we have also run the tests in Table 5 after including negative payout ratios in the highest payout ratio portfolio with similar results.

Table 5 Earnings persistence regressions by dividend payout

Panel A: one year ahead earnings persistence

$$(E_{it+1}/TA_{it-1}) = \alpha_0 + \alpha_1(E_{it}/TA_{it-1}) + \varepsilon_{it}$$

	1974–1983		1984–1993		1994–2005	
	α_0	α_1	α_0	α_1	α_0	α_1
No payout	−0.0627*** (0.0071)	0.783*** (0.0070)	−0.0732*** (0.0039)	0.812*** (0.0098)	−0.0740*** (0.0065)	0.835*** (0.0050)
1 (smallest)	−0.0560*** (0.0064)	0.795*** (0.020)	−0.0667*** (0.010)	0.855*** (0.010)	−0.0409*** (0.0076)	0.896*** (0.0082)
2	−0.0559*** (0.0099)	0.821*** (0.015)	−0.0482*** (0.0051)	0.886*** (0.013)	−0.0371*** (0.0053)	0.904*** (0.0098)
3	−0.0598*** (0.012)	0.809*** (0.014)	−0.0414*** (0.0058)	0.885*** (0.012)	−0.0473*** (0.0050)	0.902*** (0.0060)
4	−0.0616*** (0.0092)	0.824*** (0.014)	−0.0325*** (0.0053)	0.924*** (0.0071)	−0.0401*** (0.0079)	0.895*** (0.010)
5 (largest)	−0.0788*** (0.0066)	0.812*** (0.016)	−0.0402*** (0.0056)	0.903*** (0.010)	−0.0305*** (0.0073)	0.908*** (0.0076)

Panel B: two year ahead earnings persistence

$$(E_{it+2}/TA_{it-1}) = \alpha_0 + \alpha_1(E_{it}/TA_{it-1}) + \varepsilon_{it}$$

	1974–1983		1984–1993		1994–2005	
	α_0	α_1	α_0	α_1	α_0	α_1
No payout	−0.0911*** (0.013)	0.657*** (0.014)	−0.111*** (0.0064)	0.700*** (0.013)	−0.120*** (0.011)	0.729*** (0.0091)
1 (smallest)	−0.0850*** (0.011)	0.641*** (0.031)	−0.108*** (0.014)	0.748*** (0.018)	−0.0753*** (0.012)	0.819*** (0.014)
2	−0.0985*** (0.021)	0.693*** (0.018)	−0.0877*** (0.013)	0.800*** (0.024)	−0.0561*** (0.0089)	0.841*** (0.016)
3	−0.0940*** (0.015)	0.673*** (0.027)	−0.0706*** (0.011)	0.797*** (0.020)	−0.0653*** (0.010)	0.837*** (0.014)
4	−0.0905*** (0.011)	0.711*** (0.017)	−0.0639*** (0.010)	0.852*** (0.013)	−0.0626*** (0.012)	0.822*** (0.018)
5 (largest)	−0.127*** (0.020)	0.662*** (0.026)	−0.0782*** (0.011)	0.802*** (0.017)	−0.0587*** (0.0098)	0.835*** (0.011)

The sample includes all non-utility, non financial domestic firms that trade on the NYSE, AMEX, and NASDAQ from 1974 to 2005 with available data. Two-way robust standard errors are presented in parentheses. E_t is earnings before extraordinary items (#18) after adding back after-tax interest expense ($0.6 \times \#15$) net of after-tax interest income ($0.6 \times \#62$) in year t ; total assets is #6; and dividends is #21. The accounting rates of return are winsorized at $\pm 100\%$. Portfolios 1 through 5 are increasing in the payout ratio with negative payout ratios excluded

* ** *** Indicate significance at 10, 5, and 1%

variation in payout ratios across the portfolios.²² We then estimate earnings persistence regressions for each portfolio in each subperiod and report the results in Table 5.

The results in Table 5 provide little support for the idea that earnings persistence increases with the magnitude of dividend payouts. Consistent with the results in Table 4, the results show that earnings persistence is higher for dividend payers than for nonpayers: in all subperiods the coefficient on earnings is lowest for the non dividend payer portfolio. However, there is little evidence that earnings persistence increases across the dividend payout portfolios, which show relatively little variation in earnings persistence. For example, the range across the dividend payer portfolios is from 0.80 to 0.82 in the 1974 through 1983 period, 0.86 to 0.92 in the 1984 through 1993 period, and from 0.90 to 0.91 in the 1994 through 2005 period. The evidence is largely similar for the corresponding two-year-ahead regressions that we report in Panel B of this table, although the ranges are larger. Thus, although there is some variation in the coefficients across the dividend payer portfolios, these differences tend to be small in economic terms and are significantly smaller than those between the dividend payer and non-payer groups. Overall, these results show that while firms that pay a dividend have more persistent (higher quality) earnings, the effect is not related to the magnitude of the dividend: it seems that the fact of a dividend, rather than its magnitude, is what matters for earnings.²³

Skinner (2008) examines and finds support for the proposition that, over the past 25–30 years, repurchases are increasingly used to supplement dividends as a means of distributing cash to shareholders. In analyzing firms' payout policies, he found that the bulk of aggregate payouts were distributed by a number of distinct groups of firms, especially firms that both paid regular dividends and made regular repurchases and that few firms now pay dividends without also making at least some repurchases. To examine the relation between payout policy, which includes both dividends and repurchases, and earnings quality, we estimate earnings quality regressions for five groups of firms with distinct payout policies: (1) firms that pay regular dividends and make regular repurchases,²⁴ (2) firms that pay regular dividends and make occasional repurchases, (3) firms that pay dividends and make no repurchases, (4) firms that make regular repurchases but do not pay dividends, and (5) firms that make occasional repurchases but do not pay dividends. We predict

²² For the 1974 through 1983 period, median payout ratios for the dividend payer portfolios are 0.094, 0.196, 0.289, 0.411, and 0.697. There is modest evidence that the cross-sectional dispersion of payout ratios increases over time; the medians are 0.084, 0.192, 0.290, 0.421, and 0.826, respectively for the 1994 through 2005 period. The median payout ratios for each of the portfolios for the intermediate subperiod fall between those of these two subperiods.

²³ These results suggest that dividend payers are a relatively homogeneous group, in that they have similarly persistent earnings. As indicated above, all dividend payers tend to pay economically meaningful dividends (80% have payout ratios of 10% or more), so it could be that once earnings quality is sufficient to support regular dividends, it has no incremental effect on payout.

²⁴ We classify firms as paying regular dividends if they pay dividends in every year of a given subperiod and as making regular repurchases if they make repurchases in half or more of the years of a given subperiod. (Occasional repurchasers are firms that make repurchases in less than half of the years of a given subperiod.) This follows the evidence in Skinner (2008) that firms tend to make repurchases less frequently than dividends.

that earnings persistence will decline as we move from group (1) to group (5), because dividends comprise stronger signals of quality than repurchases and because regular payouts comprise stronger signals than occasional payouts.

The results of estimating earnings persistence regressions for these five groups of firms are shown in Table 6, Panel A. The results are largely consistent with our expectations. In the first subperiod, the earnings persistence coefficient is close to 0.82 for the three groups of dividend payers and falls to 0.78 and 0.79 for firms that make repurchases but do not pay dividends. In the second subperiod, we find that earnings persistence declines monotonically from group (1), for which persistence is 0.91, through group (5), for which persistence is 0.81. Results are similar for the third subperiod, for which persistence declines from 0.92 for group (1) to 0.83 for group (5).

Table 6, Panel B, presents the same evidence for two-year ahead earnings persistence. These results are stronger than those in Panel A, with larger differences across the portfolios. Once again, we find that in the first subperiod there is not much difference in earnings persistence for the three groups of regular dividend payers (for which persistence is around 0.70) and that persistence is lower for firms that only make repurchases (0.67 for regular repurchases, 0.64 for occasional repurchases). In the second and third subperiods, however, earnings persistence declines monotonically across the five groups, as we predict. In the second subperiod, persistence declines from 0.84 for group (1) through to 0.69 for group (5); in the third subperiod the corresponding range is from 0.85 to 0.72.

Overall, the evidence in Table 6 indicates that, at least in the period since 1983, the nature of firms' payout policy—meaning the extent to which they pay regular dividends and make regular repurchases—is useful in characterizing firms' earnings quality, with regular dividends being a more credible signal than repurchases and more frequent repurchases being a more credible signal than occasional repurchases. Thus, firms that pay regular dividends and make regular repurchases have the highest earnings quality.²⁵

One explanation for our results is that payout policy is simply a proxy for firm size and that larger firms have higher quality earnings because they are less risky. Put differently, it may be that larger firms, because of their size and diversification, are less risky and that this lower riskiness increases both the likelihood that they pay dividends and the persistence of their earnings.²⁶ To investigate these ideas, Table 7 presents the earnings persistence regressions sorted both by payout portfolios (as for Table 5, there are five dividend portfolios, sorted by payout ratio, and a nonpayer

²⁵ Another way of combining firms' dividend and repurchase decisions is to compute an overall payout ratio (i.e., sum dividends and repurchases for the year and divide by earnings) and sort the observations into portfolios based on these payout ratios. We have reperformed the tests reported in Table 5 using this alternative payout measure with similar results to those reported in that table.

²⁶ An additional motivation for controlling for firm size in these tests is that the results in Table 5 could be confounded by firm size. That is, there could be a positive relation between payout ratios and earnings persistence, but the tests in Table 5 failed to detect the relation because size is negatively related to payout ratios and positively related to persistence. In fact, payout ratios are positively related to size in our data. For example, for the five size portfolios, we find mean payout ratios of 0.115, 0.183, 0.229, 0.297, and 0.384 (0.036, 0.155, 0.178, 0.179, and 0.434) for the 1974 through 1983 (1994 through 2005) subperiod.

Table 6 Earnings persistence regressions for groups of firms categorized by payout policy

Panel A: one year ahead earnings persistence

$$(E_{it+1}/TA_{it-1}) = \alpha_0 + \alpha_1(E_{it}/TA_{it-1}) + \varepsilon_{it}$$

	1974–1983		1984–1993		1994–2005	
	α_0	α_1	α_0	α_1	α_0	α_1
Reg div, reg rep	-0.0625*** (0.0090)	0.815*** (0.0074)	-0.0332*** (0.0053)	0.913*** (0.0074)	-0.0228*** (0.0035)	0.915*** (0.0044)
Reg div, occ rep	-0.0571*** (0.0075)	0.821*** (0.015)	-0.0367*** (0.0062)	0.898*** (0.0089)	-0.0383*** (0.0080)	0.896*** (0.012)
Reg div, no rep	-0.0546*** (0.011)	0.824*** (0.021)	-0.0305*** (0.0043)	0.896*** (0.012)	-0.0416*** (0.0092)	0.895*** (0.014)
No div, reg rep	-0.0738*** (0.0069)	0.790*** (0.012)	-0.0643*** (0.0034)	0.844*** (0.0090)	-0.0592*** (0.0057)	0.856*** (0.0061)
No div, occ rep	-0.0623*** (0.0055)	0.777*** (0.0071)	-0.0747*** (0.0051)	0.807*** (0.011)	-0.0793*** (0.0071)	0.830*** (0.0050)

Panel B: two year ahead earnings persistence

$$(E_{it+2}/TA_{it-1}) = \alpha_0 + \alpha_1(E_{it}/TA_{it-1}) + \varepsilon_{it}$$

	1974–1983		1984–1993		1994–2005	
	α_0	α_1	α_0	α_1	α_0	α_1
Reg div, reg rep	-0.0950*** (0.015)	0.705*** (0.014)	-0.0604*** (0.0072)	0.842*** (0.015)	-0.0350*** (0.0069)	0.854*** (0.0097)
Reg div, occ rep	-0.0968*** (0.015)	0.693*** (0.020)	-0.0692*** (0.011)	0.810*** (0.013)	-0.0715*** (0.012)	0.810*** (0.018)
Reg div, no rep	-0.0908*** (0.015)	0.699*** (0.030)	-0.0590*** (0.016)	0.800*** (0.019)	-0.0839*** (0.019)	0.805*** (0.024)
No div, reg rep	-0.0993*** (0.012)	0.672*** (0.018)	-0.0961*** (0.0082)	0.738*** (0.016)	-0.0909*** (0.0087)	0.766*** (0.010)
No div, occ rep	-0.0919*** (0.011)	0.637*** (0.014)	-0.116*** (0.0071)	0.689*** (0.014)	-0.130*** (0.011)	0.721*** (0.0091)

The sample includes all non-utility, non financial domestic firms that trade on the NYSE, AMEX, and NASDAQ from 1974 to 2005 with available data. Two-way robust standard errors are presented in parentheses. E_t is earnings before extraordinary items (#18) after adding back after-tax interest expense ($0.6 \times \#15$) net of after-tax interest income ($0.6 \times \#62$) in year t ; total assets is #6; and dividends is #21. The accounting rates of return are winsorized at $\pm 100\%$. Reg div (no div) indicates the firm paid a dividend each year (not every year) in the period. Reg rep indicates the firm repurchased shares in at least half the years in the period. Occ rep indicates the firm repurchased shares in less than half the years in the period

* ** *** Indicate significance at 10, 5, and 1%

portfolio) and by firm size quintiles (based on total assets). This means that there are a total of 30 regressions with persistence coefficients corresponding to each of the payout/size combinations. We report the results of these tests, again presented for the three subperiods, in Table 7.

Table 7 Earnings persistence regressions by payout and size

One year ahead persistence		Two year ahead persistence									
Payout	Firm size					Payout	Firm size				
	1 (small)	2	3	4	5 (large)		1 (small)	2	3	4	5 (large)
<i>Panel A: 1974-1983</i>											
No payout	0.781	0.755	0.780	0.790	0.800	No payout	0.640	0.650	0.645	0.641	0.705
1 (small)	0.766	0.814	0.768	0.784	0.886	1 (small)	0.523	0.621	0.637	0.681	0.785
2	0.804	0.785	0.809	0.859	0.871	2	0.633	0.678	0.661	0.713	0.770
3	0.751	0.760	0.789	0.797	0.882	3	0.602	0.647	0.648	0.669	0.740
4	0.764	0.822	0.787	0.803	0.864	4	0.599	0.643	0.656	0.701	0.758
5 (large)	0.808	0.802	0.788	0.820	0.837	5 (large)	0.682	0.681	0.672	0.669	0.689
<i>Panel B: 1984-1993</i>											
No payout	0.737	0.792	0.791	0.855	0.851	No payout	0.623	0.654	0.684	0.761	0.733
1 (small)	0.838	0.835	0.868	0.893	0.854	1 (small)	0.730	0.733	0.744	0.790	0.743
2	0.879	0.878	0.888	0.910	0.904	2	0.771	0.799	0.791	0.843	0.825
3	0.875	0.823	0.866	0.919	0.951	3	0.772	0.708	0.728	0.858	0.925
4	0.885	0.912	0.918	0.936	0.936	4	0.824	0.847	0.812	0.877	0.875
5 (large)	0.880	0.883	0.911	0.904	0.917	5 (large)	0.747	0.781	0.764	0.806	0.839
<i>Panel A: 1994-2005</i>											
No payout	0.789	0.817	0.828	0.864	0.857	No payout	0.667	0.711	0.713	0.761	0.764
1 (small)	0.901	0.901	0.868	0.906	0.902	1 (small)	0.791	0.883	0.824	0.797	0.782
2	0.902	0.911	0.917	0.832	0.896	2	0.819	0.840	0.768	0.880	0.876
3	0.897	0.882	0.919	0.881	0.916	3	0.800	0.847	0.814	0.855	0.845
4	0.869	0.913	0.934	0.933	0.916	4	0.800	0.772	0.821	0.853	0.851
5 (large)	0.867	0.910	0.895	0.906	0.905	5 (large)	0.819	0.830	0.810	0.866	0.840

The sample includes all non-utility, non financial domestic firms that trade on the NYSE, AMEX, and NASDAQ from 1974 to 2005 with available data. No Payout firms include firms that paid no dividends during the lagged year. Payout portfolios are formed for non loss firms during the lagged year as dividends divided by earnings. Firm size portfolios are formed using lagged assets (item #6). Earnings persistence coefficients are shown in the table from regressing earnings on lagged earnings (see Table 5). All coefficients are significant at the 1% level

The results in Table 7 indicate that size and dividend payout ratios are each, at best, weakly related to earnings persistence. Looking at the results for one-year-ahead earnings, and looking first across the columns by row, there is little consistent evidence that earnings persistence increases across the firm size quintiles in any of the three subperiods. There is some modest evidence of a size effect in the first subperiod in that persistence is largest for the largest firms for all six payout groups, but the relation is not monotonic. The evidence in favor of a size effect is stronger for the two-year ahead earnings regressions in the first subperiod, where each of the rows shows a close to monotonic relation. There is similar but weaker evidence in the second subperiod and virtually no evidence of a relation in the third subperiod. Overall, there may have been something of a relation between earnings persistence and size in the earlier part of our sample period, but there is little evidence of such a relation in more recent periods.

We reach much the same conclusion with respect to the payout ratio portfolios. Consistent with the results in Table 5, if we look down the columns in Table 7, we find little evidence that earnings persistence increases across the payout ratio groups, although it is again the case that persistence is generally lowest for the nonpayer portfolio. This result holds for both the one- and two-year ahead earnings persistence tests.

Overall, the results in Tables 4, 5, 6 and 7 paint a fairly consistent picture of the relation between firms' payout policies and earnings quality. We find robust evidence that earnings are more persistent for firms that pay dividends than for those that do not, especially after 1983. Furthermore, we find that firms that pay dividends and make regular repurchases have more persistent earnings than firms that pay dividends and make repurchases less frequently or not at all and that earnings persistence is higher for dividend-paying firms than for those firms that only make repurchases, including firms that make repurchases regularly. These results are stronger in more recent periods, as expected now that repurchases are used as earnings payouts. Thus, firms' overall payout policies are informative with respect to earnings quality. On the other hand, there is little evidence that the magnitude of payouts matters for earnings quality. Thus, it is the fact that firms pay dividends rather than the magnitude of those dividends that drives the association between payout policy and earnings quality.

To this point, we have focused exclusively on results that use earnings persistence to measure earnings quality. Another prominent earnings quality measure is the extent to which earnings is composed of accruals versus cash flows (Sloan 1996). Sloan argues that because accruals are generally less reliable than cash flows, the relative proportions of accruals and cash flows are likely to be informative about earnings persistence.²⁷ Thus, we investigate whether firms' dividend policies are associated with this measure of earnings quality, either unconditionally (without controlling for earnings persistence) or after conditioning on our measure of quality. The results of these tests (not reported in tables) show that although our measure of earnings persistence is related to an accruals-based measure of earnings quality (the relative magnitude of firms' operating cash flows)

²⁷ See also Richardson et al. (2005), who link accrual reliability to earnings persistence more explicitly.

there is little evidence that payout policy is related to this measure of earnings quality.

4.3 A combined model of earnings persistence

Table 8 combines elements of the results that we obtained in Sect. 4.1 (which examines the relation between dividends, special items, and losses) with those from Sect. 4.2. To do this, we estimate the same earnings persistence model, supplemented with a measure of special items (deflated by total assets) by itself and interacted with earnings and indicator slope and intercept terms for losses and dividend payment. The motivation for these specifications is to see whether these variables, each of which has some explanatory power with respect to earnings persistence on its own, have incremental explanatory over one another. For example, if dividend decisions are based on long-run sustainable earnings, we would expect managers to strip out the effect of special items before making dividend decisions, an effect that might be more pronounced for losses. We again report results for each of the three subperiods.

Table 8 first reports results for specifications that include each of the three sets of variables by themselves. The first specification includes the base earnings variable (current ROA) along with slope and intercept indicators for dividend payment. The results for this specification are the same as our earlier results (these are the same specifications reported in Table 4) and show that earnings for dividend payers are more persistent than those of nonpayers for each of the three subperiods. The results for the second specification, which includes the special items variables, indicate that earnings are less persistent when they contain special items, as expected. Specifically, the coefficient on the interaction term is negative, relatively large (around -0.4), and highly significant in the 1974 through 1983 and the 1994 through 2005 subperiods but not significant in the 1984 through 1993 subperiod. Thus, the coefficient on current ROA declines from around 0.8 to around 0.4 when earnings contain special items. This is expected if special items are largely transitory. In addition, the coefficient on special items is consistently large and negative, indicating that firms reporting special items are generally less profitable in future periods, as expected if special items are mostly negative and tend to be reported by firms with low earnings. Turning to the third specification, with the loss terms, there is no evidence of any consistent effect of the loss indicator, indicating that losses are approximately as persistent as positive earnings.

The final specification includes all of the variables, as well as an interaction term that multiplies the loss indicator by the special items variable and the earnings variable. The coefficients in this model are similar to those for the individual models, indicating that these effects are largely separable. Specifically, the slope indicator for dividend payers is positive and highly significant (at better than 1%) in all three subperiods, with coefficient magnitudes only slightly different from those reported above, confirming the robustness of our main result. The results for the special items variables are also similar to those reported above, again indicating that firms reporting special items tend to be less profitable in the future, with generally less persistent earnings than average. (As was the case above, the special items

Table 8 Earnings persistence regressions and special items

	α_0	α_1	α_2	α_3	α_4	α_5	α_6	α_7	α_8	R^2
One year ahead earnings persistence										
	$(E_{it+1}/TA_{it-1}) = \alpha_0 + \alpha_1(E_{it}/TA_{it-1}) + \alpha_2DP + \alpha_3SI + \alpha_4LOSS + \alpha_5DP + \alpha_6SI * (E_{it}/TA_{it-1}) + \alpha_7LOSS * (E_{it}/TA_{it-1}) + \alpha_8SI * LOSS * (E_{it}/TA_{it-1}) + \varepsilon_{it}$									
1974–1983 (<i>n</i> = 23,042)	-0.0626*** (0.0071)	0.781*** (0.0072)	0.00137 (0.0039)			0.0314*** (0.011)				0.63
1984–1993 (<i>n</i> = 30,938)	-0.0732*** (0.0039)	0.812*** (0.0098)	0.0308*** (0.0028)			0.0795*** (0.0084)				0.70
1994–2005 (<i>n</i> = 42,619)	-0.0741*** (0.0065)	0.835*** (0.0050)	0.0386*** (0.0053)			0.0643*** (0.0068)				0.70
1974–1983 (<i>n</i> = 23,042)	-0.0605*** (0.0062)	0.804*** (0.0074)		-0.485*** (0.12)			-0.411*** (0.10)			0.63
1984–1993 (<i>n</i> = 30,938)	-0.0614*** (0.0035)	0.849*** (0.0057)		-0.248*** (0.058)			-0.0355 (0.087)			0.70
1994–2005 (<i>n</i> = 42,619)	-0.0645*** (0.0055)	0.856*** (0.0040)		-0.395*** (0.052)			-0.364*** (0.052)			0.71
1974–1983 (<i>n</i> = 23,042)	-0.0612*** (0.0068)	0.804*** (0.0077)			-0.00485 (0.0053)			-0.0130 (0.012)		0.63

Table 8 continued

One year ahead earnings persistence

$$(E_{it+1}/TA_{it-1}) = \alpha_0 + \alpha_1(E_{it}/TA_{it-1}) + \alpha_2DP + \alpha_3SI + \alpha_4LOSS + \alpha_5DP + \alpha_6SI * (E_{it}/TA_{it-1}) + \alpha_7LOSS * (E_{it}/TA_{it-1}) + \alpha_8SI * LOSS * (E_{it}/TA_{it-1}) + \varepsilon_{it}$$

	α_0	α_1	α_2	α_3	α_4	α_5	α_6	α_7	α_8	R^2
1984–1993 ($n = 30,938$)	-0.0646*** (0.0043)	0.856*** (0.0043)			0.0126** (0.0063)			-0.0287*** (0.013)		0.70
1994–2005 ($n = 42,619$)	-0.0647*** (0.0050)	0.858*** (0.0047)			0.00859 (0.0059)			-0.00455 (0.0077)		0.70
1974–1983 ($n = 23,042$)	-0.0576*** (0.0085)	0.783*** (0.0078)	-0.00217 (0.0049)	-0.423*** (0.15)	-0.0129** (0.0057)	0.0296** (0.012)	-0.590*** (0.13)	0.00449 (0.015)	0.395 (0.31)	0.63
1984–1993 ($n = 30,938$)	-0.0808*** (0.0050)	0.816*** (0.0073)	0.0348*** (0.0032)	-0.321*** (0.050)	0.0174*** (0.0062)	0.0750*** (0.0063)	0.0585 (0.086)	-0.00179 (0.0098)	-0.250*** (0.085)	0.70
1994–2005 ($n = 42,619$)	-0.0771*** (0.0063)	0.839*** (0.0051)	0.0381*** (0.0047)	-0.418*** (0.055)	0.00198 (0.0051)	0.0595*** (0.0061)	-0.313*** (0.052)	-0.00271 (0.0078)	-0.0786* (0.044)	0.71

The sample includes all non-utility, non financial domestic firms that trade on the NYSE, AMEX, and NASDAQ from 1974 to 2005 with available data. Two-way robust standard errors are presented in parentheses. E_{it} is earnings before extraordinary items (#18) after adding back after-tax interest expense ($0.6 \times \#15$) net of after-tax interest income ($0.6 \times \#62$) in year t ; total assets is #6. SI is item #17 deflated by lagged total assets. DP is an indicator variable that is set to 1 if the firm pays a dividend. $LOSS$ is an indicator variable that is set to 1 if the firm's earnings are less than zero. The accounting rates of return are winsorized at $\pm 100\%$

*, **, ***, **** Indicate significance at 10, 5, and 1%

interaction is not significant in the 1984 through 1993 subperiod.) The loss slope and intercept indicators are generally insignificant, as was the case in the simpler specification. Finally, results for the special items/loss interaction term are not consistent across the subperiods. The coefficient on this variable is insignificant in the first subperiod, negative and significant (at 1%) in the second subperiod, and negative and marginally significant (at 10%) in the third subperiod. The negative coefficients on this variable indicate that losses are less persistent than positive earnings when they include special items but not otherwise. To the extent this variable is not significant while that on the special items/earning interaction is significant, it tells us that earnings containing special items are generally less persistent. Overall, these results confirm our main result regarding dividends and earnings quality and indicate that this relation is robust to controls for losses and special items.

5 Conclusion

This paper provides evidence on whether firms' payout policies (their managers' decisions about dividends and stock repurchases) provide information about the quality of reported earnings. These questions are of interest given recent concerns about earnings quality, as well as wholesale changes in the nature of payout policy and in the cross-section of corporate earnings over the past 30 years.

There is now agreement that the traditional view of signaling—under which managers use dividends to signal future earnings prospects—is not empirically descriptive (Allen and Michaely 2002; Brav et al. 2005; DeAngelo et al. 2008). The evidence against the traditional signaling story does not say, however, that dividends are not informative, especially if there are questions about the credibility of managers' financial reporting practices. We posit and test the idea that dividends in particular, and payout policy more generally, allow investors to assess the underlying sustainability of the firm's earnings stream and so its earnings quality.

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 than for those that do not. We also find that the magnitude of the dividend, measured in payout ratio terms, does not affect this relation.

Given the emergence of stock repurchases as an alternative payout mechanism, we also assess whether stock repurchases affect the relation between payout policy and earnings quality. We find that firms' that make stock repurchases, especially on a regular basis, have more persistent earnings than firms that make repurchases occasionally, or not at all, but that repurchases generally are a less credible signal about earnings quality than dividends. This is consistent with our expectations because dividends represent an commitment to pay out a defined amount of cash, while repurchases do not.

We also examine how firms' payout policies relate to whether they report losses. Losses are an important determinant of payout policy: firms that pay dividends are much less likely to report losses than nonpayers. In addition, we find that an

important conditioning factor in this relation is the quality of reported losses. While dividend payers are, like firms in general, much more likely to report losses today than they were 30 years ago, this tendency is largely explained by a decline in the quality of reported losses, which are now more likely to be attributable to special items. Once this trend is accounted for, we find that dividend payers report losses only about 5% of the time and that this fraction remains largely constant over time. In addition, we find that firms that make stock repurchases are less likely to report losses and that, like dividend payers, the losses they do report are less likely to be attributable to special items. However, the relation between repurchases and losses is weaker than that for dividends.

The fact that we find that it is dividends per se that matter for earnings quality, rather than the amount of those dividends, suggests that dividend payers are a relatively homogeneous group for which earnings are of materially higher quality than those of nonpayers, which enables dividend payers to sustain economically meaningful regular dividends.²⁸ The evidence in Fama and French (2001), which shows that only around 20% of public industrial companies pay dividends,²⁹ combined with the DeAngelo et al. (2004) evidence on the increased concentration of dividends payments, is broadly consistent with the conclusion (DeAngelo et al. 2004, 2008) that public firms now display a two-tiered structure, with a relatively small, homogeneous group of dividend payers accounting for the lion's share of corporate payouts and earnings.

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. We also provide evidence that firms' repurchase decisions are informative with respect to earnings quality, although not to the same extent as dividends. While dividends are now paid by a much smaller percentage of firms, and while repurchase activity has increased dramatically, our evidence suggests that repurchases are unlikely to completely supplant dividends given the strength of the relation between earnings quality and dividends.

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²⁸ The large majority of firms that pay dividends pay economically meaningful dividends. When we divide dividend payers into quintiles based on payout ratios, we find that the median payout ratio for the lowest payout quintile is 8–9%, implying that well over 80% of dividend payers pay out in excess of 10% of earnings and that many dividend payers pay out well in excess of this amount (the median payout ratio is around 30%).

²⁹ Chetty and Saez (2005) report that the number of dividend payers increased after the dividend tax cut introduced in the Jobs and Growth Tax Relief Reconciliation Act of 2003.

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