

The Vanishing Stock Dividends*

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Abstract

The distribution of stock dividends reduces firm's legal ability to pay cash dividends, hence are costly to the stockholders. Consequently, the payment of stock dividends can act as a signaling device supporting a separating equilibrium. The empirical evidence documented, however, is inconsistent with this interpretation of stock dividends. We find a significant deterioration in the operating performance of firms following the distribution of stock dividends. We document positive and significant 5 days CARs around the announcement of distribution of stock dividends throughout the sample period (1954-2012). Yet, when ordered in a-per firm sequence, the evidence indicates dramatic decay in these announcement effects. First time payments are associated with significant positive 5 days CARs, down almost monotonically to insignificant CARs towards the end of the sequence. Investors seem to learn that stock dividends are not good news. Most importantly, the issuing firms adjust to the changing market perception. The fraction of stock dividend payers sharply decreases from 14.0% in the 1950s to merely 0.2% in the 2010s.

Keywords: stock dividends, investor learning, signaling

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* All errors are our own.

The Vanishing Stock Dividends

1. Introduction

Stock dividends increase the number of shares outstanding without affecting each shareholder's proportional ownership. Nor do they involve any cash distributions. Therefore, some believe that stock dividends are simply cosmetic and will not affect firm value. An alternative view is that stock dividends signal positive information about a firm's future operating performance (see Grinblatt, Masulis, and Titman, 1984; Brennan and Copeland, 1988). Existing studies find mixed evidence on the two views (Section 2 reviews the evidence). On one hand, studies find large positive abnormal returns around stock dividend announcements, consistent with the signaling hypothesis. On the other hand, there is evidence of insignificant changes in earnings after stock dividends, indicating that stock dividends only bring cosmetic changes. On balance, neither the signaling theory nor the cosmetic change view is totally supported by the evidence. It remains unclear why firms pay stock dividends and why investors respond positively to stock dividend announcements.

Both the cosmetic-change view and the signaling model assume that investors are totally rational. They hold correct belief about the information content of stock dividends from the very beginning and always maintain the correct belief over time. However, numerous studies have found ample evidence of investor irrationality in financial markets.¹ Investors could form wrong initial beliefs about the information content of stock dividends due to limited information or cognitive limitations of their minds (Simon, 1957). As a result, they might over- or under-react

¹ See Shleifer (2000), Barberis and Thaler (2003), and Baker, Ruback, and Wurgler (2007) for excellent surveys of studies on behavioral finance.

to stock dividend announcements. Although irrational at the beginning, investors gradually learn from the firm's performance after stock dividends and update their belief accordingly.

One possible wrong belief about stock dividends is the confusion with cash dividends. Stock dividends are widely regarded as corporate distributions although no cash is paid to shareholders. It is possible that investors mistakenly believe that stock dividends convey similar positive information about the firm's future cash flow as cash dividends. In this case, investors will overreact and greet stock dividends with positive announcement returns, even if stock dividends are purely cosmetic and do not signal any positive information.

In this study, we test the predictions of the learning hypothesis. One prediction relates to temporal patterns of stock dividend announcement returns. If investors overreact (underreact) to stock dividend announcements, announcement returns will decrease (increase) as the firm announces more and more follow-on stock dividends. We find significant decreases in firm profitability after stock dividends. The decrease is larger and speedier if the firm is not paying cash dividends. This indicates that investors probably overreact to stock dividend announcements. So, the learning hypothesis predicts that stock dividend announcement returns decrease as the firm announces follow-on stock dividends. Consistent with this prediction, we find that announcement returns decrease with the sequence order of the stock dividend. The five-day cumulative abnormal returns (CARs) around stock dividend announcement are 3.3% for the firm's first stock dividend announcement and decrease to 0.4% and become marginally significant after the firm announces more than twenty stock dividends. Announcement returns decrease more quickly if the firm does not pay cash dividends. This is consistent with our finding of larger and speedier decrease in operating performance after stock dividends for non-cash-dividend payers.

The learning hypothesis also predicts that the demand for stock dividends will decrease as investors learn that stock dividends are merely cosmetic and are followed by declining firm profitability. Consistent with this prediction, we find that the fraction of listed firms that pay stock dividends has decreased steadily from about 14.0% in 1950s to 0.2% in 2010s (see Figure 2). The (almost) extinction of stock dividends is not driven by changing firm characteristics over time.

Institutional investors play an important role in the (almost) extinction of stock dividends. Institutional investors are more experienced and probably more rational than retail investors. They are expected to be quicker learners and to better understand the information content of stock dividends. Therefore, they will precipitate the extinction of stock dividends if the extinction is the result of investor learning. Consistent with this prediction, we find that merely 6% of all stock dividends are paid by firms with majority institutional ownership. We also find that aggregate institutional ownership of U.S. firms is able to explain 92.5% of the decline of stock dividends over time. In addition, announcement returns to stock dividends of firms with majority institutional ownership are insignificant and do not depend on the amount of the stock dividend. The results suggest that institutional investors do not regard stock dividends as a signal of positive information. Otherwise, announcement returns will increase with the strength of the signal. On the other hand, announcement returns are positively associated with the amount of stock dividend for the firms with minority institutional ownership. This suggests that retail investors are more likely to regard stock dividends as a signal of positive information.

This study enhances our understanding of stock dividends. We propose the learning hypothesis, and show that it is able to reconcile extant conflicting evidence on stock dividends. We also add new evidence to the literature. Specifically, we find declining firm profitability after

stock dividends, weakening announcement returns to follow-on stock dividends, the almost extinction of stock dividends, and important roles of institutional investors in stock dividend decisions. The findings are consistent with the learning hypothesis.

2. Literature review and hypothesis development

2.1. Related studies on stock dividends

Some researchers and practitioners believe that stock dividends only bring cosmetic changes and thus should not affect firm value. This view predicts that stock dividends will not influence investor expectations of a firm's operating performance. Consequently, there will not be significant stock returns around stock dividend announcements.

Alternatively, stock dividends could signal managers' private information about future firm performance. Stock dividend payers need to reduce the amount of retained earnings by the market price of the stock dividends, and increase paid-in capital by the same amount. Legal restrictions and debt covenants commonly restrict distributions of cash dividends out of paid-in capital. Consequently, stock dividends could weaken a firm's ability to pay cash dividends if its future earnings are expected to be low. In other words, stock dividends could serve as a costly signal of future profitability. Cash dividend payers with low future earnings will find it costly to pay stock dividends (Grinblatt, Masulis, and Titman, 1984). In the model of Brennan and Copeland (1988), stock dividends are a costly signal for managers' positive private information because they change the nominal stock price and trading costs. Firms without positive private information find it costly to imitate because increased trading costs adversely affect firm value. The signaling view predicts improved operating performance after stock dividend announcements and positive stock returns around the announcement.

Prior studies find positive stock returns around stock dividend announcements. Grinblatt, Masulis, and Titman (1984) document two-day cumulative abnormal returns (CARs) of 4.90% around 382 stock dividends announced over the period from 1967-1976. Employing a sample of 1,308 stock dividends over the period from 1976-1983, McNichols and Dravid (1990) document three-day CARs of 2.60%. In the sample of 11,626 stock dividends from 1962-2012, Bessembinder and Zhang (2015) find five-day CARs of 2.37%. The evidence is in line with the signaling view and contradicts the cosmetic-change hypothesis.

Lakonishok and Lev (1987) test the signaling hypothesis by examining operating performance after stock dividend announcements. They find insignificant changes in earnings growth after a sample of 1,257 stock dividends announced over the twenty years from 1962 to 1982. They also find that cash dividends decrease during the three years before stock dividends, and propose that this is consistent with the common view that stock dividends are temporary substitutes for cash dividends.

The signaling model predicts improving profitability after stock dividends. The empirical evidence provides little support for this prediction. On the other hand, the positive announcement returns are potentially consistent with the signaling model, and are against the cosmetic change view. On balance, neither the signaling theory nor the cosmetic change view is totally supported by the evidence. It remains unclear why firms pay stock dividends and why investors respond positively to stock dividend announcements.

2.2. Related studies on stock splits

Stock splits have attracted the attention of more studies than stock dividends, probably because stock splits have larger split factors. However, stock dividends are not simply a mini stock split. One difference is that stock dividends will reduce the firm's retained earnings and

increase the firm's paid-in capital, while stock splits will not (Grinblatt, Masulis, and Titman, 1984). Firms might use stock dividends and stock splits for different reasons. For example, Lakonishok and Lev (1987) find that stock dividends are likely to substitute for cash dividends, while stock splits are employed to restore stock price to the normal range. Our study focuses on stock dividends. Nevertheless, we briefly summarize studies on announcement returns of and long-run performance after stock splits.

Prior studies find positive stock returns around stock split announcements.² They also show that announcement returns are positively associated with the split factor (i.e., the strength of the signal). These findings are consistent with the signaling model.

The empirical results on long-term performance after stock splits are mixed. Lakonishok and Lev (1987) find positive earnings growth after stock split announcements. McNichols and Dravid (1990) find that analyst forecast errors regarding the first annual earnings after stock splits are significantly greater for stock splitters than control firms. They also find that the forecast errors are positively associated with the split factor. Kalay and Kronlund (2012) find that analysts raise their earnings forecasts of stock splitters around stock split announcements. On the other hand, Asquith, Healy, and Palepu (1989) find insignificant earnings changes after stock splits; Huang, Liano, and Pan (2006) find that stock splitters are associated with declining firm profitability following stock splits.

The results on long-run stock returns following stock splits are also mixed. Fama, Fisher, Jensen, and Roll (1969) find no abnormal returns with respect to the market model over the 30 months following stock splits announced between 1927 and 1959. In contrast, Ikenberry, Rankine, and Stice (1996), Desai and Jain (1997), and Ikenberry and Ramnath (2002) find both

² See, among others, Grinblatt, Masulis, and Titman (1984), Asquith, Healy, and Palepu (1989), McNichols and Dravid (1990), and Bessembinder and Zhang (2014).

positive buy-and-hold abnormal returns (BHARs) and positive “Jensen’s alpha” using the calendar time portfolio approach over the one-to-three years following stock splits during the period of 1975-1990, 1976-1991, and 1988-1997, respectively. Byun and Rozeff (2003) examine a larger sample of stock splits from 1927 to 1997, and find that long-run abnormal returns are sensitive to both time periods and methods (BHARs versus calendar time portfolio).

Bessembinder, Cooper, and Zhang (2016) also find insignificant long-run abnormal performance relative to firm-characteristics-based benchmark returns. These results are consistent with the observations of Fama (1998) and Bessembinder and Zhang (2013).

2.3. Investor learning and stock dividends

The cosmetic-change view and the signaling model assume that investors are rational and always correctly respond to stock dividend announcements. Given the ample evidence of investor irrationality in financial markets, it is possible that the mixed evidence on the two views of stock dividends are the result of investors’ behavioral biases. To explore this possibility, we relax the assumption of investor rationality. Specifically, we assume that investors hold wrong initial belief about the information content of stock dividends. As a result, they might over- or under-react to stock dividend announcements. Although irrational at the beginning, the investors gradually learn the firm’s performance after stock dividends and update their belief accordingly.

Note that the learning hypothesis does not assume the sign of the mistake in investor belief. The essence is learning: investors gradually update their belief after observing operating performance following stock dividends. If investors overreact to stock dividend announcements, they will revise downward their belief; if they underreact, they will revise upward.

In the rest of this section, we develop testable hypotheses for both the signaling model and the learning view. The learning hypothesis is a revised version of the cosmetic-change view.

Therefore, we do not compare these two views, and focus on the comparison between the signaling model and the learning hypothesis.

2.4. Hypotheses

The signaling model implies improving firm operating performance after stock dividends. On the other hand, the learning view does not make any assumption about operating performance after stock dividends. It only says that investors adjust their responses to stock dividend announcements after observing the firm's post-stock dividend operating performance. We thus have the following hypotheses regarding firm operating performance:

***H₁₀**: The learning hypothesis does not have specific assumption on firm profitability after stock dividend announcements.*

***H_{1a}**: The signaling model predicts improving firm profitability after stock dividend announcements.*

The signaling model implies positive stock dividend announcement returns. Its implications for the dynamics of announcement returns are less clear. The announcement return could be larger for a firm's follow-on stock dividends if one believes that multiple signals are stronger than a single one. Otherwise, the announcement returns will not depend on the sequence order of the stock dividend. The learning view implies that announcement returns will change as the firm announces more and more follow-up stock dividends. The direction of the change depends on the announcement return and the post-stock dividend firm profitability. Investors will lower their responses after observing worse than expected post-stock dividend firm performance. If firm performance after prior stock dividend announcements is above their belief, investors will respond more positively to follow-on stock dividends. Hence, we have the following hypotheses regarding the dynamics of stock dividend announcement returns:

H2₀: The signaling model predicts that stock dividend announcement returns either increase with or do not depend on the sequence order of the stock dividend.

H2_a: The learning view predicts that stock dividend announcement returns will increase (decrease) with the sequence order of the stock dividend if the firm's profitability after prior stock dividends is better (worse) than expected.

In the signaling model, a firm announces stock dividends to signal positive private information about future performance. It does not say whether all firms with positive private information should announce stock dividends or send other signals of future performance. Nor does it say whether the usage of stock dividends will change over time. The learning view predicts that investors demand less stock dividends if stock dividends are purely cosmetic and are not associated with improving future performance. We have the following hypotheses regarding the frequency of stock dividends over time:

H3₀: The fraction of firms that distribute stock dividends does not change over time, ceteris paribus.

H3_a: The learning hypothesis predicts that the fraction of firms that distribute stock dividends will decrease over time if firm profitability does not improve after stock dividend announcements.

3. Firm profitability and stock returns around stock dividend announcements

3.1. Data

We identify stock dividends (distribution code 5533 or 5538 in the CRSP distribution event file) to common stocks (share code is 10 or 11) in the CRSP database over the period from 1954-2012.³ We exclude utility firms (SIC code 4900-4949), financial firms (SIC code 6000-6999), and firms that are not listed on the NYSE, Amex, or Nasdaq exchange. There are 9,058

³ The Taxation Administration Act 1953 proposes that stock distributions below 25% are treated as stock dividends and those above 25% as stock splits. Before the Act, there is no requirement on the size of stock dividends. To make the size of stock dividends comparable over time period, our sample starts in 1954.

such stock dividends in our CRSP sample. We retrieve accounting data from the Compustat database. See Appendix B for details of data requirements for our Compustat stock dividend sample. The requirements are similar to those of Fama and French (2001).

3.2. Firm profitability around stock dividends

In this subsection, we examine changes in firm profitability around stock dividend announcements. We measure firm profitability with return on assets (ROA) and return on equity (ROE), whose definitions are provided in Appendix A. For each quarter t ($= -12, -11, \dots, 11, 12$) around the stock dividend announcement, we subtract the ROA/ROE by that of the announcement quarter (i.e., quarter 0). That is, the ROA/ROE in the announcement quarter is normalized to zero. To make the measures comparable across firms, we divide the ROA/ROE by its standard deviation over the twelve quarters before the announcement.

Table 1 Panel A reports changes in ROA over the 25 quarters around the stock dividend announcement. Changes in profitability could depend on whether the firm pays cash dividends or not, because cash dividends may also signal private information about future performance.⁴ Therefore, we report changes in ROA for cash dividend payers and non cash dividend payers separately. A firm is coded as cash dividend payers if it distributes any cash dividends over the twelve months before the stock dividend announcement.

We find that ROA is greater in most of the twelve pre-announcement quarters than in the announcement quarter, regardless of whether the firm pays cash dividends or not. The change in ROA relative to the announcement quarter is statistically significant in 7 out of the 12 pre-announcement quarters, for both cash dividend payers and non payers. The change in ROA relative to the announcement quarter is not significantly different between cash dividend payers

⁴ See Allen and Michaely (2003), Kalay and Lemmon (2008), and DeAngelo, DeAngelo, and Skinner (2009) for reviews of models where cash dividends are costly signals of future performance.

and non payers for all but two of the 12 pre-announcement quarters: Non cash dividend payers have smaller change in ROA than payers in quarter -5, and greater change in ROA in quarter -3.

ROA decreases after stock dividend announcements, regardless of whether the firm pays cash dividends or not. The decrease is statistically significant in almost all the twelve post-announcement quarters, except for quarters 2 and 3 for cash dividend payers. The decrease becomes larger the longer after the stock dividend announcement, although the decrease is not strictly monotonically over time. The decrease in ROA after stock dividends is larger for firms that do not pay cash dividends.

Changes in ROE around stock dividend announcements, which are reported in Table 1 Panel B, have similar patterns as changes in ROA. Specifically, pre-announcement ROE is greater than ROE in the announcement quarter. ROE significantly decreases over the twelve quarters after stock dividend announcements, and the decreases are larger for firms that do not pay cash dividends. Figure 1 plots the changes in ROA and ROE around stock dividends.

Our findings of declining profitability after stock dividend announcements are inconsistent with stock dividends being a signal of positive information about future performance. In contrast, they suggest that stock dividends are associated with negative information about future performance. In the next subsection, we examine investor reactions to stock dividend announcements.

3.3. Stock returns around stock dividend announcements

Table 2 Panel A presents CARs over days (-2, +2) around stock dividend announcements. The average CARs are 2.32% and statistically significant at the one percent level. The median CARs are 1.27%, also statistically significant at the one percent level. The results are consistent with prior studies reviewed in Section 2. The announcement CARs are both economically and

statistically significant over each of the five ten-year periods from 1963-2012. However, they are much smaller in the period of 1954-1962, with the mean CARs of 0.36% and the median CARs of -0.13%.

We also sort the stock dividends in our sample into groups based on their sequence order. The sequence order is set to one if the firm does not announce any stock dividends during the preceding 24 months. It increases by one for each follow-on stock dividend announced by the same firm. Table 2 Panel B presents the five-day announcement CARs grouped by the sequence order of the stock dividend. We observe that CARs decrease with the sequence order. A firm's first stock dividend is associated with average announcement CARs of 3.25%. They decrease to 2.48% and 2.14% for the second and third stock dividends, respectively, and further decrease to below 2% as the sequence order further increases. The average CARs drop to merely 0.42% for stock dividends of sequence order above twenty, and become marginally significant at the ten percent level. The median CARs are smaller than the corresponding mean CARs and follow a similar pattern as the mean. The median CARs are 0.39 and are statistically insignificant for stock dividends with sequence order above twenty.

In addition to the univariate analysis in Table 2 Panel B, we examine the relationship between announcement returns and the sequence order of stock dividends in multivariate regressions. The results are presented in Table 2 Panel C. We include only the sequence order and the stock dividend amount, both in logarithm, as explanatory variables in column (1) of Panel C. We observe that the coefficient in front of the amount of stock dividend is positive and statistically significant at the one percent level. This indicates that investors respond more positively to stronger signals. The coefficient on the sequence order is negative and statistically significant at the one percent level. In terms of the economic magnitude, announcement CARs

decrease by 0.38 percentage points for each 100% increase in the sequence order. The results indicate that investors lower their responses to follow-on stock dividend announcements, consistent with the learning hypothesis.

Table 1 and Figure 1 show larger decreases in firm profitability after stock dividend announcements for non cash dividend payers. If investors learn the information content of stock dividends from ex post firm profitability, stock dividend announcement returns will be more sensitive to the sequence order for non cash dividend payers. To test this prediction of the learning hypothesis, we run the regression in column (1) for cash dividend payers and non payers separately and report the results in columns (2) and (3), respectively. We observe that the coefficient in front of the sequence order is -0.26 for cash dividend payers and -0.62 for non payers. We add the interaction variable of the sequence order and the non cash dividend payer dummy to the regression in column (4). The coefficient in front of the interaction variable is negative and statistically significant at the ten percent level. The results indicate that investors reduce their responses to follow-on stock dividend announcements of non cash dividend payers by more, consistent with the investor learning hypothesis.

Institutional investors are supposed to be quicker learners about the information content of stock dividends than retail investors. Thus, institutional investors might react differently to stock dividend announcements than retail investors. We divide the stock dividends in our sample into two groups based on whether institutional investors own majority ownership of the firm. Only 140 (or 5.97%) of the 2,347 stock dividends with available data on institutional ownership are announced by firms with majority institutional ownership. One possible reason is that institutional investors, who are more aware of that stock dividends do not convey positive private information, do not prefer stock dividends.

Column (5) of Table 2 Panel C presents the regression results for the sample of stock dividends of firms with majority institutional ownership. The dependent variable is the five-day announcement CARs and the explanatory variables are the amount and the sequence order of the stock dividend. We observe that the coefficient in front of the amount of stock dividend is positive and statistically insignificant with an associated t -statistic of 0.46. That is, responses of institutional investors to stock dividend announcements do not depend on size of the stock dividend. It seems that institutional investors do not regard stock dividends as a signal of positive private information. Otherwise, announcement returns will increase with the strength of the signal (e.g., the amount of stock dividend). The coefficient on the sequence order is positive and statistically insignificant with an associated t -statistic of 0.80, indicating that institutional investors do not change their responses to stock dividend announcements along the sequence order. The intercept is positive and statistically insignificant. Taken together, the results in column (5) indicate that institutional investors do not regard stock dividends as a signal of positive private information.

Column (6) of Table 2 Panel C presents the regression results for stock dividends announced by firms with minority institutional ownership. The coefficient in front of the stock dividend amount is positive and that on the sequence order is negative. Both coefficients are statistically significant. The results indicate that investor response to stock dividend announcements by firms of minority institutional ownership increases with the size of the stock dividend, and that these investors reduce their responses to follow-on stock dividend announcements.

We add in column (7) the low institutional ownership dummy and the interaction variable of the sequence order and the low institutional ownership dummy. We find that the coefficient

on the low institutional ownership dummy is positive and statistically significant at the five percent level. In terms of the economic magnitude, announcement CARs of firms with minority institutional ownership are 2.38% larger than those of firms with majority institutional ownership. The coefficient on the interaction variable is negative and statistically significant at the five percent level. This suggests that retail investors are more likely to reduce their responses to follow-on stock dividends.

In summary, the results in Table 2 show that investors respond positively to stock dividend announcements. The response weakens as the firm announces more and more follow-on stock dividends. The weakening of investor response to follow-on stock dividends is more significant for non cash dividend payers, whose firm profitability declines by more after stock dividends. In addition, firms with majority institutional ownership are associated with insignificant announcement returns to stock dividends, and their announcement returns do not depend on the amount or the sequence order of the stock dividend. On the other hand, announcement returns increase with the amount of stock dividend and decrease with the sequence order for firms with minority institutional ownership. Taken together, the results indicate that institutional investors are less likely to regard stock dividends as a signal of positive private information than retail investors. The results are consistent with the investor learning hypothesis.

4. The extinction of stock dividends

In this section, we test the prediction of the investor learning hypothesis regarding the frequency of stock dividends over time. Our investigations in this section closely follow Fama and French (2001), who examine the phenomenon of disappearing cash dividends.

4.1. Fraction of stock dividend payers over time

Table 3 presents the number and fraction of stock dividend payers over different time periods, for both the CRSP sample and the Compustat sample. The CRSP sample first. We observe that the fraction of CRSP firms that pay stock dividend decreases monotonically from 13.9% over the period of 1954-1962 to merely 0.34% over the period of 2003-2012. That is, the fraction of firms that do not pay increases from 86.1% to 99.7%. We further divide the non-payers into those that have never paid stock dividends and those paid before. The fraction of never-paid firms monotonically increases from 50.3% over the period 1954-1962 to 86.8% over the period 2003-2012. Meanwhile, the fraction of former payers decreases from 35.6% to 12.9%. Among the newly listed firms, the fraction of stock dividend payers decreases from 8.3% to merely 0.14%. The results indicate that not only former payers stop paying in recent years, but also are newly listed firms less likely to pay stock dividends.

The results with the Compustat sample are very similar. They also reveal the extinction of stock dividends. The fraction of stock dividend payers decreases from 12.2% over the period of 1963-1972 to merely 0.37% over 2003-2012. The fraction of firms that never paid stock dividends increases monotonically from 66.3% to 87.2%, while the fraction of former payers decreases from 21.5% to 12.6%. New lists are much less likely to pay stock dividends over the recent years. The fraction of new lists that pay stock dividends sharply drops from 11.5% over 1963-1972 to 0.09% over 2003-2012.

We further investigate the extinction of stock dividends by examining the firm's stock dividend decision conditioning on its stock dividend status in the preceding year. We report only the results based on the CRSP sample to conserve space. The results for the Compustat sample are similar. Table 4 shows that 55.9% of stock dividend payers in year $t-1$ continue to pay in year

t over the 1954-1962 period. The propensity to continuing to pay stock dividends increases a bit to 58.7% over the 1963-1972 period and then monotonically decreases to 39.7% over the 2003-2012 period. Meanwhile, the propensity to stopping paying stock dividends increases from 43.0% over the 1954-1962 period to 55.3% over the 2003-2012 period. The results suggest that former payers are more likely to stop paying stock dividends in recent years.

Stock dividend initiations also diminish over time. The fraction of non payers in year $t-1$ that start to pay stock dividends in year t decreases from 7.0% over the 1954-1962 period to 0.17% over the 2003-2012 period. Both former payers and never-paid firms are less likely to initiate stock dividends in recent years. For the firms that have never paid stock dividends as of year $t-1$, the probability of stock dividend initiation in year t decreases from 5.7% over the 1954-1962 period to 0.14% over the 2003-2012 period. For the firms that do not pay in year $t-1$ but paid before, the probability of stock dividend initiation in year t decreases from 8.6% to 0.42%. Note that former payers are more likely to initiate stock dividends than never-paid firms over all the five periods.

The results in Tables 3 and 4 suggest that stock dividends are (almost) extinct. Stock dividend payers cease to pay, while non payers and newly listed firms are reluctant to initiate stock dividends. In the coming subsection, we examine whether the extinction of stock dividends are driven by changing firm characteristics over time.

4.2. Changing firm characteristics and the extinction of stock dividends

Characteristics of listed firms have been changing over time. The extinction of stock dividends could be the result of changing firm characteristics. Similar to Fama and French (2001), we examine the following firm characteristics that could potentially affect a firm's stock dividend policy: firm profitability measured by ROA and ROE, asset growth, Tobin's Q, R&D

spending, firm size, leverage ratio, and past stock returns. Our analyses in this subsection are confined to the Compustat sample because of the requirements on accounting data.

Table 5 compares characteristics of stock dividend payers and non payers. We observe that stock dividend payers are smaller than (about half the size of) non payers over each of the five periods. On the other hand, payers are associated with larger asset growth rates over each of the five periods. Payers and non payers have similar profitability. The average ROA over the whole sample period is 5.8% and 5.2% for payers and non payers, respectively, while the average ROE is 11.4% and 11.5%. However, we note that payers are less profitable than non payers over the 1993-2002 period and more profitable over the 2003-2012 period. The Tobin's Q is very similar between payers and non payers over each of the first three ten-year periods. Payers have slightly lower Tobin's Q than non payers over the 1993-2002 period (1.6 versus 1.8) and slightly higher Tobin's Q over the 2003-2012 period (2.0 versus 1.7). Stock dividend payers spend less on R&D than non payers over each of the five periods. Payers are associated with higher leverage ratio than non payers over the two periods before 1982 and lower leverage ratio over the three periods thereafter. Lastly, stock dividend distributions are preceded by high stock returns. Stock returns over the preceding calendar year are much larger for stock dividend payers than non payers. Taken together, Table 5 indicates that stock dividend payers (1) are smaller firms with larger asset growth rates; (2) spend less on R&D; and (3) experience larger stock returns in the preceding year.

We also investigate the associations between these firm characteristics and the stock dividend decision in multivariate regressions. Specifically, we estimate logit regressions where the dependent variable takes the value of one if the firm pays stock dividends in year t and zero otherwise. The firm characteristics, which are the explanatory variables, are measured at the end

of year t , except that past stock returns are during year $t-1$. We cluster residuals by firm and year following suggestions of Petersen (2009).

The first six columns of Table 6 Panel A present the regression results for all sample firms. Column (1) is for the whole sample period 1963-2012 and the rest five columns are for each of the five sub periods. We observe that both firm size and Tobin's Q are negatively associated with the likelihood of stock dividends. The associations are statistically significant over the whole sample period and over the four periods before 2002. Asset growth is positively and significantly associated with the stock dividend decision over the whole period and each of the first three sub periods. Firm leverage is also positively associated with stock dividends; the effect is statistically significant over the whole period and the periods of 1973-1982 and 1983-1992. Both ROA and past stock returns are positively and significantly associated with the likelihood of stock dividends over the whole period and each of the five sub periods. Note that fewer firm characteristics are significantly associated with the stock dividend decision in the last two sub periods. This indicates that the remaining small number of stock dividend payers in recent years is less distinct from non-payers.

In the last six columns of Table 6 Panel A, we present the same regression results for the firms that pay stock dividends in year $t-1$. The results show whether and how the firm characteristics are associated with the firm's decision to continue to pay stock dividends conditional on that the firm pays stock dividend in the preceding year. We find that, over the whole sample period, the stock dividend decision is positively associated with firm size, asset growth, ROA, and past stock returns, and is negatively associated with Tobin's Q. Note that Tobin's Q is positively associated with the stock dividend decision for the sample of all firms.

The coefficients on the firm characteristics are statistically significant over certain sub-periods but are never significant throughout the five sub-periods,.

Table 6 Panel B presents the regression results for the firms that do not pay stock dividends in year $t-1$. The non-payers are further divided into former payers and never-paid firms. The first six columns of Table 6 Panel B are for the sample of former payers and the last six columns for the never-paid firms. The results are qualitatively similar to those based on all firms (the first six columns of Table 6 Panel A). One exception is Tobin's Q. Its coefficient becomes statistically insignificant for former payers, negative and significant for the 1973-1982 period and positive and significant for the last two sub-periods for the never-paid firms.

Taken together, the multivariate regression results suggest that small and fast-growing firms, firms with low Tobin's Q, high ROA, high leverage, and high past stock returns are positively associated with the likelihood of stock dividend distributions. The associations between firm characteristics and the stock dividend decision tend to vary over time and across payers versus non payers.

We next examine whether the extinction of stock dividends is the result of changing firm characteristics over time. To do so, we first estimate the logit regression specified in Table 6 over the 1963-1972 period. The estimation is carried out separately for four samples of firms: all firms, payers in year $t-1$, former payers but do not pay in year $t-1$, and the never-paid firms. We then estimate the predicted probability that a firm will pay stock dividend for each year after 1963 using the estimated parameters based on the 1963-1972 period.

Table 7 presents the actual fraction of stock dividend payers and the expected fraction of stock dividend payers based on the estimated probability. We observe that the actual fraction of stock dividend payers is always much smaller than the expected fraction for all samples and for

all four sub-periods after 1972. For example, the model predicts that 9.7% of firms will pay stock dividends over the 2003-2012 period. In fact, only 0.4% of firms pay stock dividends over the period. The predicted fraction of stock dividend payers slightly decreases over time, from 13.0% for the 1973-1982 period to 9.7% for the 2003-2012 period. The findings indicate that changing firm characteristics contribute to the extinction of stock dividends, but the contribution is too small to explain the extinction.

4.3. Institutional investors, cash dividends, and the extinction of stock dividends

In this subsection, we examine potential roles of institutional investors and cash dividends in the stock dividend decision. As discussed above, institutional investors are more experienced than individual investors, and are expected to better understand the information content of stock dividends. The results in Table 2 show that institutional investors react less positively to stock dividend announcements, consistent with that institutional investors believe stock dividends contain less (or no) positive information. This implies that institutional investors may not prefer stock dividends, and in turn will lead to the extinction of stock dividends as institutional ownership increases over time.

Figure 3 depicts the percent of stock dividend payers and the aggregate institutional ownership of U.S. firms for each year from 1954 to 2012. The aggregate institutional ownership is the percent of corporate equities owned by insurance companies, private pension funds, state and local government retirement funds, federal government retirement funds, mutual funds, and brokers and dealers, as reported by the Board of Governors of the Federal Reserve System. We observe that institutional ownership steadily increases from merely 7.7% in 1954 to 47.9% in 2006 (right before the recent financial crisis) and then slightly decreases to 43.6% in 2012. The

increase in institutional ownership accompanies the decrease in the fraction of stock dividend payers, yielding a negative association between them.

We then examine the association between institutional ownership and stock dividends in OLS regressions, where the dependent variable is the aggregate institutional ownership in each year and the independent variable is the fraction of CRSP firms that pay stock dividends in the year. We present the results in column (1) of Table 8. We observe that the coefficient in front of institutional ownership is negative and statistically significant at the one percent level with an associated t -statistic of -26.5. In terms of the economic magnitude, each 10 percentage points increase in institutional ownership is associated with 3.8 percentage points decrease in the fraction of stock dividend payers. Institutional ownership increases by 35.9 percentage points from 1954 to 2012, resulting in an expected decrease in the fraction of stock dividend payers by 13.6 percentage points ($= 35.9 * 0.38$). The negative relationship between institutional ownership and stock dividends is so strong that the regression has an R^2 of 92.5%.

Stock dividends are commonly believed to be temporary substitutes for cash dividends (Lakonishok and Lev, 1987). Consistent with this notion, Table 1 shows that it is common for firms to pay both cash and stock dividends. Fama and French (2001) find that the fraction of firms that pay cash dividends significantly decreases from 1970s to 1990s. These imply that the extinction of stock dividends could be related to the phenomenon of disappearing cash dividends. We investigate the relation between the fraction of cash dividend payers and the fraction of stock dividend payers in OLS regressions and present the results in column (2) of Table 8. We find that the coefficient in front of the percent of cash dividend payers is positive and statistically significant at the one percent level (t -statistics is 26.2). The R^2 is also high at 92.3%.

We include both aggregate institutional ownership and the percent of cash dividend payers in the regression of column (3), Table 8. We observe that the coefficient in front of institutional ownership remains negative and statistically significant at the one percent level, and that on the percent of cash dividend payers remains positive and significant at the one percent level. The R^2 increases slightly to 94.0%.

The results in Table 8 indicate that institutional investors and cash dividends potentially contribute to the extinction of stock dividends. It is worth noting that firms' declining propensity to paying cash dividends cannot be the only cause of the extinction of stock dividends, for two reasons. First, there are still a significant fraction of firms that pay cash dividends: In 2012, 36.3% of firms pay cash dividends. Second, the fraction of cash dividend payers significantly increases from 19.8% in 2000 to 36.3% in 2012. Over the same period, the fraction of stock dividend payers decreases from 0.6% to 0.2%. That is, cash dividends cannot be the only driving force of the extinction of stock dividends.

In addition, we investigate the impacts of institutional ownership and cash dividends at the firm level. To do so, we add these two variables to the regressions specified in Table 6. The regression results are reported in Table 9. We observe that the cash dividend decision is positively associated with the stock dividend decision for the sample of all firms and the sample of firms that do not pay stock dividend. However, cash dividends are not significantly associated with the firm's decision to continue to pay stock dividends. On the other hand, institutional ownership is negatively associated with the stock dividend decision regardless of the firm's prior stock dividend decisions.

The results in Tables 8 and 9 suggest that institutional investors do not prefer stock dividends and are an important force behind the extinction of stock dividends. The declining

popularity of cash dividends might also contribute to but is not the main reason for the extinction of stock dividends.

5. Conclusions

There are two existing theories on stock dividends. One proposes that stock dividends only bring cosmetic changes and are not relevant to firm value, while the other theory suggests that stock dividends convey positive information about future operating performance. Prior studies find conflicting evidence regarding the two theories. Specifically, they find positive returns around stock dividend announcements and insignificant changes in earnings following stock dividend distributions.

In this paper, we propose an alternative hypothesis on stock dividends. We argue that investors could form wrong beliefs about the information content of stock dividends due to behavioral biases or limitations of their minds. They gradually learn from post-dividend firm performance and update their beliefs. We find strong supportive evidence for the learning hypothesis. We show that firm performance declines after stock dividend distributions, in contrast to the prediction of the signaling hypothesis. Investors respond less positively to stock dividend announcements after observing the declining performance. Their learning over time also results in declining demands for stock dividends. Stock dividends used to be popular but almost become extinct in recent years.

We find that institutional investors play important roles in stock dividend decisions. Unlike retail investors, they do not react positively to stock dividends announcements. Also, firms with majority institutional ownership are less likely to distribute stock dividends. In

addition, institutional ownership is able to explain 92.5% of the temporal variation in the frequency of stock dividends.

We conclude that stock dividends do not contain positive information about future firm performance. Investors initially overreact to stock dividend announcements but gradually correct their beliefs after learning from firm performance after stock dividends. Our new findings will hopefully inspire more studies on stock dividend decisions, especially on the extinction of stock dividends in recent years.

Appendix A: Definition of Variables

Variable	Definition
A_t	Total assets (Compustat variable at).
RD_t	Research and development expenses (xrd)
L_t	Liabilities (lt)
dA_t	$A_t - A_{t-1}$
Preferred stock	Preferred stock liquidating value ($pstkl$) [or preferred stock redemption value ($pstkrv$); or preferred stock par value ($upstk$)]
BE_t	Stockholder's equity (seq) [or common equity (ceq) + preferred stock par value ($upstk$); or total assets (at) – liabilities (lt)] – preferred stock + balance sheet deferred taxes and investment tax credit ($txditc$).
V_t	Assets (at) – BE_t + stock price ($prcc_f$) times common shares outstanding ($csho$)
E_t	Earnings before extraordinary items (ib) + interest expenses (tie) if available + income statement deferred taxes ($txdi$) if available
Y_t	Earnings before extraordinary items (ib) – preferred dividends (dvp) + income statement deferred taxes ($txdi$) if available
NYP_t	The percentile ranking of the firm's total assets at the end of year t among all firms listed on the NYSE. It takes the value between zero and one.
Tobin's Q	V_t/A_t
Asset growth	dA_t/A_t
ROA	E_t/A_t
ROE	Y_t/BE_t
Book leverage	L_t/A_t

Appendix B: Data requirement for the Compustat sample

To enter the Compustat stock dividend sample, the firm must have the following data items (Compustat variable name in parenthesis) available at the fiscal yearend: (1) total assets of both the current and the preceding fiscal year (at); (2) stock price ($prcc_f$) and number of shares outstanding ($csho$); (3) income before extraordinary items (ib); (4) preferred cash dividends (dvp); (5) preferred stock at liquidating value ($pstkl$), preferred stock at redemption value ($pstkrv$), or preferred stock at carrying value ($upstk$); (6) stockholders' equity (seq), liabilities (lt), or both common equity and preferred stock at redemption value ($pstkrv$); and (7) cumulative returns of the firm's common stock during the preceding fiscal year as recorded in the CRSP database. We exclude firm-years (1) with total assets below \$500,000; (2) with book equity below \$250,000; or (3) with asset growth below -80% or above 500%. These filters enable us to construct explanatory variables relevant to a firm's stock dividend decisions. We code a firm as a stock dividend payer in fiscal year t if the firm announces any stock dividends during the fiscal year. Our data requirements are very similar to those of Fama and French (2001).

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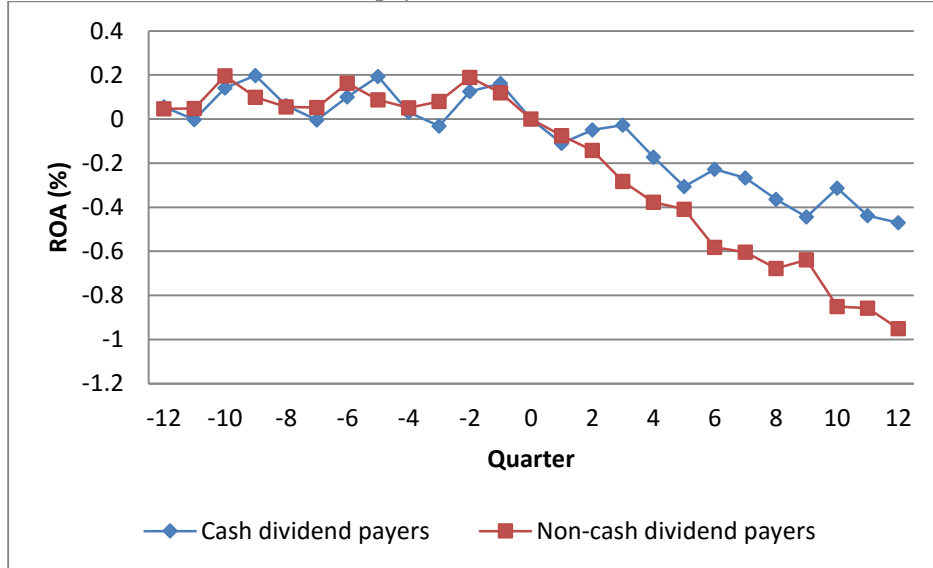
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Figure 1: Firm profitability around stock dividend announcements

Figure 1A depicts return on asset (ROA) of stock dividend payers over the 25 quarters around the stock dividend announcement, and Figure 1B depicts the same information for return on equity (ROE). We divide our sample of stock dividend payers into two groups depending on whether the firm pays cash dividends during the 12-month period ending with the month of stock dividend announcement. Both ROA and ROE are standardized by dividing its standard deviation over quarters (-12, -1) relative to the quarter of stock dividend announcement, and are winsorized at the top and bottom one percent. Also, both ROA and ROE in the quarter of stock dividend announcement (quarter zero) are normalized to zero.

Panel A: ROA of stock dividend payers



Panel B: ROE of stock dividend payers

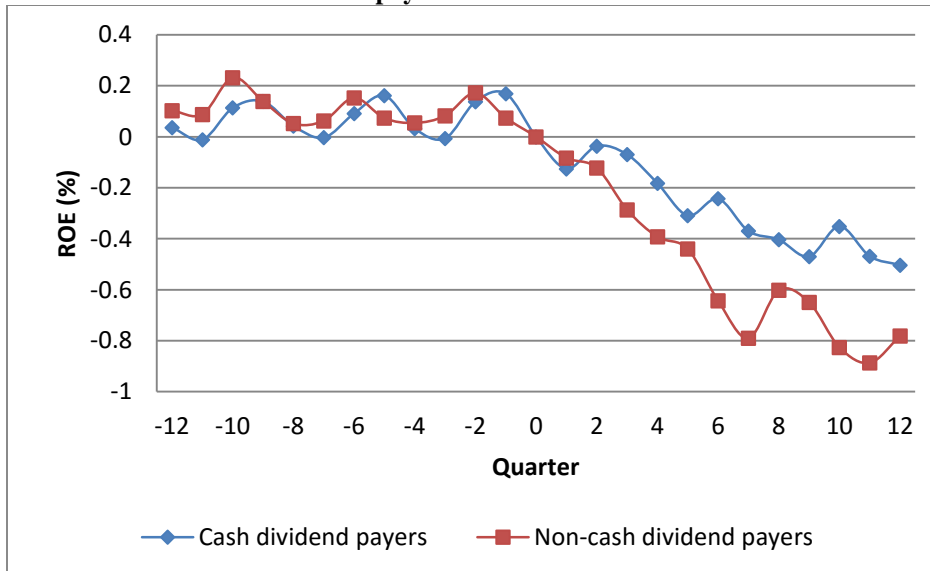
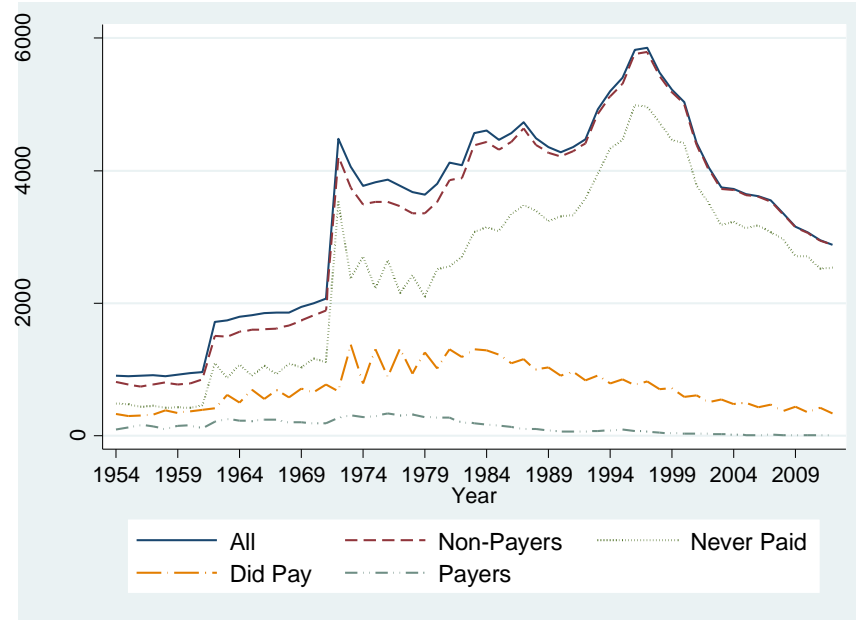


Figure 2: Number and percent of stock dividend payers in the CRSP sample

This figure depicts the number (Panel A) and the percent (Panel B) of stock dividend payers and non-payers over the years from 1954-2012. Stocks with missing stock price or missing number of shares outstanding in December of year t are excluded from the year t sample. The percent of payers (non-payers) is calculated as the ratio of the number of stock dividend payers (non-payers) in year t to the total number of firms at the end of year t . Payers announce stock dividend distributions in year t , while non-payers do not. “Never Paid” refers to the group of firms that never announced stock dividends before year t . “Did Pay” refers to the group of firms that announced stock dividends before year t but not in year t . Our sample includes common stocks of industrial firms recorded in the CRSP database.

Panel A: Number of stock dividend payers



Panel B: Percent of stock dividend payers

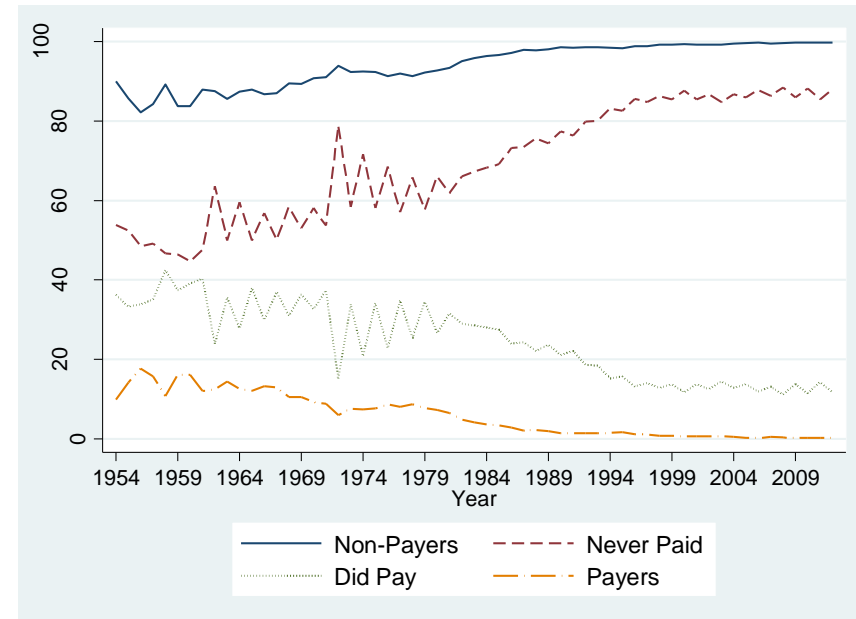


Figure 3: Aggregate percent of stock dividend payers and aggregate institutional ownership over time

This figure presents the percent of stock dividend payers of industrial firms in the CRSP database and the aggregate institutional ownership of U.S. corporate equities as reported by the Board of Governors of the Federal Reserve System. Institutional ownership is the percent of corporate equities owned by insurance companies, private pension funds, state and local government retirement funds, federal government retirement funds, mutual funds, and brokers and dealers. The sample period is from 1954-2012.

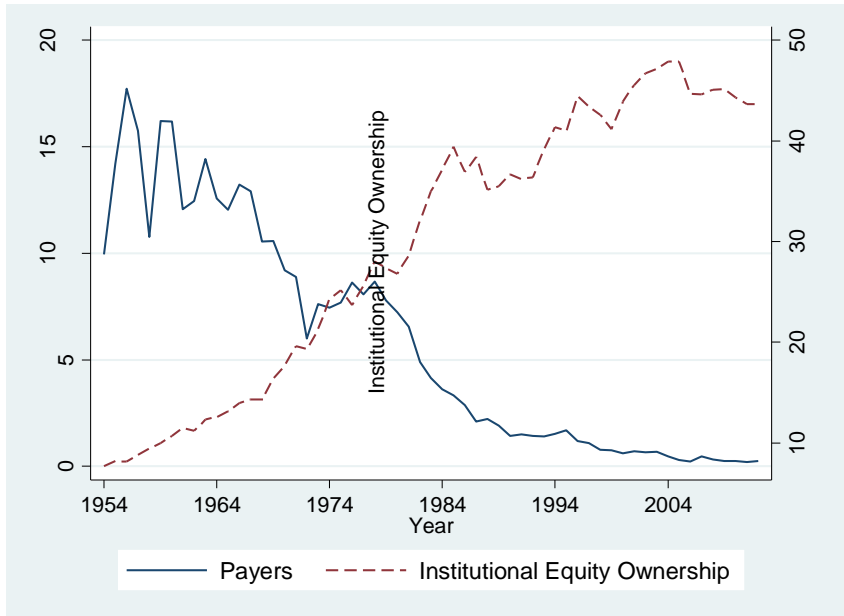


Table 1: Firm profitability around stock dividend announcements

Panel A reports return on asset (ROA) of stock dividend payers over the 25 quarters around the stock dividend announcement, and Panel B reports the same information for return on equity (ROE). We divide our sample of stock dividend payers into two groups depending on whether the firm pays cash dividends during the 12-month period ending with the month of stock dividend announcement. Both ROA and ROE are standardized by dividing its standard deviation over quarters (-12, -1) relative to the quarter of stock dividend announcement, and are winsorized at the top and bottom one percent. Also, both ROA and ROE in the quarter of stock dividend announcement (quarter zero) are normalized to zero. Superscripts ***, **, and * correspond to statistical significance at the one, five, and ten percent levels, respectively.

Panel A: ROA of stock dividend payers

Quarter	Paying cash dividends				Difference No - Yes
	Yes		No		
	N	Mean	N	Mean	
-12	1,400	0.06	1,000	0.05	-0.01
-11	1,340	-0.00	1,010	0.05	0.05
-10	1,407	0.14***	1,067	0.20***	0.06
-9	1,498	0.20***	1,100	0.10**	-0.10
-8	1,597	0.06*	1,144	0.06	-0.01
-7	1,517	-0.00	1,139	0.05	0.06
-6	1,567	0.10**	1,209	0.16***	0.06
-5	1,637	0.19***	1,247	0.09**	-0.11*
-4	1,799	0.03	1,323	0.05	0.02
-3	1,712	-0.03	1,297	0.08**	0.11**
-2	1,756	0.13***	1,336	0.19***	0.06
-1	1,809	0.16***	1,370	0.12***	-0.04
0	1,957	0.00	1,443	0.00	0.00
1	1,840	-0.11***	1,382	-0.08**	0.03
2	1,823	-0.05	1,366	-0.14***	-0.09
3	1,816	-0.03	1,349	-0.28***	-0.26***
4	1,884	-0.17***	1,382	-0.38***	-0.20***
5	1,803	-0.31***	1,329	-0.41***	-0.10
6	1,793	-0.23***	1,309	-0.58***	-0.35***
7	1,767	-0.27***	1,287	-0.60***	-0.34***
8	1,796	-0.36***	1,292	-0.68***	-0.31***
9	1,749	-0.44***	1,256	-0.64***	-0.20**
10	1,737	-0.31***	1,230	-0.85***	-0.54***
11	1,725	-0.44***	1,214	-0.86***	-0.42***
12	1,721	-0.47***	1,215	-0.95***	-0.48***

Panel B: ROE of stock dividend payers

Quarter	Paying cash dividends				Difference No - Yes
	Yes		No		
	N	Mean	N	Mean	
-12	1,771	0.04	1,188	0.10**	0.07
-11	1,763	-0.01	1,199	0.09*	0.10*
-10	1,818	0.11***	1,295	0.23***	0.12**
-9	1,903	0.14***	1,335	0.14***	-0.00
-8	1,941	0.04	1,378	0.05	0.01
-7	1,928	-0.00	1,377	0.06	0.07
-6	1,978	0.09***	1,472	0.15***	0.06
-5	2,063	0.16***	1,512	0.07**	-0.09*
-4	2,134	0.03	1,584	0.05*	0.02
-3	2,113	-0.01	1,574	0.08**	0.09**
-2	2,165	0.14***	1,631	0.17***	0.03
-1	2,231	0.17***	1,668	0.07**	-0.10**
0	2,311	0.00	1,737	0.00	0.00
1	2,243	-0.13***	1,692	-0.08**	0.04
2	2,229	-0.04	1,677	-0.12**	-0.08
3	2,220	-0.07*	1,662	-0.29***	-0.22***
4	2,220	-0.18***	1,669	-0.39***	-0.21***
5	2,175	-0.31***	1,646	-0.44***	-0.13*
6	2,166	-0.24***	1,623	-0.64***	-0.40***
7	2,144	-0.37***	1,594	-0.79***	-0.42***
8	2,127	-0.40***	1,574	-0.60***	-0.20**
9	2,090	-0.47***	1,555	-0.65***	-0.18*
10	2,075	-0.35***	1,525	-0.83***	-0.47***
11	2,067	-0.47***	1,503	-0.89***	-0.42***
12	2,045	-0.50***	1,484	-0.78***	-0.28**

Table 2: Stock returns around stock dividend announcements

Panel A presents the five-day (-2, +2) cumulative abnormal returns (CARs) around stock dividend announcements, grouped by sample period. In Panel B, we group stock dividend announcements by its sequence order. The sequence order is set to one if the firm has not announced any stock dividends during the previous 24 months, and increases by one for each follow-on stock dividend announcement. CARs are calculated using the market model with the market beta estimated using daily stock returns over the days (-252, -42). Panel C reports the OLS regression results where the dependent variable is the 5-day CARs. *Not paying cash dividends* takes the value of zero if the stock dividend payer also pays cash dividends over months (-11, 0) around the stock dividend announcement, and one otherwise. *Low institutional ownership* takes the value of one if the firm's institutional ownership is below 50%, and zero otherwise. All model specifications employ robust standard errors clustered by both firm and year. The associated *t*-statistics are reported in the parentheses below each coefficient.

Panel A: 5-day announcement CARs, by sample period

Period	N	Mean	Median
1954-1962	1457	0.36***	-0.13
1963-1972	2457	2.28***	1.73***
1973-1982	3068	3.49***	2.12***
1983-1992	1166	1.69***	0.97***
1993-2002	597	2.69***	1.28***
2003-2012	155	1.83**	1.09***
Total	8900	2.32***	1.27***

Panel B: 5-day announcement CARs, by the sequence order of the stock dividend announcement

Sequence order	N	Mean	Median
1	3228	3.25***	2.06***
2	1432	2.48***	1.40***
3	887	2.14***	1.12***
4	644	1.65***	0.80***
5	473	1.47***	0.94***
(6, 10)	1214	1.48***	0.70***
(11, 15)	498	1.63***	0.94***
(16, 20)	245	1.04**	0.32*
> 20	279	0.42*	0.39
Total	8900	2.32***	1.27***

Panel C: Determinants of 5-day CARs around stock dividend announcements

Sample	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All	Paying cash dividends			Institutional ownership		
		Yes	No	All	High	Low	All
Dependent variable	5-day CARs (%)						
Log stock dividend amount	1.16*** (12.555)	1.21*** (11.877)	1.06*** (5.186)	1.17*** (12.662)	0.29 (0.460)	0.92*** (3.737)	0.85*** (3.710)
Log sequence order of stock dividend	-0.38*** (-4.698)	-0.26*** (-2.999)	-0.62*** (-3.630)	-0.27*** (-3.178)	0.44 (0.799)	-0.41** (-2.301)	0.73 (1.577)
Not paying cash dividends				0.33 (1.222)			
Log sequence order * Not paying cash dividends				-0.31* (-1.779)			
Low institutional ownership							2.38** (2.280)
Log sequence order * Low institutional ownership							-1.16** (-2.458)
Constant	6.08*** (21.838)	6.07*** (19.060)	6.02*** (10.462)	5.97*** (20.414)	1.18 (0.670)	5.01*** (8.766)	2.48** (2.174)
Observations	8,900	5,565	3,335	8,900	140	2,207	2,347
Adjusted R-squared	0.031	0.042	0.020	0.032	-0.010	0.017	0.017

Table 3: Number and percent of stock dividend payers

This table reports the average number and the average percent of stock dividend payers and those of non-payers over different time periods. The annual percent of payers (non-payers) is calculated as the ratio of the number of stock dividend payers (non-payers) in year t to the total number of firms at the end of year t . Payers announce stock dividend distributions in calendar year t (the CRSP sample) or in fiscal year t (the Compustat sample), while non-payers do not. “Never Paid” refers to the group of firms that never announced stock dividends before year t . “Former Payers” refers to the group of firms that announced stock dividends before year t but not in year t . New lists are the firms that appear in the CRSP or Compustat database for the first year. Our CRSP sample includes common stocks of industrial firms recorded in the CRSP database from 1954-2012. Stocks with missing stock price or missing number of shares outstanding in December of year t are excluded from the year t CRSP sample. Our Compustat sample includes industrial firms covered in the Compustat database from 1963-2012. See Appendix B for data requirements for the Compustat stock dividend sample.

	1954-1962	1963-2012	1963-1972	1973-1982	1983-1992	1993-2002	2003-2012
<i>Counts of CRSP firms</i>							
All firms	1,008	3,800	2,142	3,862	4,489	5,141	3,369
New lists	112	285	126	207	456	478	157
<i>Counts of Compustat firms</i>							
All firms		3,057	1,293	3,061	3,608	4,346	2,977
New lists		169	75	87	245	328	112
<i>Percents of CRSP firms</i>							
Stock dividend payers	13.92	4.47	11.04	7.46	2.46	1.04	0.34
Non-payers	86.08	95.53	88.96	92.54	97.54	98.96	99.66
Never paid	50.33	73.04	56.87	63.15	73.53	84.83	86.80
Former payers	35.75	22.50	32.10	29.39	24.02	14.12	12.86
New lists	7.80	7.06	6.26	5.30	10.10	9.02	4.62
New lists that pay stock div.	8.73	2.12	7.06	2.90	0.35	0.12	0.14
<i>Percents of Compustat firms</i>							
Stock dividend payers		4.93	12.20	8.04	2.86	1.20	0.37
Non-payers		95.07	87.80	91.96	97.14	98.80	99.63
Never paid		75.40	66.31	65.23	73.86	84.60	87.02
Former payers		19.66	21.50	26.73	23.28	14.19	12.62
New lists		5.32	5.94	2.78	6.73	7.37	3.77
New lists that pay stock div.		3.93	11.48	6.48	1.14	0.45	0.09

Table 4: Stock dividend decisions in year t conditional on stock dividend status in year $t-1$

This table presents the probability that a firm pays stock dividends, does not pay stock dividends, is acquired, and delists in year t conditional on the firm's stock dividend status in year $t-1$. We first calculate the conditional probability for each year and then calculate the conditional probability over different time periods weighted by the total number of firms in a certain stock dividend status in year $t-1$. Payers announce stock dividend distributions in the year, while non-payers do not. "Never paid" refers to the group of firms that never announced stock dividends before the year. "Former payers" refers to the group of firms that announced stock dividends before the year but not in the year. Our sample includes common stocks of industrial firms recorded in the CRSP database from 1954-2012.

	1954- 1962	1963- 2012	1963- 1972	1973- 1982	1983- 1992	1993- 2002	2003- 2012
<i>What happens in year t to firms that pay stock dividends in year $t-1$ (%)</i>							
Continue to pay	55.88	52.81	58.69	53.11	48.73	43.01	39.72
Stop paying	42.95	43.73	38.29	43.85	46.94	52.16	55.32
Merge	0.99	2.53	2.37	2.33	2.86	3.45	2.13
Delist	0.18	0.93	0.65	0.71	1.47	1.38	2.84
<i>What happens in year t to firms that do not pay stock dividends in year $t-1$ (%)</i>							
Start paying	6.96	1.54	4.78	3.39	1.13	0.57	0.17
Do not pay	90.78	90.21	90.99	90.89	89.56	89.10	91.49
Merge	1.27	4.22	2.83	3.20	3.64	5.39	4.88
Delist	0.98	4.03	1.40	2.52	5.68	4.94	3.45
<i>Percent of non-stock dividend payers in year $t-1$ that start paying in year t</i>							
All non-payers	6.96	1.54	4.78	3.39	1.13	0.57	0.17
Never paid	5.66	1.11	4.17	2.97	0.72	0.43	0.14
Former payers	8.63	2.88	5.63	4.17	2.14	1.31	0.42

Table 5: Characteristics of stock dividend payers

This table presents characteristics of stock dividend payers and non-payers in the Compustat sample. See Appendix B for data requirements for the Compustat sample. Payers announce stock dividend distributions in the year, while non-payers do not. “Never paid” refers to the group of firms that never announced stock dividends before the year. “Former payers” refers to the group of firms that announced stock dividends before the year but not in the year. $Returns_{t-1}$ is the cumulative stock returns during the fiscal year $t-1$. See Appendix A for details of variable descriptions. For each fiscal year from 1963-2012, we calculate the ratios (e.g., E_t/A_t) as the aggregate numerator (E_t) divided by the aggregate denominator (A_t). For total assets and $Returns_{t-1}$, we calculate the cross-sectional average in each year from 1963-2012. The table reports the average of annual values over different time periods.

	1963-2012	1963-1972	1973-1982	1983-1992	1993-2002	2003-2012
	<i>ROA (%)</i>					
All firms	5.24	6.51	6.64	4.35	3.64	5.08
Stock dividend payers	5.76	6.53	6.46	5.31	5.82	4.69
Non-payers	5.24	6.51	6.64	4.34	3.63	5.08
Never paid	5.14	6.43	6.60	4.40	3.51	4.78
Former payers	5.43	6.68	6.67	4.10	3.89	5.83
	<i>ROE (%)</i>					
All firms	11.51	11.60	13.68	10.36	10.10	11.82
Stock dividend payers	11.43	12.29	14.31	10.63	11.28	8.62
Non-payers	11.50	11.55	13.65	10.36	10.10	11.82
Never paid	11.15	11.50	13.55	10.30	9.43	10.97
Former payers	12.32	11.57	13.74	10.24	11.82	14.22
	<i>Asset growth (%)</i>					
All firms	7.86	6.19	10.18	8.04	8.84	6.04
Stock dividend payers	9.89	8.58	12.13	10.83	9.40	8.51
Non-payers	7.80	6.00	10.11	8.02	8.83	6.03
Never paid	7.81	5.40	10.00	7.85	9.66	6.15
Former payers	7.88	7.64	10.36	8.60	7.14	5.67
	<i>Tobin's Q (%)</i>					
All firms	1.48	1.56	1.08	1.28	1.82	1.65
Stock dividend payers	1.53	1.68	1.06	1.28	1.61	2.04
Non-payers	1.48	1.55	1.08	1.28	1.82	1.65
Never paid	1.50	1.56	1.07	1.32	1.89	1.68
Former payers	1.40	1.51	1.08	1.22	1.64	1.55
	<i>R&D spending scaled by total assets (%)</i>					
All firms	1.72	0.82	1.45	2.10	2.16	2.07
Stock dividend payers	0.84	0.60	0.68	0.79	1.18	0.95
Non-payers	1.73	0.84	1.48	2.11	2.17	2.08
Never paid	1.80	0.79	1.44	2.25	2.30	2.22
Former payers	1.51	0.85	1.47	1.75	1.82	1.64
	<i>Total assets</i>					
All firms	1,284.21	377.30	465.54	774.78	1,405.29	3,398.13
Stock dividend payers	577.92	210.62	206.10	246.71	701.43	1,524.75
Non-payers	1,299.46	402.36	487.72	789.23	1,413.39	3,404.62
Never paid	1,114.67	402.80	457.20	656.44	1,174.88	2,882.04
Former payers	2,400.75	361.74	542.89	1,227.28	2,846.24	7,025.60
	<i>Book leverage (%)</i>					
All firms	56.22	45.27	54.56	59.74	64.16	57.36
Stock dividend payers	50.80	48.73	60.87	52.33	48.70	43.37
Non-payers	56.15	45.02	54.34	59.78	64.25	57.37
Never paid	55.72	45.44	54.20	59.10	62.96	56.90
Former payers	57.14	43.57	53.95	61.48	67.53	59.19
	<i>Returns_{t-1} (%)</i>					
All firms	16.19	15.46	22.49	12.79	11.43	18.76
Stock dividend payers	24.34	24.31	32.24	21.25	18.86	25.03
Non-payers	15.69	14.22	21.64	12.53	11.34	18.73
Never paid	15.71	14.16	21.98	12.04	11.16	19.21
Former payers	15.58	14.91	20.86	13.65	12.45	16.00

Table 6: Explaining stock dividend decisions

This table presents Logit regression estimates, where the dependent variable is the dummy variable that takes the value of one if the firm pays stock dividends in the fiscal year, and zero otherwise. “Never paid” refers to the group of firms that never announced stock dividends before the year. “Former stock dividend payers” refers to the group of firms that announced stock dividends before the year but not in the year. *NYP* is the percentile ranking of the firm’s total assets at the end of year *t* among all firms listed on the NYSE. *Returns_{t-1}* is the cumulative stock returns during the fiscal year *t-1*. See Appendix A for details of variable descriptions. Our sample includes industrial firms covered in the Compustat database from 1963-2012. See Appendix B for data requirements for the Compustat sample. All model specifications employ robust standard errors clustered by both firm and year. The associated *t*-statistics are reported in the parentheses below each coefficient. Superscripts ***, **, and * correspond to statistical significance at the one, five, and ten percent levels, respectively.

Panel A: All firms and stock dividend payers in year *t-1*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Time period	1963-2012	1963-1972	1973-1982	1983-1992	1993-2002	2003-2012	1963-2012	1963-1972	1973-1982	1983-1992	1993-2002	2003-2012
Sample	All firms						Stock dividend payers in year <i>t-1</i>					
Dependent var.	Paying stock dividends in year <i>t</i>						Paying stock dividends in year <i>t</i>					
NYP	-0.84*** (-4.56)	-0.54*** (-2.87)	-0.92*** (-4.52)	-1.36*** (-5.02)	-1.36*** (-2.84)	-1.30 (-1.60)	0.45** (2.51)	0.30 (0.95)	0.26 (1.10)	0.74** (1.99)	0.24 (0.49)	0.14 (0.14)
Tobin’s Q	-0.40*** (-5.53)	-0.14*** (-2.73)	-0.30*** (-4.43)	-0.31*** (-4.29)	-0.10* (-1.80)	0.04 (0.59)	-0.38*** (-5.91)	-0.30*** (-2.89)	-0.61*** (-4.99)	-0.58*** (-3.42)	-0.47*** (-3.78)	-0.21 (-0.87)
Asset growth	0.63*** (4.57)	0.92** (2.00)	0.59*** (3.93)	0.52*** (3.58)	0.23 (1.48)	-0.33 (-0.76)	0.36* (1.95)	0.60 (1.02)	0.29 (1.16)	0.17 (0.46)	0.94* (1.93)	-0.07 (-0.09)
ROA	6.44*** (14.36)	3.38*** (3.66)	5.44*** (8.55)	4.92*** (8.48)	3.93*** (7.46)	2.35** (2.46)	1.56*** (3.48)	1.42 (0.64)	1.37* (1.70)	2.29** (2.49)	1.96** (2.19)	0.27 (0.25)
Book leverage	1.06*** (5.54)	0.40 (1.14)	1.35*** (5.40)	0.95*** (3.83)	0.38 (1.15)	0.72 (0.60)	-0.16 (-0.57)	-0.69 (-1.19)	0.24 (0.62)	-0.55 (-1.33)	-0.24 (-0.40)	0.25 (0.15)
Returns _{<i>t-1</i>}	0.21*** (3.13)	0.41*** (4.19)	0.16*** (7.37)	0.13** (2.55)	0.11** (2.36)	0.31** (2.44)	0.28*** (3.95)	0.41** (2.03)	0.36*** (4.45)	0.27 (1.35)	0.04 (0.37)	-0.15 (-1.02)
Constant	-3.37*** (-23.82)	-2.24*** (-10.20)	-3.02*** (-17.43)	-3.50*** (-16.13)	-4.21*** (-21.03)	-5.77*** (-10.20)	0.49*** (3.11)	0.88** (2.46)	0.49** (2.18)	0.86** (2.50)	0.52 (1.36)	0.01 (0.01)
Observations	152,847	12,927	30,612	36,080	43,462	29,766	5,508	1,290	2,436	1,127	528	127
Pseudo R2	0.051	0.020	0.027	0.039	0.033	0.020	0.023	0.016	0.023	0.040	0.045	0.015

Panel B: Former payers as of year $t-1$ and firms that never paid stock dividends as of year $t-1$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Time period	1963-2012	1963-1972	1973-1982	1983-1992	1993-2002	2003-2012	1963-2012	1963-1972	1973-1982	1983-1992	1993-2002	2003-2012
Sample	Former stock dividend payers as of year $t-1$						Never paid stock dividends as of year $t-1$					
Dependent var.	Paying stock dividends in year t						Paying stock dividends in year t					
NYP	-1.48*** (-7.59)	-0.93*** (-3.46)	-1.20*** (-4.08)	-2.11*** (-7.50)	-2.67*** (-4.76)	-1.78 (-1.36)	-1.54*** (-7.64)	-1.43*** (-8.08)	-1.78*** (-7.36)	-3.13*** (-5.73)	-1.52*** (-2.73)	-0.65 (-0.99)
Tobin's Q	-0.08 (-1.39)	-0.02 (-0.37)	-0.08 (-1.29)	-0.02 (-0.22)	0.09 (1.20)	0.30 (1.32)	-0.20*** (-3.35)	-0.08 (-0.95)	-0.21*** (-2.65)	-0.13 (-1.50)	0.10*** (3.16)	0.15* (1.80)
Asset growth	0.94*** (2.87)	1.19 (1.00)	0.11 (0.30)	0.83* (1.80)	1.48** (2.49)	-1.03 (-0.90)	1.09*** (4.80)	1.21 (1.36)	1.58*** (4.47)	1.43*** (3.62)	0.14 (0.48)	-0.76 (-0.81)
ROA	6.12*** (7.99)	4.53** (2.02)	6.96*** (5.05)	5.10*** (4.29)	5.01*** (3.28)	2.72 (1.38)	6.14*** (8.54)	5.51*** (3.58)	7.22*** (6.99)	4.37*** (2.72)	2.85*** (5.09)	2.05 (1.48)
Book leverage	1.28*** (5.42)	0.39 (0.70)	1.92*** (6.01)	1.62*** (3.69)	0.34 (0.43)	-1.07 (-0.84)	1.30*** (7.75)	1.14*** (3.08)	1.67*** (5.72)	0.92*** (3.25)	0.49 (1.41)	1.20 (1.33)
Returns $_{t-1}$	0.18** (2.40)	0.36** (2.32)	0.19*** (2.66)	0.09 (0.76)	0.01 (0.07)	-0.10 (-0.23)	0.32*** (4.38)	0.50*** (5.40)	0.23*** (6.26)	0.20** (2.38)	0.15 (1.61)	0.63*** (5.05)
Constant	-3.96*** (-25.73)	-2.84*** (-8.65)	-3.97*** (-14.66)	-4.30*** (-14.74)	-4.20*** (-11.98)	-5.16*** (-6.75)	-4.73*** (-37.22)	-3.44*** (-14.60)	-4.39*** (-26.09)	-4.81*** (-22.87)	-5.49*** (-35.09)	-7.33*** (-18.88)
Observations	29,206	2,862	8,146	8,381	6,087	3,730	111,134	7,310	18,866	24,881	34,957	25,120
Pseudo R2	0.044	0.034	0.034	0.048	0.070	0.059	0.058	0.053	0.057	0.059	0.028	0.038

Table 7: Do changing firm characteristics explain disappearing stock dividends?

This table presents both the actual and the expected percent of stock dividend payers over different time periods. The actual annual percent of payers is calculated as the ratio of the number of stock dividend payers in year t to the total number of firms at the end of year t . Payers announce stock dividend distributions in the fiscal year, while non-payers do not. “Never paid” refers to the group of firms that never announced stock dividends before the year. “Former stock dividend payers” refers to the group of firms that announced stock dividends before the year but not in the year. For each group of firms—all firms, payers, former payers, and never paid—we also predict the probability that the firm pays stock dividends in each year after 1972 using coefficient estimates of the model in Table 4 over the period from 1963-1972. Panels A-D report the average annual (actual and expected) percent of stock dividend payers over different time periods, weighted by the number of all firms, the number dividend payers, the number of former payers, and the number of never paid, respectively. Our sample includes industrial firms covered in the Compustat database from 1963-2012. See Appendix B for data requirements for the Compustat sample.

	1963-1972	1973-1982	1983-1992	1993-2002	2003-2012
Panel A: All firms					
Actual percent	11.16	8.01	2.85	1.22	0.38
Expected percent		13.04	10.61	9.73	9.66
Expected - Actual		5.03	7.76	8.51	9.28
Panel B: Stock dividend payers in year $t-1$					
Actual percent	59.07	54.89	50.58	46.59	42.52
Expected percent		59.07	62.00	57.29	56.46
Expected - Actual		4.18	11.42	10.70	13.94
Panel C: Former stock dividend payers as of year $t-1$					
Actual percent	7.51	5.38	2.49	1.63	0.46
Expected percent		8.47	7.21	6.98	6.80
Expected - Actual		3.09	4.72	5.35	6.34
Panel D: Never paid stock dividends as of year $t-1$					
Actual percent	5.35	3.34	0.95	0.51	0.16
Expected percent		5.35	7.22	5.63	5.08
Expected - Actual		2.01	6.27	5.12	4.92

Table 8: Effects of institutional ownership and cash dividends on stock dividend decisions

This table presents the OLS regression results where the dependent variable is the percent of stock dividend payers during the period 1954-2012. The explanatory variables are the per year percent of cash dividend payers and the aggregate institutional ownership of corporate equities. Institutional ownership is the percent of corporate equities owned by insurance companies, private pension funds, state and local government retirement funds, federal government retirement funds, mutual funds, and brokers and dealers. The percent of cash dividend payers and the percent of dividend payers are calculated for industrial firms in the CRSP database. Stocks with missing stock price or missing number of shares outstanding in December of year t are excluded from the year t sample. The aggregate institutional ownership of U.S. firms are retrieved from reports of the Board of Governors of the Federal Reserve System. All model specifications employ robust standard errors. The associated t -statistics are reported in the parentheses below each coefficient. Superscripts ***, **, and * correspond to statistical significance at the one, five, and ten percent levels, respectively.

	(1)	(2)	(3)
	1954 - 2012		
Dependent variable	Percent of stock dividend payers		
Institutional equity ownership	-0.38*** (-26.48)		-0.20*** (-3.94)
Percent of cash dividend payers		0.22*** (26.22)	0.11*** (3.77)
Constant	17.13*** (36.78)	-4.84*** (-10.66)	6.39** (2.22)
Observations	59	59	59
R-squared	0.925	0.923	0.940

Table 9: Explaining stock dividend decisions: Roles of institutional ownership and cash dividend decision

This table presents Logit regression estimates, where the dependent variable is the dummy variable that takes the value of one if the firm pays stock dividends in the fiscal year, and zero otherwise. “Never paid” refers to the group of firms that never announced stock dividends before the year. “Former stock dividend payers” refers to the group of firms that announced stock dividends before the year but not in the year. *NYP* is the percentile ranking of the firm’s total assets at the end of year *t* among all firms listed on the NYSE. *Returns_{t-1}* is the cumulative stock returns during the fiscal year *t-1*. Paying cash dividend is a dummy variable that takes the value of one if the firm pays cash dividends in the year, and zero otherwise. Institutional ownership is retrieved from the Thomson Reuters Institutional Holdings database. See Appendix A for details of variable descriptions. Our sample includes industrial firms covered in the Compustat database from 1980-2012. See Appendix B for data requirements for the Compustat sample. All model specifications employ robust standard errors clustered by both firm and year. The associated *t*-statistics are reported in the parentheses below each coefficient. Superscripts ***, **, and * correspond to statistical significance at the one, five, and ten percent levels, respectively.

Panel A: All firms and stock dividend payers in year *t-1*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Time period	1963-2012	1963-1972	1973-1982	1983-1992	1993-2002	2003-2012	1963-2012	1963-1972	1973-1982	1983-1992	1993-2002	2003-2012
Sample	All firms						Stock dividend payers in year <i>t-1</i>					
Dependent var.	Paying stock dividends in year <i>t</i>						Paying stock dividends in year <i>t</i>					
NYP	-0.66** (-2.29)	-0.79*** (-2.67)	-1.57*** (-3.85)	-1.16** (-2.33)	-0.90* (-1.68)	-0.20 (-0.22)	1.00** (2.55)	0.60 (1.46)	1.38** (2.41)	1.47** (2.19)	1.15 (1.49)	3.05** (2.06)
Tobin’s Q	-0.16*** (-3.50)	-0.23*** (-2.88)	-0.26*** (-3.87)	-0.10 (-1.24)	-0.02 (-0.36)	0.10 (1.22)	-0.44*** (-4.58)	-0.63*** (-4.32)	-0.39** (-2.47)	-0.43*** (-2.83)	-0.24 (-1.25)	-0.44 (-1.54)
Asset growth	0.52*** (4.13)	0.17 (1.20)	0.96*** (3.78)	0.31** (2.19)	0.44 (1.42)	0.13 (0.28)	0.24 (0.97)	-0.17 (-1.57)	0.82 (1.47)	0.18 (0.28)	0.82 (1.02)	0.28 (0.49)
ROA	4.28*** (10.08)	5.19*** (9.95)	3.54*** (4.18)	3.78*** (5.42)	3.71*** (4.45)	1.61* (1.90)	1.79*** (3.38)	1.91** (2.11)	1.14 (0.93)	2.58* (1.77)	3.80*** (3.20)	0.10 (0.05)
Book leverage	0.85*** (3.70)	1.09*** (3.63)	1.09*** (3.75)	0.74* (1.90)	-0.01 (-0.02)	0.25 (0.19)	-0.37 (-0.92)	-0.35 (-0.66)	-0.47 (-0.79)	0.06 (0.07)	-0.30 (-0.32)	-0.74 (-0.37)
Returns _{<i>t-1</i>}	0.12*** (3.10)	0.15*** (2.61)	0.10 (1.07)	0.07 (0.94)	-0.01 (-0.08)	0.17 (1.43)	0.11 (1.19)	0.23 (1.39)	0.13 (0.98)	-0.07 (-0.42)	-0.05 (-0.47)	-0.19 (-0.80)
Paying cash dividend	1.03*** (8.90)	0.46*** (3.83)	1.02*** (6.26)	0.91*** (4.17)	0.91*** (5.71)	1.34*** (3.02)	-0.00 (-0.03)	0.03 (0.17)	0.30 (1.36)	-0.35 (-1.52)	-0.44 (-0.88)	-0.08 (-0.10)
Institutional ownership	-3.32*** (-10.58)	-2.99*** (-6.99)	-1.51*** (-4.00)	-1.93*** (-4.36)	-1.79*** (-5.17)	-3.11*** (-7.20)	-1.53*** (-4.75)	-1.61*** (-3.41)	-1.38*** (-2.83)	-1.95*** (-2.73)	-1.61*** (-3.24)	-3.75* (-1.91)
Constant	-3.67*** (-20.24)	-2.95*** (-15.16)	-3.81*** (-15.39)	-3.95*** (-12.61)	-4.31*** (-18.23)	-5.07*** (-6.75)	0.83*** (3.25)	1.07*** (3.24)	0.59 (1.22)	1.06* (1.75)	0.09 (0.20)	1.74 (1.30)
Observations	111,793	16,726	19,762	25,294	23,770	26,241	2,299	1,052	544	392	210	101
Pseudo R2	0.1071	0.0613	0.0566	0.0532	0.0568	0.0861	0.0401	0.0398	0.0363	0.0568	0.0541	0.104

Panel B: Former payers as of year $t-1$ and firms that never paid stock dividends as of year $t-1$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Time period	1963-2012	1963-1972	1973-1982	1983-1992	1993-2002	2003-2012	1963-2012	1963-1972	1973-1982	1983-1992	1993-2002	2003-2012
Sample	Former stock dividend payers as of year $t-1$						Never paid stock dividends as of year $t-1$					
Dependent var.	Paying stock dividends in year t						Paying stock dividends in year t					
NYP	-1.35*** (-4.61)	-1.11*** (-3.37)	-1.80*** (-4.41)	-3.71*** (-5.23)	-0.61 (-0.81)	-1.22 (-1.01)	-1.35*** (-4.51)	-1.74** (-2.56)	-2.70*** (-6.25)	-1.49*** (-5.33)	-1.43* (-1.65)	-0.48 (-0.60)
Tobin's Q	0.08 (1.57)	0.07 (1.43)	0.05 (0.53)	0.06 (0.57)	0.07 (1.11)	0.35 (1.49)	0.01 (0.36)	-0.11 (-1.05)	-0.24* (-1.73)	0.12*** (3.05)	0.09* (1.82)	0.23*** (3.03)
Asset growth	0.73* (1.78)	-0.46 (-0.99)	1.47*** (3.52)	1.64** (2.16)	2.08** (2.21)	-1.08 (-0.81)	1.02*** (3.52)	1.04 (1.49)	1.89*** (3.28)	0.56 (1.13)	0.04 (0.10)	-0.26 (-0.21)
ROA	5.23*** (5.23)	7.34*** (3.92)	3.69* (1.96)	6.29*** (3.56)	3.66* (1.83)	1.27 (0.64)	3.72*** (5.43)	6.75*** (6.98)	4.02* (1.74)	2.58*** (2.83)	2.90*** (2.94)	1.52 (1.08)
Book leverage	1.41*** (3.88)	2.13*** (3.09)	1.95*** (5.43)	0.90 (0.77)	-0.37 (-0.43)	-1.07 (-0.73)	0.73*** (3.87)	0.81** (2.27)	0.80* (1.87)	0.93** (2.08)	0.27 (0.61)	0.93 (0.80)
Returns $_{t-1}$	0.11 (1.39)	0.20** (2.46)	0.06 (0.33)	0.20 (0.87)	-0.54*** (-2.82)	0.11 (0.19)	0.19*** (3.15)	0.14 (1.21)	0.27*** (4.27)	0.09 (0.58)	0.14 (1.34)	0.53*** (2.85)
Paying cash dividend	0.73*** (5.36)	0.53** (2.28)	1.06*** (5.68)	0.41 (1.38)	0.58** (2.52)	1.65* (1.80)	0.94*** (7.19)	0.24 (1.33)	0.66*** (2.96)	1.22*** (6.99)	0.95*** (4.60)	1.44*** (3.58)
Institutional ownership	-2.96*** (-7.88)	-2.71*** (-4.27)	-2.87*** (-4.06)	-0.55 (-0.89)	-2.85*** (-3.30)	-1.77* (-1.77)	-2.59*** (-7.06)	-2.15*** (-2.80)	-0.95 (-1.51)	-1.75*** (-2.83)	-0.94* (-1.78)	-2.57*** (-4.00)
Constant	-4.29*** (-18.93)	-4.45*** (-10.06)	-4.57*** (-14.70)	-4.46*** (-6.77)	-3.63*** (-9.43)	-5.51*** (-4.78)	-5.00*** (-29.32)	-4.18*** (-20.95)	-4.81*** (-13.63)	-5.43*** (-25.05)	-5.53*** (-35.75)	-6.95*** (-16.99)
Observations	19,935	4,894	4,591	4,042	3,121	3,287	85,940	10,289	14,001	19,673	19,833	22,144
Pseudo R2	0.0922	0.0725	0.0853	0.1024	0.0812	0.1065	0.0824	0.0674	0.0642	0.0508	0.0421	0.0896