

The Effects of the 2003 Dividend Tax Cut on Corporate Behavior: Interpreting the Evidence

By Raj Chetty and Emmanuel Saez*

The 2003 dividend tax reform has generated renewed interest in understanding the economic effects of dividend taxation. The reform introduced favored tax treatment of individual dividend income, whereby dividends are taxed at a rate of 15 percent instead of facing the regular progressive individual income tax schedule with a top rate of 35 percent. Several recent studies have used the 2003 tax cut as a “natural experiment” to learn about the effects of dividend taxation on corporate behavior. These studies have obtained divergent empirical results despite using the same underlying data.

The goal of this paper is to re-examine the evidence using newly available data and reconcile some of the contradictory results in this recent literature. We focus on three questions: (1) Did the tax cut cause the surge in dividends or were other factors responsible? (2) Did the tax cut induce substitution of repurchases for dividends, or did total payout rise? (3) Did the tax cut induce more efficient distribution of investment funds across firms?

1 Data and Basic Analysis of Dividend Payouts

In this section, we extend the series reported in our earlier study (Raj Chetty and Emmanuel Saez, 2005) to include newly available data through 2005Q2. We use data from the Center for Research in Security Prices (CRSP) for dividend variables, supplemented with COMPUSTAT data for other variables such as share repurchases.¹ We focus on the sample of all CRSP firms excluding foreign firms, financial firms, and utility firms. We call this sample the “core” sample, which contains on average 5,000 firms in each quarter.

*University of California, Department of Economics, 549 Evans Hall #3880, Berkeley, CA 94720. We thank Alan Auerbach, Martin Feldstein, John Friedman, Gustavo Grullon, Joel Slemrod, and conference participants for very helpful comments and discussions. Joseph Rosenberg and James Sly provided outstanding research assistance. Financial support from NSF grants SES-0134946 and SES-0452605 is gratefully acknowledged.

¹CRSP contains financial data on all companies listed on the NYSE, AMEX, and NASDAQ, the main stock exchanges in the United States.

We classify dividends into regular dividends and special dividends. Regular dividends are periodic and recurrent (in general quarterly), and tend to be very smooth. Special dividends are one-time, non-recurring events.

Three events are particularly relevant for our analysis. First, the reform was initially proposed on January 7, 2003. Second, the tax cut was officially signed into law on May 28, 2003, and was made retroactive to the beginning of 2003 and set to expire at the end of 2008. Finally, after the re-election of President Bush in November 2004, it became almost certain that the reform would indeed last at least until 2008. These three key dates are shown on the graphs below using vertical lines.

Figure 1 plots aggregate regular dividends for the core sample at a quarterly frequency between 1981-Q3 and 2005-Q2 in real 2004 dollars. Total regular dividends stagnated around \$25 billion from 1998 to 2002 and then rose to about \$33 billion by 2005. A large fraction of the increase took place in the last two quarters of 2003 after the tax cut was signed into law in late May, 2003. Dividends surged again by approximately \$2 billion in the first 2 quarters of 2005, just after Bush was re-elected. Hence, the dividend tax cut appears to have induced a fairly long-term shift in policy as opposed to a one-time surge in distributions. If the post-2003 increases are due to the tax cut, the reform appears to have raised aggregate regular dividends by roughly 30 percent relative to the level in 2002-Q4. However, these increases may not be due entirely to the tax cut because dividends also increase gradually over time (though never as fast) in earlier periods. Figure 1 also plots the total amount of special dividends, which also increased substantially after the 2003 tax cut. The spike in 2004-Q4 is due entirely to a \$32 billion special payment by Microsoft.

It is difficult to make precise inferences about the effect of the dividend tax cut on aggregate amounts because of entry and exit effects and the concentration of the dividend payments distribution. Clearer evidence comes from the time series of regular dividend initiations and terminations, which are unaffected by these econometric issues. Figure 2 shows that initiations surged after the law was enacted. The number of initiations in the three quarters immediately following enactment (2003-Q3, 2003-Q4, and 2004-Q1) are the three highest among the 80 quarters we consider. The spike in initiations dies down rapidly after the tax cut until the Bush election.

2 Disappearing Dividends and the Causality of the Tax Cut

In an influential study, Eugene Fama and Kenneth French (2001) observed that the fraction of publicly traded firms paying dividends has declined steadily from 1980 to 2000, a trend they term “disappearing dividends.” Brandon Julio and David Ikenberry (2004) extend the Fama and French analysis and document “reappearing dividends” starting in late 2000 in the core CRSP sample. This result is reproduced in the dashed line in Figure 3. Because the trend reversal began before the reform, Julio and Ikenberry conclude that the 2003 tax cut could not be fully responsible for the recent increase in dividend payments,

The discrepancy between this result and our earlier findings on the timing of the dividend policy changes arises from changes in sample size and composition in the Julio and Ikenberry analysis. To see this, suppose we restrict attention to a constant-size sample of firms that includes the top 3,785 firms (ranked by market capitalization) in each quarter.² The solid line in Figure 3 shows that the trend of “disappearing dividends” stops precisely in the last quarter of 2002 in this constant size sample, at which point the fraction of payers begins to rise.

The results in the constant size and core samples differ because of large variations in the size and composition of the core sample over time. To clarify this, Figure 4 displays the time series of the number of firms and number of regular dividend payers in the core sample. The *number* of dividend payers starts to increase (after a secular decline) only in 2003-Q1, exactly when the tax reform takes place, and accelerates after enactment. However, during the dot-com bust, the number of firms in the core CRSP sample falls precipitously starting from 5,429 in 2000-Q3 down to 3,785 in 2005-Q2. Only 2% of the 2,000 firms which exit the core CRSP sample from 2000-Q4 to 2005-Q2 are dividend payers. This is because most of the firms that exited the sample during this period are young high-tech firms who never paid dividends. Thus, what drives the pre-2003 reversal in the fraction of payers in the core sample is a fall in the denominator (total number of firms) and not an increase in the numerator (number of payers).

Julio and Ikenberry (2004) also document “reappearing dividends” prior to 2003 in a constant-size sample of the top 1000 firms by market capitalization. This result is also due

²The CRSP data contain at least 3,785 firms in every quarter from 1981 to 2005Q2.

to sample composition effects: a large set of non dividend paying technology firms dropped out of the top 1000 sample in the early 2000s as their market values fell during the dot-com bust, mechanically raising the number of dividend payers in the top 1000 during this period. Controlling for such entry and exit effects (Chetty and Saez, 2005) shows that the increase in dividends starts precisely at the time of the reform once these effects are netted out in any of the samples (core sample, top 3785, or top 1000). Therefore, the pre-reform “reappearing dividends” results of Julio and Ikenberry are due to composition effects, while the post-reform dividend increases are due to active behavioral changes in corporate payout policy.

Two other pieces of evidence (described in Chetty and Saez, 2005) also suggest that the tax reform played a significant role in the recent increase in dividend payouts. First, controlling for observables such as profits, forecasted earnings, industry composition does not affect the results. Second, there is no change in dividend initiations for a “control group” of firms whose primary shareholders are large non-taxable institutions unaffected by the tax cut. However, the magnitude of the response to the tax cut may have been accentuated by other factors such as distrust arising from the corporate scandals that occurred in the early 2000s.

3 Substitution with Share Repurchases

The efficiency effects of the dividend tax cut depend heavily on whether corporations increased total payout or simply substituted dividends for share repurchases. The most direct and credible way to shed light on the issue of dividend-repurchases substitution is to examine the effect of the tax cut on total payout (dividends plus repurchases). Figure 5 plots the time series of aggregate share repurchases alongside aggregate dividends. Share repurchases have increased sharply since the tax cut, consistent with no substitution. However, in light of the high volatility in aggregate share repurchases over time, it is clearly possible that repurchases could have increased even more absent the tax change. The lack of a stable counterfactual for repurchases makes it impossible to draw any reliable conclusions about the effect of the reform on total payout in the aggregate sample. Controlling for observable variables, removing the largest share repurchasers, or examining other moments of the distribution does not smooth the time series of share repurchases, and hence does generate sharper conclusions (see Chetty and Saez, 2005).

Jeffrey Brown, Nellie Liang and Scott Weisbenner (2004) attempt to circumvent this basic identification problem using alternative methods. They first observe that only 66% of post-reform dividend initiators raised total payout in the year they initiated dividends. Second, they find that firms increasing dividends after the reform (in 2003) were less likely to raise total payout and more likely to have repurchased shares prior to increasing dividends than pre-reform dividend increasers (average from 1993-2002). Brown et al. argue that these results “indicate clearly that, for many firms, the increase in dividends came at the expense of repurchases.”

There are three concerns with this analysis. First, the presumption that “if no substitution had occurred, 100 percent of the firms that initiated dividends would have increased total payouts” is not necessarily correct. For example, suppose that repurchases are used only to pay for exercised stock options and are unrelated to dividend policy. In this case, there is no substitution between dividends and repurchases. However, a fraction of dividend initiating firms might simultaneously experience sufficient reductions in repurchase levels that total payout would happen to fall. Thus, the finding that only 66% of post-reform initiators raised total payout is uninformative about the substitution issue.

Second, Brown et al.’s comparisons of post-reform dividend increasers with pre-reform increasers are also problematic. Consider a setting where dividend and total payout behavior are determined by two variables: a firm’s taste to pay out its earnings (θ) and the dividend tax rate (τ). Firms who initiated dividends pre-reform presumably did so because they experienced an increase in θ ; firms who initiated post-reform did so because τ fell. Given that firms who experience a rise in θ presumably have a greater taste to raise repurchases as well, they are inherently more likely to raise total payout than post-reform initiators, even with zero repurchase substitution. Put differently, the relevant counterfactual here is how total payout by post-reform initiators would have changed had the tax reform not occurred. Brown et al. (2004) proxy for this counterfactual using the behavior of pre-reform initiators. This proxy is problematic because pre-reform initiators are an endogenously selected set of firms who are quite different because they chose to change their dividend policy without a tax cut incentive.

Finally, even ignoring the endogenous sample selection concern, the Brown et al. (2004) analysis may be biased by sharp trends in repurchasing behavior over the period they examine (1993-2003). One of their key findings is that 68 percent of initiators in 2003 (post reform)

repurchased shares in the year prior to initiation, whereas only 38 percent of initiators between 1993-2002 repurchased shares in the year prior to initiation. This appears to suggest that post-reform initiators were more likely to replace repurchases with dividends. In Figure 6, we examine the data underlying this comparison of means more closely by plotting the time series of the fraction of firms who repurchased shares from 1993-2004. While the mean level of prior-year repurchases is indeed higher post-reform than pre-reform, there is a strong upward time trend in this measure as share repurchases became more prevalent across all firms in the 1990s. Controlling for this time trend, post-reform initiators appear to be, if anything, *less* likely to have repurchased shares in the prior year.³

In view of these issues, we conclude that existing data and methods are inadequate to answer the substitution question. Additional work on understanding the determinants of aggregate repurchases – in particular the surge from 2003 to 2005 – is required to make precise statements about the effect of the tax cut on total payout.

4 Evidence on Allocation Efficiency

While it is difficult to make inferences about changes in total payout, it is possible to shed some light on the effect of the tax cut on allocation efficiency (the efficiency of distribution of investment funds across firms) by examining the cross-sectional heterogeneity in the dividend response. To do so, we divide firms into quintiles of forecasted earnings growth.⁴ Figure 7 shows the frequency of regular dividend initiations in these five groups before the reform (1998-Q1 to 2002-Q4) and after (2003-Q1 to 2004-Q2) the tax reform. The non-linear pattern is consistent with the hypothesis that firms that have less need for cash responded more to the tax cut by distributing their cash holdings. The firms in quintile 1 are in distress, as their earnings are expected to fall sharply, and respond less on average than those in quintile 2, who have more moderate earnings forecasts. Firms with the best growth prospects (quintile 5) responded very little to the tax cut.

These results suggest that the dividend tax cut made the capital market reshuffle funds

³Brown et. al.'s cross-sectional evidence on the effect of executive shareownership on total payout is also inconclusive because of large standard errors. In particular, the possibility that total payouts rose more than dividends in firms with high executive shareownership cannot be ruled out.

⁴We use I/B/E/S data on analysts' earnings forecasts. We define earnings growth as the average forecasted change in total earnings over two years divided by current assets. See Chetty and Saez (2004) for details.

out of lower growth firms. Several studies in the corporate finance literature have argued that free cash flow within such firms is not always put toward value-maximizing ventures because of principal-agent problems. Since the reduction in dividend taxes reduced executives' incentives to hoard earnings, the funds released from these lower-growth firms might have been redirected through the external capital market toward other ventures with greater expected value.

The importance of principal-agent issues in understanding the effects of taxation on corporate behavior is further underscored by evidence that the dividend response was concentrated among firms where the key players (top executives and other large taxable shareholders) were affected by the reform (Chetty and Saez, 2005; Brown et al., 2005). Motivated by this evidence, in ongoing work (Chetty and Saez, 2006), we develop a model where executives determine payout policy and have objectives beyond pure profit maximization. We show that dividend taxes affect payout behavior and efficiency in this environment even if the marginal source of funds is retained earnings (as in “new view” models of dividend payments). The analysis of such models of corporate behavior, which depart from neoclassical profit maximization, may shed further light on the efficiency costs of corporate taxation.

References

Brown, Jeffrey; Liang, Nellie and Weisbenner, Scott. “Executive Financial Incentives and Payout Policy: Firm Responses to the 2003 Dividend Tax Cut.” National Bureau of Economic Research (Cambridge, MA) Working Paper No. 11002, December 2004.

Chetty, Raj and Saez, Emmanuel. “Dividend Taxes and Corporate Behavior: Evidence from the 2003 Dividend Tax Cut.” National Bureau of Economic Research (Cambridge, MA) Working Paper No. 10841, October 2004.

Chetty, Raj and Saez, Emmanuel. “Dividend Taxes and Corporate Behavior: Evidence from the 2003 Dividend Tax Cut.” *Quarterly Journal of Economics*, August 2005, *120*(3), pp. 791-833.

Chetty, Raj and Saez, Emmanuel. “An Agency Theory of Dividend Taxation.” Mimeo, University of California Berkeley, 2006.

Fama, Eugene and French, Kenneth. “Disappearing Dividends: Changing Firm Characteristics or Lower Propensity to Pay?” *Journal of Financial Economics*, April 2001, *60*(1), pp. 3-43.

Julio, Brandon and Ikenberry, David. “Reappearing Dividends.” *Journal of Applied Corporate Finance*, September 2004, *16*(4), pp. 89-100.

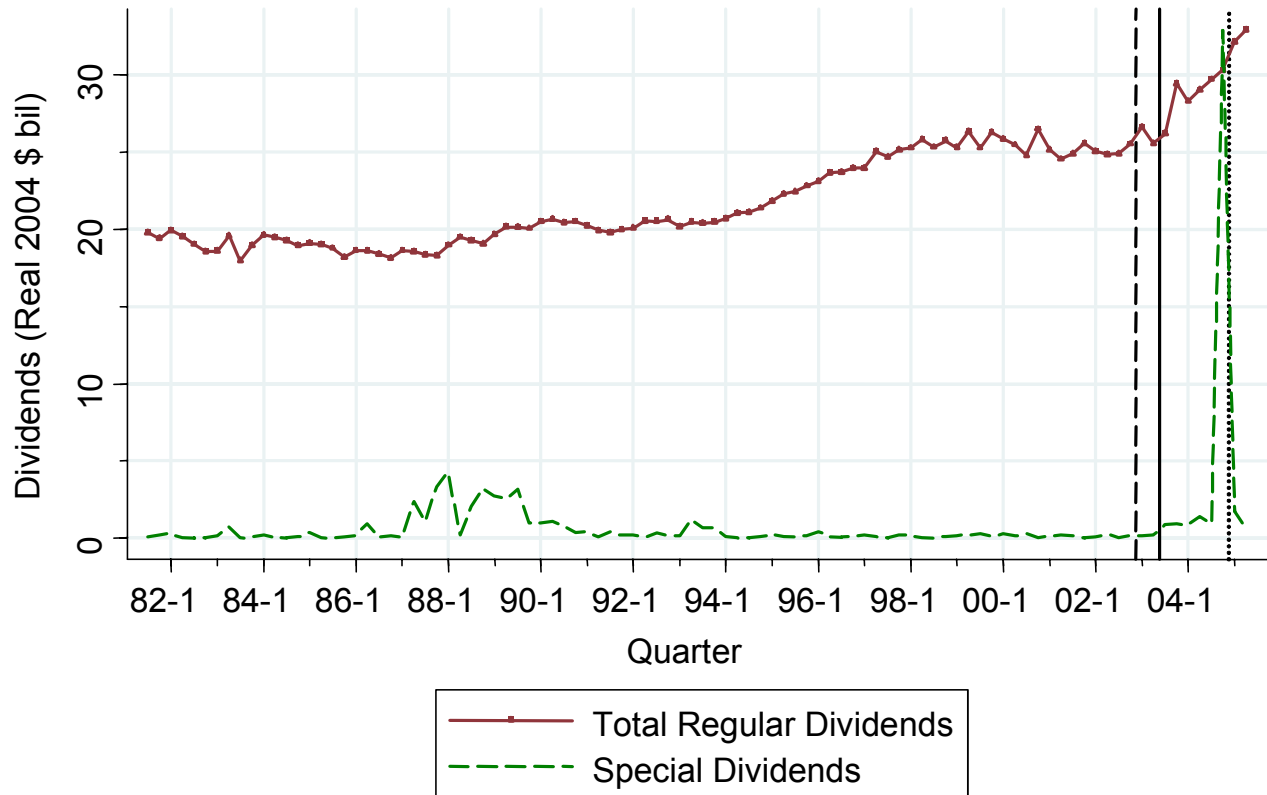


Figure 1. Total Regular and Special Dividends

Notes: This figure shows total regular (monthly, quarterly, semi-annual, annual) dividend payments and total special dividend payments. The sample consists of all firm-quarters in the CRSP database which are non financial, non utility, and non foreign in their last quarter (the “core” sample). The dashed vertical line denotes the retrospective start date for the dividend tax cut (January 1st, 2003). The solid vertical line denotes enactment date (end of May 2003). The dotted line denotes the Bush reelection date (November 2004).

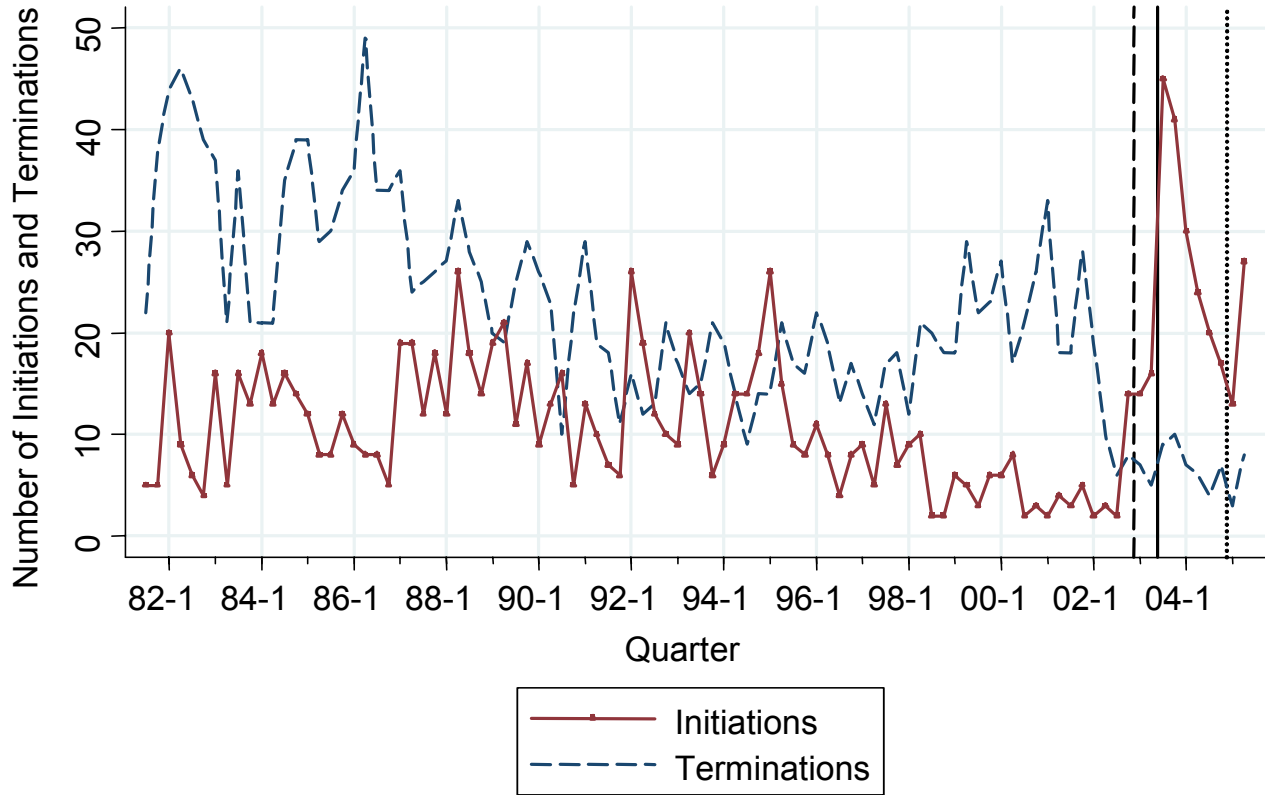


Figure 2. Dividend Initiation and Termination

Notes: Initiation is defined as starting to pay regular dividends after having been in the sample and not paying regular dividends for at least four quarters. Termination is defined as stopping to pay regular dividend payments for at least four quarters.

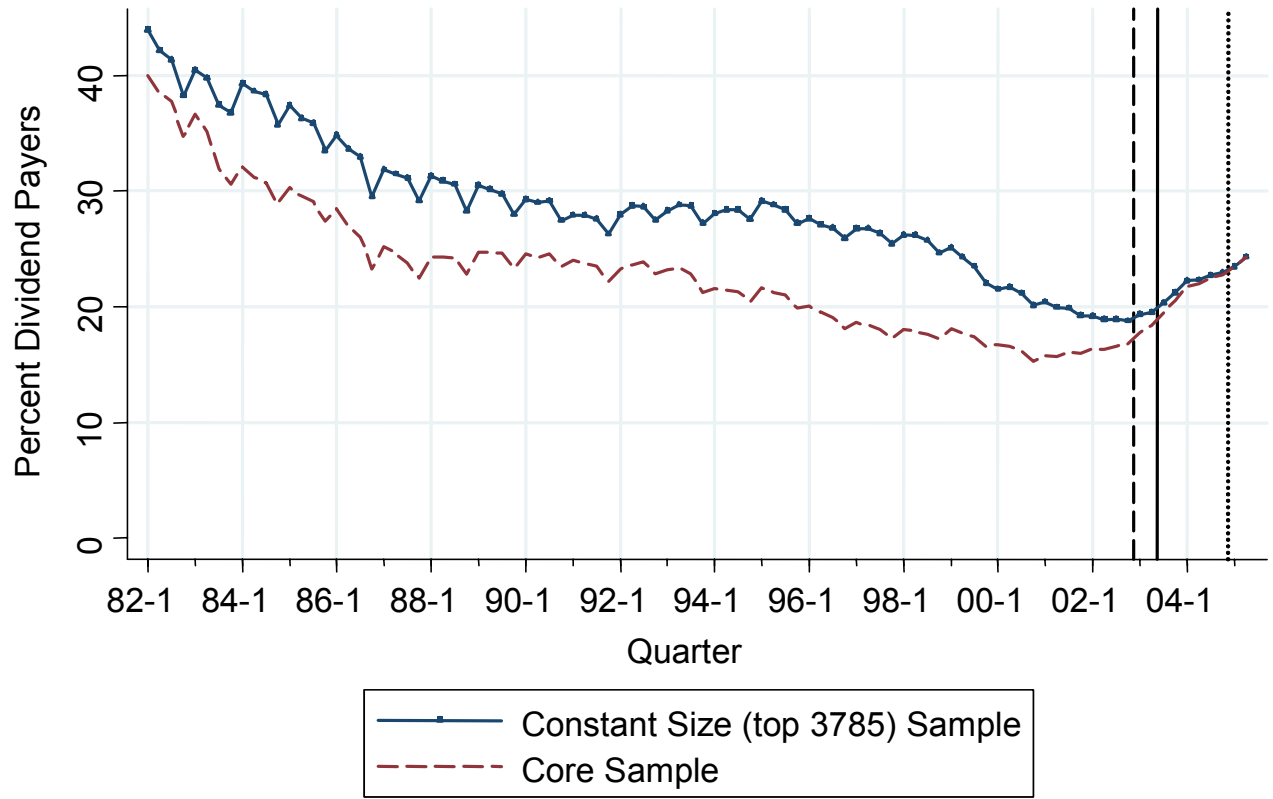


Figure 3. Fraction Paying Regular Dividends in Core and Constant-Size Samples

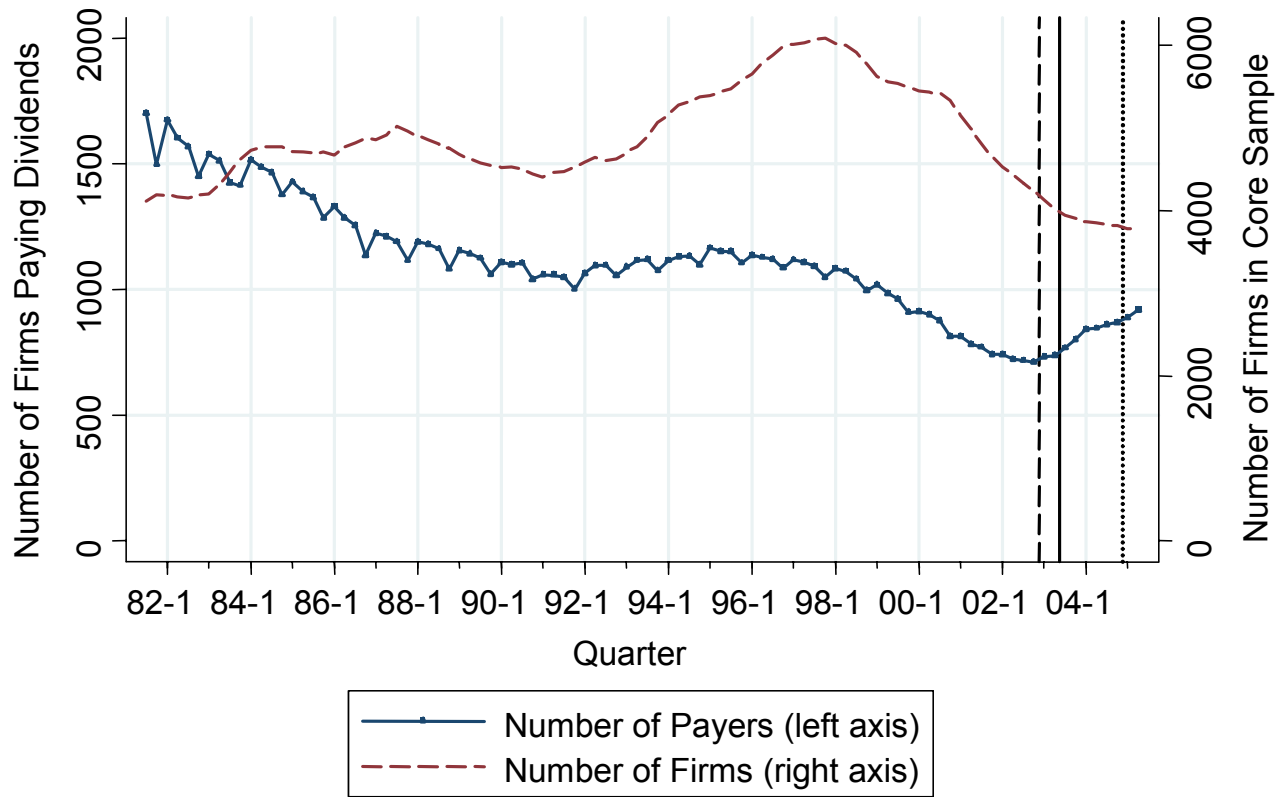


Figure 4. Number of Firms and Number of Regular Dividend Payers in Core Sample

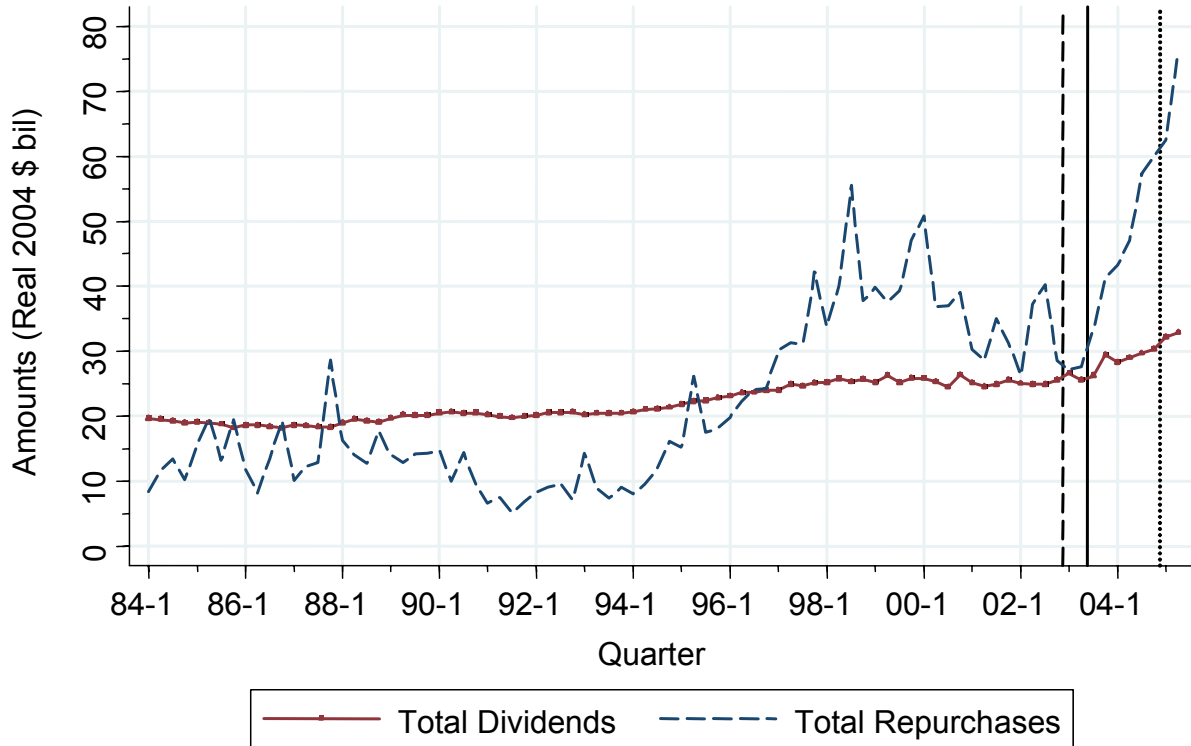


Figure 5. Aggregate Dividend and Share Repurchase Amounts

Notes: Sample for dividends is defined as in Figure 1. For share repurchases, the sample is limited to those firms that appear in the quarterly compustat database with non-missing share repurchase information (item data93L).

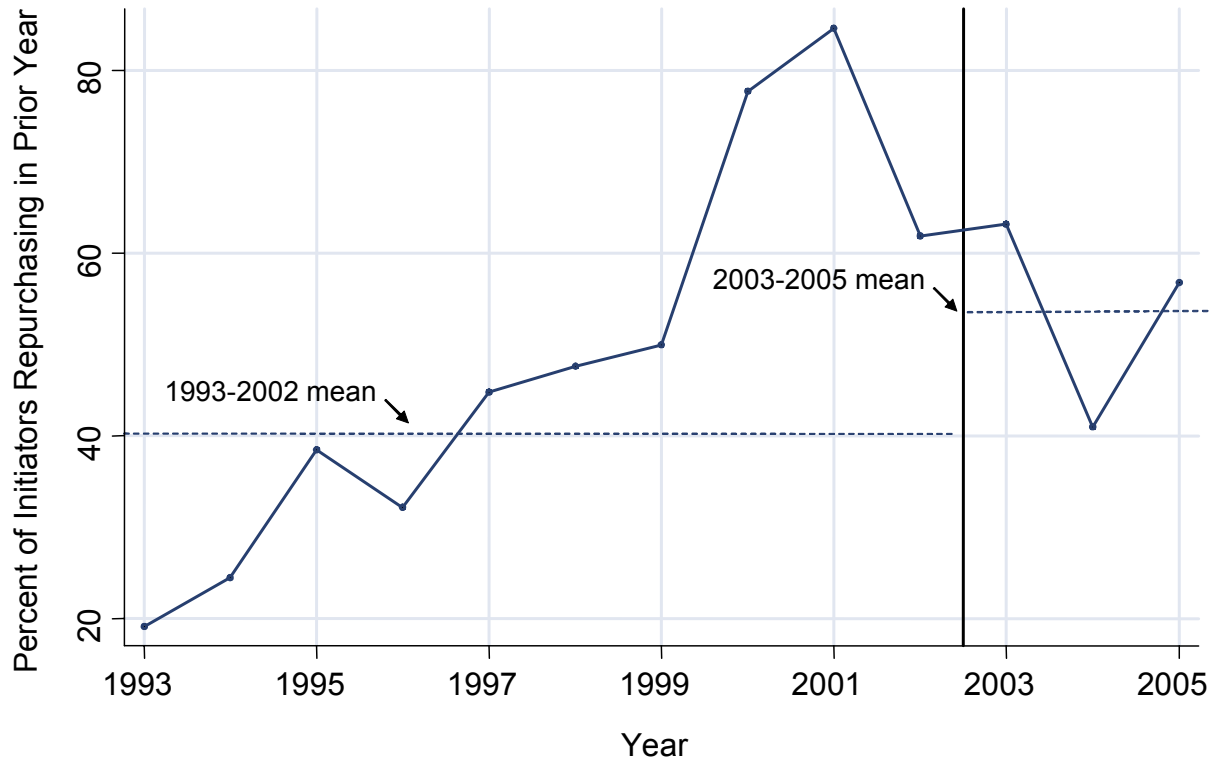


Figure 6. Prior-Year Share Repurchases among Dividend Initiators

Notes: This figure plots the fraction of firms who repurchased shares in the previous year among firms initiating dividends in the current year. The sample includes all firms in the core sample with share repurchase information available from COMPUSTAT.

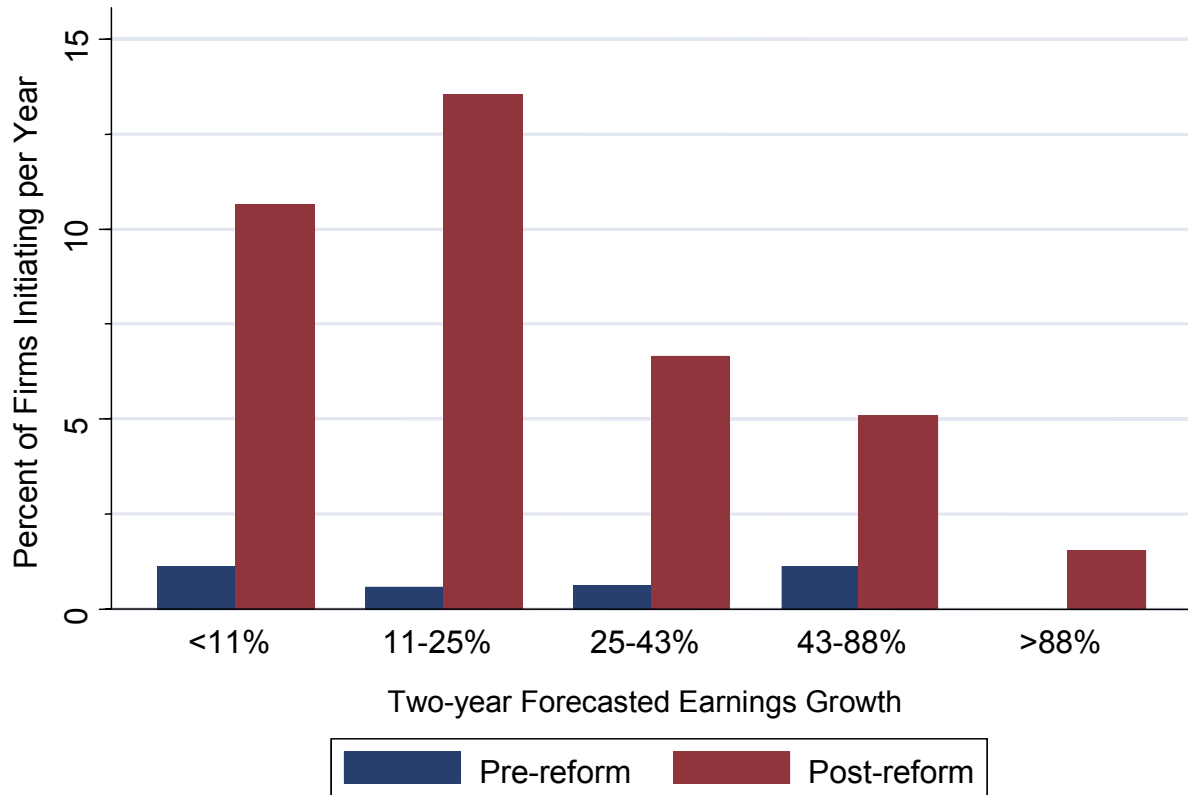


Figure 7. Effect of Tax Cut on Initiations: Breakdown by Expected Earnings Growth

Notes: This figure depicts the percentage of firms initiating dividends at an annualized rate pre-reform (from 1998-Q1 to 2002-Q4) and post-reform (from 2003-Q1 to 2004-Q2) by quintiles of two-year expected earnings growth. The horizontal axis shows, for each quintile, the percentage range of earnings growth forecast. See Figure 16 in Chetty and Saez (2004) for details.