Four Facts about Dividend Payouts and the 2003 Tax Cut

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Forthcoming in *International Tax and Public Finance*

July 2012

Abstract

Recent literature has claimed that the 2003 U.S. dividend tax cut caused a large increase in aggregate dividend payouts. I document four simple facts that call this claim into question. First, the post-tax cut increase in dividend payouts coincided with a surge in corporate profits, such that the dividend payout ratio did not rise. Second, share repurchases increased even more rapidly than dividend payouts. Third, dividend payouts by Real Estate Investment Trusts also rose sharply, even though they did not qualify for reduced taxation. Finally, the stock market was forecasting an increase in dividend initiations by mid-2002, before the tax cut had been proposed.

JEL Codes: H24, G35.
Keywords: Taxes, payout policy, dividends, share repurchases.

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1 Introduction

Several recent papers, notably Chetty and Saez [2005], Brown, Liang, and Weisbenner [2007], and Blouin, Raedy, and Shackelford [2011] have documented important increases in dividend payouts and initiations following cuts in dividend tax rates in the United States in 2003. Most prominently, Chetty and Saez [2005] document that aggregate regular dividend payouts rose by 20% within 1.5 years of the reform, and they argue that the tax cut caused this increase.[1] This effect is far larger than would have been predicted by prior estimates in the literature (for example, in Poterba [2004]). It is also surprising given the relatively minor role attributed to tax considerations by corporate financial executives in surveys on the determinants of payout behavior (Brav, Graham, Harvey, and Michaely [2005], Brav, Graham, Harvey, and Michaely [2008]).

Such a large effect of the tax cut on dividend payouts implies that dividend tax rate increases would raise far less revenue than they would if payouts did not respond to the tax rate. It would also imply that dividend taxation imposes large welfare costs under certain prominent "views" of the effects of dividend taxation.[2] For example, Chetty and Saez [2010] argue that their earlier estimates imply that the efficiency cost of raising the dividend tax rate from its current level would be extremely large—of the same order of magnitude as the amount of revenue raised. Such an increase in dividend taxes was included in the health care legislation signed by President Obama in March 2010, and even larger increases will occur

[1] Chetty and Saez [2005], p. 793, write, "Aggregating the changes in amounts along the extensive and intensive margins, we estimate that the tax cut raised total regular dividend payments by about $5 billion per quarter (20 percent), a change that is statistically significant at the 1 percent level. This implies an elasticity of regular dividend payments with respect to the marginal tax rate on dividend income of -0.5. All of these results are robust to controlling for a variety of potential confounding factors such as levels and lags of profits, assets, cash holdings, industry, and firm age." A survey of related papers is provided in Dharmapala [2009], and the discussion of this survey by Shackelford is also useful in that it provides some reasons to be skeptical of the cited papers. Some other related papers include Julio and Ikenberry [2004], Nam, Wang, and Zhang [2004], Aboody and Kasznik [2008], and Hsieh and Wang [2008]. All of these claim to find some impact of the tax cut on payouts, though Julio and Ikenberry [2004] note that payouts were also already increasing prior to the tax cut.

[2] The working paper version of this paper (available online at http://www.federalreserve.gov/pubs/feds/2010/201034/201034abs.html) reviews relevant prior literature on the "old," "new," and "agency" views of dividend taxation.

in 2013 if the 2003 tax cuts expire as now scheduled under current law. Estimates of the effects of the 2003 legislation thus remain quite relevant for current policy debates.

There are at least two reasons to believe that previous authors' estimates of responses to the tax cut might have been confounded by events contemporaneous with the tax cut. The first is that the recovery of the U.S. economy from the 2001 recession began in earnest in early 2003, just as the tax cut legislation was debated and passed. The second is that a series of accounting scandals at firms like Enron and Worldcom played out from 2001 through 2003, on the heels of the collapse of the internet boom. It may be that investors developed a stronger taste for cash payouts as stock valuations based on less tangible factors evaporated.

This paper provides new evidence on the response of dividend payouts to the 2003 legislation by documenting four simple facts about payouts in the years surrounding the tax cut. Of course, one can never know for certain what would have happened in the counterfactual scenario where the tax cut did not occur. The facts documented here, however, suggest quite strongly that aggregate dividend payouts would have risen substantially even in the absence of the tax cut.

First, I document a large increase in corporate earnings whose beginning coincided with the tax cut. In fact, there was no increase in the ratio of dividend payouts to earnings after the cut. The increase in aggregate dividend payouts documented by previous authors could thus be explained entirely by this increase in earnings.

Second, I discuss data on share repurchases. I have suggested that dividend payout increases were caused primarily by contemporaneous increases in corporate earnings, which would suggest that repurchases should have risen along with dividends. On the other hand, if the dividend tax cut drove aggregate dividend payout increases, one might expect to see an increase in dividends relative to repurchases. It is clear in the data, however, that repurchases surged much more rapidly than dividends in the years following the tax cut, such that the ratio of dividend payments to share repurchases fell dramatically.

Third, I compare the dividend payouts of the majority of U.S. firms who benefited from

the tax cut to a smaller control group of firms—real estate investment trusts (REITs)—that did not benefit. REIT dividend payouts rose sharply following the tax cut even though their dividends did not qualify for reduced taxation. I use REITs as a control group to estimate simple difference-in-differences models of the effects of the tax cut, controlling for any differential changes in earnings, assets, and other performance variables. Most estimates of the effects of the tax cut in these specifications range from zero to one-fifth the size of naive estimates that attribute all changes to the tax cut.

Finally, I document a large increase in the "dividend premium" originally proposed by Baker and Wurgler [2004] around the time of the tax cut. This dividend premium intends to measure investor sentiment in the stock market in such a way that it is high when "investors are seeking firms that exhibit salient characteristics of safety, including dividend payment." Baker and Wurgler [2004] find that this variable can explain 60% of the variation in annual dividend initiation rates from 1963 to 2000. Thus it appears likely that the deflating internet boom and the corporate scandals of 2001 and 2002 created investor demand for payouts that may have driven much of the increase in dividend initiations documented by other authors.

I also point out that the amount of dividends paid by firms near the margin of initiation is likely to be very small compared to aggregate payouts. It is obviously the response of aggregate payouts that matters for determining the effects of tax rate changes on tax revenues. For example, the estimate from Chetty and Saez [2005] of an elasticity of aggregate dividend payouts with respect to the dividend tax rate of -0.5 would suggest that the rate increases currently scheduled for 2013 would raise only half the revenue that they would if dividend payouts did not respond to the tax rate. Further, in an agency model of dividend payouts, it is the aggregate amount of cash distributed to shareholders that determines the amount of wasteful spending by managers prevented by the payouts. It is thus the reaction of aggregate payouts to the tax cut that matters most for understanding both the revenue and welfare effects of dividend tax changes, not the number of small firms that decide to initiate small dividends. It seems that previous authors have improperly pointed to results

on initiations, which are driven by small firms, to claim that the tax cut caused the entire observed increase in aggregate payouts.

Considering all of these facts, I conclude that there is no conclusive evidence that the 2003 dividend tax cut caused large increases in aggregate dividend payouts in the years immediately following the cut. Although we can never know for certain what would have happened if the tax cut had not occurred, there are many reasons to think that dividend payouts would still have increased rapidly. The following section of the paper provides more background information on the 2003 tax cut and the data used in the paper. Section 3 lays out the four facts, and section 4 concludes.

2 Background

2.1 The 2003 Dividend Tax Cut

Prior to the 2003 tax legislation, dividend income was taxed at ordinary individual income tax rates. The top federal marginal tax rate declined from 39.6% in 2000 to 35% in 2003, and Poterba [2004] estimates that the weighted average marginal tax rate on dividends collected by U.S. households was about 32% over this period.

The Jobs and Growth Tax Relief Reconciliation Act of 2003 reduced tax rates on "qualified" dividends to the rates applying to capital gains, and it reduced the top tax rate on capital gains to 15%. Unqualified dividends include those paid by foreign corporations and by real estate investment trusts. Because these entities are essentially untaxed by the U.S. at the corporate level, they were not thought to be unduly burdened by the double taxation of corporate income that the Act intended to alleviate. Thus the vast majority of dividends paid by U.S. corporations faced a far lower tax rate at the individual level after the 2003 tax cut, while dividends paid by REITs did not.[3] Amromin, Harrison, and Sharpe [2008] also

[3]An exception to this exception applies to dividends paid by so-called "taxable REIT subsidiaries," which are regular C corporations that REITs have been allowed to own since January 2001, when the REIT Modernization Act took effect. REITs are limited to holding 20% of their assets in taxable REIT subsidiaries.

make use of this exception for REITs in their study of the effects of the tax cut on stock prices. Below, I will sometimes refer to all firms that are not REITs as "nonREITs."

The dividend tax cut was mentioned as a possibility in a Wall Street Journal article on December 4, 2002, first proposed by President Bush on January 7, 2003, eventually passed by Congress on May 23, and signed by the president on May 28, 2003. The special tax treatment of qualified dividends applied retroactively to dividends paid after January 1, 2003. Thus, firms that paid qualified dividends between January 1 and May 28 may have inferred that those dividends would have a nontrivial probability of receiving newly favorable tax treatment. Firms paying dividends after May 28 could be certain that those dividends would receive this treatment. Both Brown, Liang, and Weisbenner [2007] and Chetty and Saez [2005] argue that the cut came as a surprise when first announced, so market participants are unlikely to have taken any actions in 2002 or earlier in anticipation of its passage.

2.2 Data

I use the same data from the Center for Research in Securities Prices (CRSP) that are used by Blouin, Raedy, and Shackelford [2011], Chetty and Saez [2005], and Brown, Liang, and Weisbenner [2007]. The CRSP sample is the universe of firms whose stocks are traded on the New York Stock Exchange, American Stock Exchange, and the Nasdaq, and I follow the other authors by excluding utilities and financial firms (except REITs, where appropriate). The CRSP data include information on each firm's REIT status, stock price, shares outstanding, and dividends payments per share, along with the announcement, ex-day, and payment dates for each dividend payment.[4] Where possible, I match the CRSP data to Compustat data on

Data from NAREIT indicate that qualified dividends paid by TRSs constitute a neglible portion of total REIT dividend payouts.

[4]REITs can be identified in CRSP either by a Share Code that ends in 8 or by an SIC code equal to 6798. However, these two variables sometimes disagree on a firm's status in a given month. By comparing observations with disagreement to firm 10-Ks and other documents, I concluded that the Share Code variable correctly indicates REIT status, while the SIC code variable often contains errors. Thus, I identify REITs in this paper using the Share Code variable only.

balance sheet and income statement items, using the CRSP-Compustat Merged Database. In calculating aggregates, I include only those firms that appear in both CRSP and Compustat.

3 The Four Facts

3.1 Corporate earnings surged at the same time as dividends.

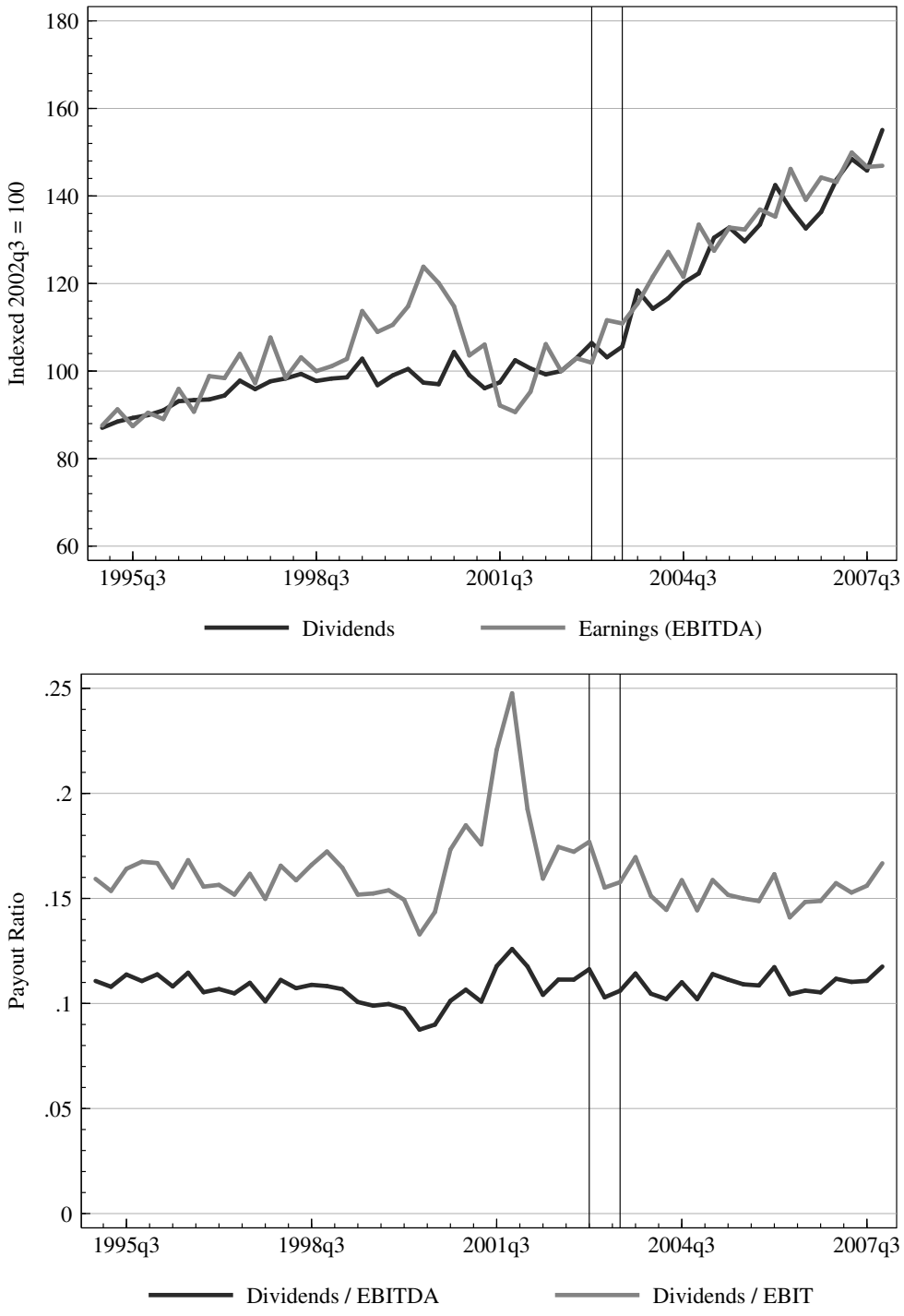
The black line in the top panel of Figure 1 graphs quarterly aggregate regular dividend payouts in the CRSP/Compustat nonREIT sample from 1995 to 2007.[5] Similar data are presented in Figure 1 of Chetty and Saez [2005]. The first vertical line in the figure intersects the observation for 2003Q1, when firms might first have suspected that their dividend payments would qualify for more favorable tax treatment. The second vertical line intersects 2003Q3, after the tax cut was enacted. It is quite clear in the figure that aggregate regular dividend payouts began rising sharply soon after the tax cut was enacted and continued rising for more than three years afterward. The timing of the beginning of the increase certainly suggests a causal role for the tax cut, and the arguments in Chetty and Saez [2005] are based on the data through the second quarter of 2004.

From Lintner [1956] through Feldstein [1970] and Fama and French [2002], empirical studies of dividend behavior have often modeled dividend payouts as targeting a particular payout ratio of dividends to earnings. In this paper, I consider the relationship between dividends and two different measures of earnings—earnings before interest, taxes, depreciation, and amortization (EBITDA), and earnings before interest and taxes (EBIT). Measures of aggregate income that subtract additional items like interest and taxes become negative in some quarters immediately prior to the tax cut, making it impossible to compute their logarithms and inappropriate to use them as denominators in computing payout ratios.[6]

[5] I focus this section of the paper on regular (as opposed to special) dividend payouts for comparability to the prior literature, particularly Chetty and Saez [2005]. Special dividends normally have negligible effects on aggregate payout amounts. An important exception occurred in the second half of 2004, when Microsoft announced and payed a $32 billion special dividend. I do include special dividends in the comparison to repurchases discussed in the next section.

[6] The appendix to the working paper version contains a detailed discussion of the construction and behavior

Figure 1: Relationship Between Regular Dividend Payouts and Earnings



The first vertical line in each figure intersects the observation for 2003Q1, when firms might first have suspected that their dividend payments would qualify for more favorable tax treatment. The second vertical line intersects 2003Q3, after the tax cut was enacted.
Source: CRSP, Compustat.

Figure 1 presents striking evidence on the relationship between EBITDA and dividend payouts for the sample of nonREITs. From 1995 through 2007, dividends and EBITDA moved together quite closely, albeit with dividends more stable than EBITDA during the dotcom boom and the 2001 recession. Most striking, however, is the rapid increase in both EBITDA and dividends that began around the time of the tax cut. From 2002Q4 to 2007Q4, EBITDA increased by more than 40%, after remaining essentially flat, on net, over the prior five years.

The bottom panel of Figure 1 presents the same data in the form of the ratio of regular dividend payouts to EBITDA and EBIT.[7] After falling steadily from the 1980s to early 1990s, the ratio of dividends to earnings has been quite stable for more than 10 years.[8] This ratio actually fell between 2002Q3 and 2003Q3 due to strong growth in the denominator amidst recovery from recession. By 2004, the payout ratio had returned to its level from the mid-1990s. That is, *ceteris paribus*, the increase in earnings alone is enough to explain the increase in aggregate dividend payouts.

3.2 Share repurchases increased more rapidly than dividends.

I have argued thus far that increases in aggregate dividend payouts and initiation rates around 2003 can be explained by contemporaneous increases in corporate earnings. Such increases might lead firms to increase the amount of funds they pay out to investors through share repurchases, as well as through dividends. If the JGTRRA were the driving factor

of different measures of corporate income.

[7]If one constructs a ratio of aggregate regular dividend payouts to aggregate net income, it displays an even more pronounced spike during the recession and an even larger *decline* around the time of the tax cut. It is also worth noting that all figures in this paper refer to the publicly-traded firms in the Compustat/CRSP sample. However, if one constructs a payout ratio using aggregate dividends and profits from the National Income and Product Accounts (which include private firms), it shows a very similar pattern to the data in Figure 1. See also Yagan [2012] for more on private firm reactions to the dividend tax cut.

[8]To argue that the tax cut caused an increase in dividend payouts, one would need to argue that the payout ratio would have fallen further in absence of the tax cut. It is true that this ratio typically fell during periods of growth in corporate earnings in the 1980s and early 1990s. It was quite stable, however, during the expansion of the late 1990s. I judge that this more recent experience is the better one from which to form a counterfactual. Note also that the ratio spiked back up as earnings fell during the financial crisis and recession of 2008 and 2009, but these movements clearly have little to do with the 2003 tax cut.

behind aggregate dividend payout increases, however, one would expect to see an increase in dividends relative to repurchases because the tax reform made dividend payouts relatively more attractive.[9] That is, even if repurchases rose following the tax cut, we would expect to see dividends rise as a fraction of dividends plus repurchases, given the improvement in their relative tax treatment.[10]

Figure 2 plots aggregate annual data on dividend payouts and share repurchases. In the years following the tax cut, repurchases surged far more rapidly than did dividend payouts. While repurchases were a bit lower than dividends in 2002, repurchases were fully twice as large as dividend payouts by 2007. The data emphatically demonstrate that dividends did not rise as a share of aggregate cash payouts following the tax cut—in fact they fell dramatically.

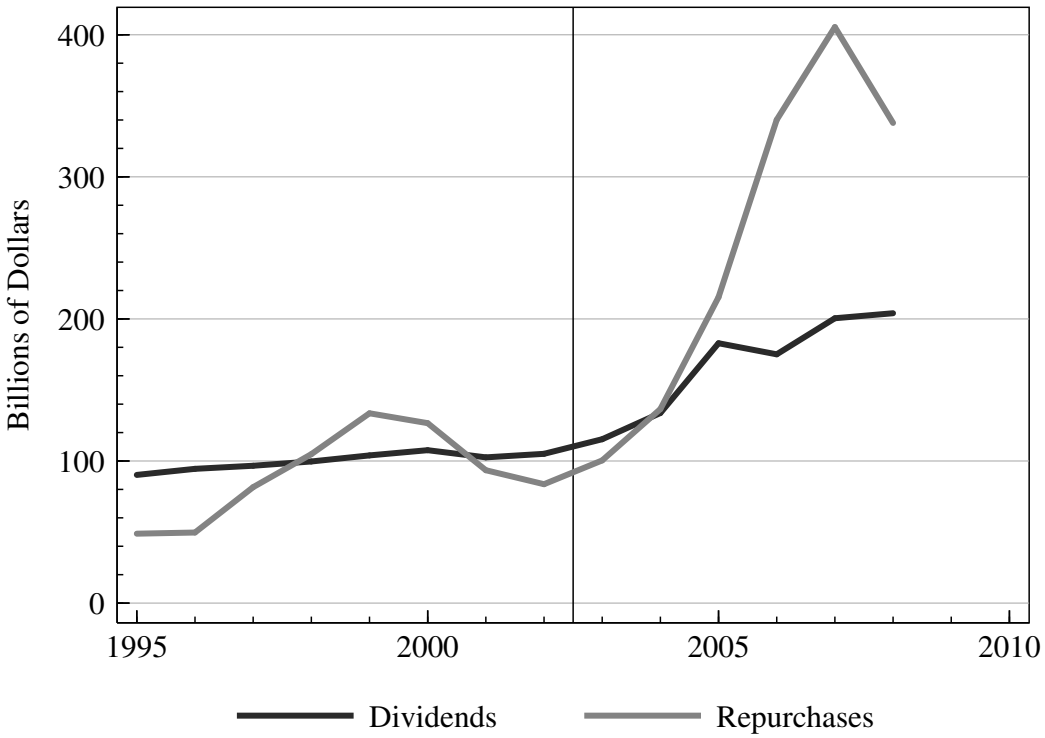
[9]Poterba [2004] calculates implications for the aggregate "dividend tax preference paramater," $(1 - \tau_{div})/(1 - \tau_{cg})$, where τ_{div} is the tax rate on dividends, and τ_{cg} is the effective tax rate on capital gains. Although JGTRRA also lowered the top rate on capital gains from 20 to 15 percent, the decrease in dividend tax rates was much larger, so the dividend tax preference parameter still rose.

[10]Note that this line of reasoning rests on the assumption that dividends and repurchases are gross substitutes. A review of the large literature on firms' choices between dividends and repurchases is beyond this paper's scope, but see DeAngelo, DeAngelo, and Skinner [2009] for an overview. In particular, note that dividends and repurchases are often thought to be imperfect substitutes, with regular dividends serving to distribute "permanent" income increases, while repurchases and special dividends are used to distribute "transitory" income. Over the last several decades, repurchases have steadily grown to replace special dividends after it became clear that repurchases met the approval of tax and regulatory authorities. The decline in the relevance of special dividends after repurchases became "cheaper" suggests that the two forms of payout are indeed gross substitutes.

In fact, both Brown, Liang, and Weisbenner [2007] and Blouin, Raedy, and Shackelford [2011] present evidence that some firms substituted dividends for share repurchases following the tax cut. Figure 2 clearly demonstrates that these effects do not drive the aggregate data on dividend and repurchase amounts. Thus their results must be driven by smaller firms. It should also be noted evidence from other countries has sometimes produced clearer signs of tax-induced substitution between dividends and repurchases. For example, in Jacob and Jacob [2010] it appears that Japanese firms raised dividends and cut repurchases after a 2004 tax reform.

Blouin and Krull [2009] and others have argued that some U.S. repurchases were driven by the American Jobs Creation Act of 2004, which allowed firms to repatriate cash from foreign subsidiaries at a lower tax rate than usual. There is no apparent reason, however, that these funds could not have been distributed to shareholders as dividends rather than repurchases, as, in fact, IRS guidance indicated that both dividends and repurchases were *dis*allowed as uses of repatriated funds.

Figure 2: Aggregate Annual Dividend Payouts and Share Repurchases



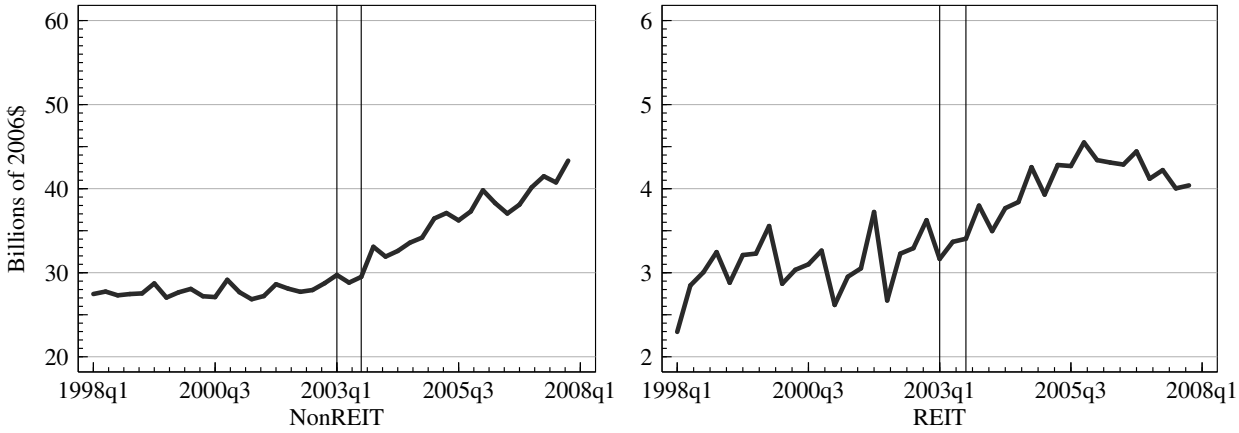
The vertical line precedes the observation for 2003, when the dividend tax cut was proposed and passed. Non-calendar fiscal years are counted in the calendar year in which they end. Repurchases are calculated at the firm level following Skinner [2008], using positive annual changes in treasury stock where available and otherwise using net repurchase amounts from the statement of cash flows, subtracting changes in preferred stock. This measure may overstate repurchases when shares are reissued in the year after they are repurchased (for example, to compensate employees). The dividend measure comes from the statement of cash flows and includes both regular and special dividends. The dividend observation in 2005 is noticeably increased by Microsoft's $32 billion dollar special dividend.
Source: Compustat.

3.3 REIT dividends also increased sharply.

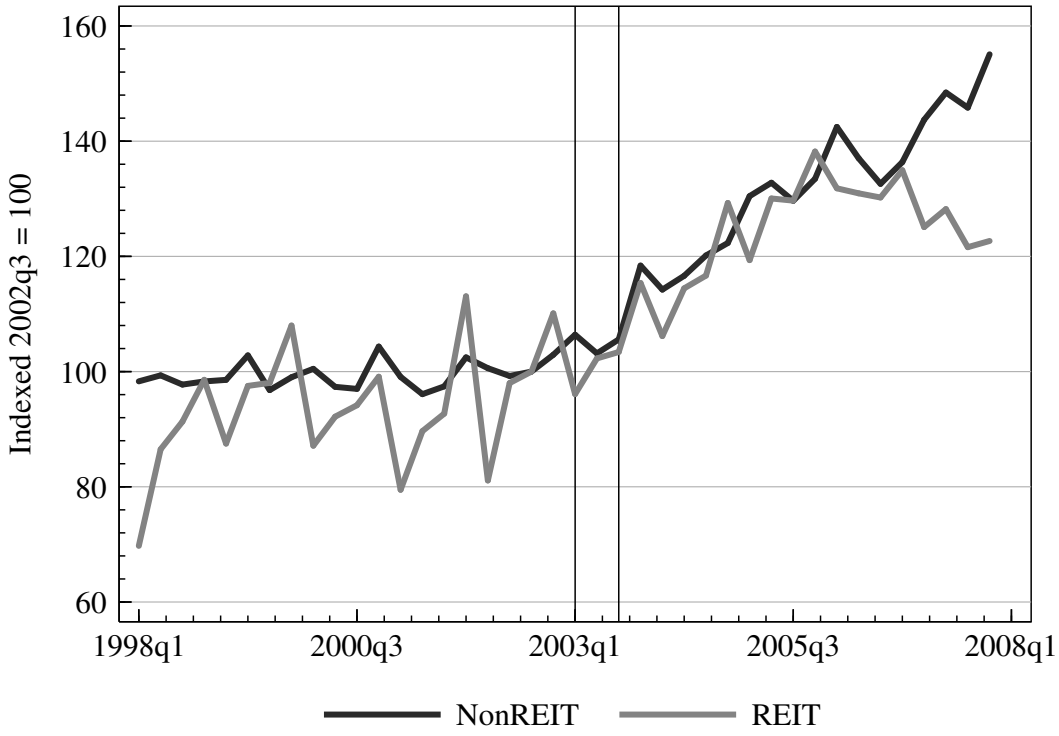
Real estate investment trusts are corporations that invest in real estate assets, primarily office and apartment buildings, malls, hotels, and big-box stores. REITs are essentially "C" corporations under the corporate income tax code, but their dividend payouts are deductible from their taxable income as long as certain requirements on their activities, payouts, and ownership are met. As their income was already exempt from double taxation, their dividends did not qualify for reduced tax rates under the 2003 legislation.

Although there are obviously many differences between REITs and other firms, comparing

Figure 3: Aggregate Regular Dividend Payouts, REITs vs. nonREITs



(a) Billions of 2006$



(b) Indexed 2002Q3 = 100

The first vertical line in each figure intersects the observation for 2003Q1, when firms might first have suspected that their dividend payments would qualify for more favorable tax treatment. The second vertical line intersects 2003Q3, after the tax cut was enacted.
Source: CRSP.

behavior between the two groups of firms is still informative. In the working paper version of the paper, I describe in detail the history of REITs, the rules governing their structure, and their typical payout behavior. I do not claim that REIT dividend payouts always move in lockstep with the payouts of other firms, but I do argue that REIT payouts can fluctuate with REIT income and with perceived changes in the costs or benefits of paying dividends, just as they can for other firms.

The top right panel of Figure 3 plots the series of aggregate regular dividend payouts by REITs. This series is visibly more volatile and seasonal than the nonREIT payout series in the left panel, and the magnitude of aggregate REIT dividends is about one-tenth that of nonREIT payouts.[11] Still it seems quite clear in the figure that aggregate dividend payouts by REITs rose in a manner quite similar to payouts by nonREITs. The bottom panel of Figure 3 presents the same data with both the REIT and nonREIT series indexed to 100 at 2002Q2. It is strikingly clear that REIT and nonREIT dividends increased together after the tax cut, even though REIT dividends did not qualify for reduced taxation. By the end of 2005, REIT and nonREIT dividend payouts had both increased by about 40% from their level prior to the tax cut.

Table 1 presents regression results that complement the graphical evidence in Figures 1 and 3. Columns 1 through 3 present aggregate time-series regressions of the form,

$$\ln(\text{DividendPayments})_t = \beta_1 \text{Post}_t + \beta_2' \mathbf{X}_t + \epsilon_t,$$

for the sample of nonREITs only. Post is a dummy variable taking the value of one in 2003Q1 and later.[12] The estimated coefficient in Column 1 indicates that aggregate dividend payouts

[11] The visible seasonality in REIT payouts arises due to a somewhat interesting phenomenon. Particularly around the 2000 to 2002 period, there were a handful of large REITs that essentially paid a regular quarterly dividend, but always paid out their fourth quarter dividend just before the end of the calendar year. In other quarters, they paid their dividends a few weeks after the end of the quarter. They thus appear as paying a double dividend in the fourth quarter and zero in the first quarter. This phenomenon is not strictly limited to REITs—the Coca-Cola Company has been paying dividends on a similar schedule for decades.

[12] Results are very similar if Post is equal to one in 2003Q3 and later, or if observations from 2003Q1 and 2003Q2 are excluded from the sample.

averaged about 25% higher in quarters after the tax cut than in quarters prior to the tax cut.

The result in column 2 shows that including only a control for EBITDA in the regression for is enough to reduce the estimated effect of the tax cut from 25% to 12%. In column 3, adding controls for assets, cash holdings, and market capitalization is enough to reduce the estimated effect to 6%, and these latter estimates are not statistically different from zero at conventional levels. Adding additional lags of EBITDA produces quite similar results.

Columns 4 through 12 present similar regressions with two observations in each quarter—one for REITs and one for nonREITs—of the form,

$$\ln(\text{DividendPayments})_{it} = \beta_1 \text{Post}_t + \beta_2 \text{NonREIT}_i + \beta_3 (\text{Post} \times \text{NonREIT})_{it} + \beta_4' \mathbf{X}_{it} + \epsilon_{it},$$

where i indexes REIT status and t indexes quarters.[13] They include a dummy for NonREIT status and the interaction of this dummy with the Post dummy. The difference-in-differences estimate of the effect of the tax cut on aggregate NonREIT dividend payouts is β_3, the coefficient on this interaction term. In column 4, with no additional controls, the estimated coefficient is -0.7%, with a standard error of 3.3 percentage points. Thus, the point estimate would suggest that the tax cut had a small, negative effect on aggregate dividend payouts by nonREITs. The standard error cannot rule out small positive effects, but it can reject effects as large as the 20% estimated increase from Chetty and Saez [2005].

[13]Unfortunately, the data required to measure EBITDA for REITs were not collected by Compustat until 2001Q1, so REIT observations are missing EBITDA prior to that quarter.

Table 1: Regressions of log aggregate regular dividend payouts on treatment status variables and controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Post	.252	.117	.064	.260	.116	.192	.065	.060	.066	.060	.075	.069
	(.047)***	(.071)	(.139)	(.050)***	(.074)	(.040)***	(.076)	(.059)	(.078)	(.064)	(.084)	(.066)
NonREIT				2.203	.104	.757	.025	.205	.027	.205	.005	.242
				(.022)***	(.555)	(.375)**	(.436)	(.277)	(.465)	(.279)	(.484)	(.323)
Post × NonREIT				-.007	.003	-.092	.058	.041	.056	.041	.027	.012
				(.033)	(.051)	(.038)**	(.069)	(.073)	(.081)	(.076)	(.094)	(.097)
Log EBITDA		.627	.754		.615		.477		.478		.534	
		(.236)***	(.324)**		(.161)***		(.159)***		(.157)***		(.156)***	
Log EBIT						.450		.302		.302		.327
						(.114)***		(.109)***		(.115)***		(.104)***
Log Assets			.356				.178	.333	.170	.334	.184	.359
			(.570)				(.110)	(.126)***	(.236)	(.153)**	(.224)	(.152)**
Log Cash			-.085						.004	-.0003	.012	.010
			(.297)						(.118)	(.073)	(.116)	(.074)
Log Market Cap			-.171								-.058	-.058
			(.160)								(.094)	(.115)
Observations	40	40	40	80	68	80	68	80	68	80	68	80
R^2	.698	.852	.868	.993	.996	.996	.997	.997	.997	.997	.997	.997

The dependent variable is the log of aggregate quarterly regular dividend payouts. Columns 1, 2, and 3 present time-series regressions for nonREITs only of the form,

$$\ln(\text{DividendPayments})_t = \beta_1 \text{Post}_t + \beta_2' \mathbf{X}_t + \epsilon_t.$$

In columns 4 to 12, there are two observations for each quarter—the aggregate for REITs and the aggregate for nonREITs. These take the form,

$$\ln(\text{DividendPayments})_{it} = \beta_1 \text{Post}_t + \beta_2 \text{NonREIT}_i + \beta_3 (\text{Post} \times \text{NonREIT})_{it} + \beta_4' \mathbf{X}_{it} + \epsilon_{it},$$

where i indexes REIT status. The estimate of β_3 is the difference-in-differences estimate of the tax cut on nonREIT dividend payouts. Post takes the value of one in 2003Q1 and later. The EBITDA variable is not observed for REITs prior to 2001q1, so specifications including this variable include fewer observations. Standard errors are bootstrapped by repeatedly sampling clusters of observations from four consecutive quarters to create bootstrap samples of the appropriate size. Standard errors are thus robust to arbitrary correlation of errors in observations up to a year apart. These standard errors are roughly 50% larger than unreported OLS standard errors.
** indicates statistical significance at the 1% level, ** at 5%, and * at 10%.
Source: CRSP, Compustat.

Of course, one could worry that REITs might have benefited more from the real estate boom in the mid-2000s than did many other firms. If nonREITs increased their dividends in response to the tax cut, but REITs increased them due to increases in their income and assets during the boom, the simple REIT vs. nonREIT comparison might be misleading. The remaining columns in the table thus introduce various combinations of controls for performance variables. In column 5, which includes the NonREIT and Post $\times$ NonREIT variables as well as EBITDA, the estimated effect of the tax cut is 0.3%. Columns 7 through 12 include additional controls for aggregate assets, cash holdings, and market capitalization. In fact, capital disproportionally entered the REIT sector in the period after the tax cut, and adding these controls tends to raise the estimated effect of the tax cut somewhat. However, no specifications come close to the 20% estimated effect from Chetty and Saez [2005].[14]

The estimate in column 12 of Table 1, which includes all control variables, suggests that the tax cut may have raised aggregate dividend payouts by 1.2%, far lower than the naive estimate in column 1. The standard error of 9.7 percentage points is small enough to reject the estimate of a 20% increase from Chetty and Saez [2005] with 90% confidence.

3.4 The stock market was forecasting an increase in initiations before the tax cut was proposed.

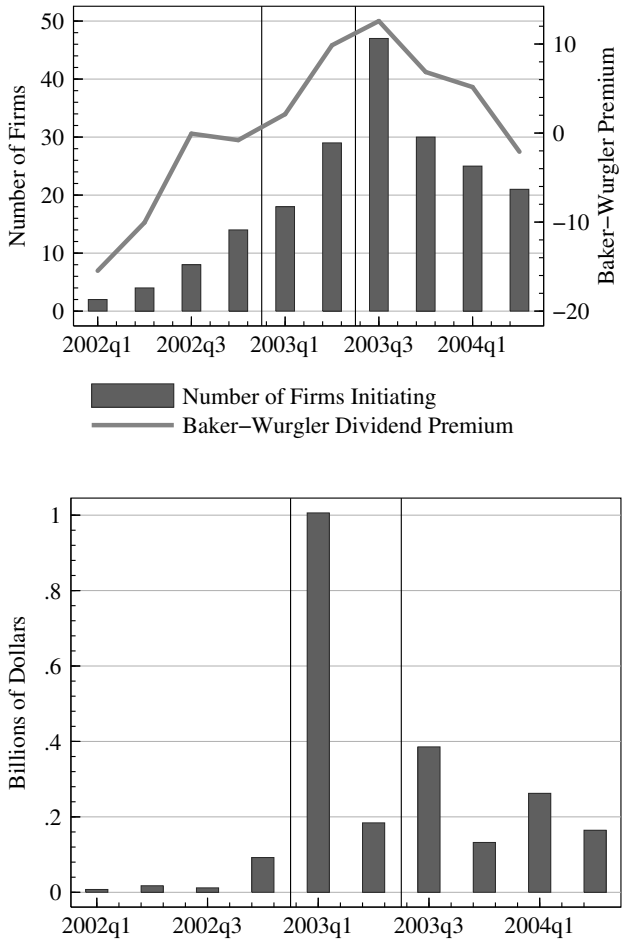
Chetty and Saez [2005] and Brown, Liang, and Weisbenner [2007] present a great deal of evidence related to firms that initiated dividends after the tax cut, that is, to firms that began paying a regular dividend after not paying one for four or more quarters. Some of the most compelling evidence in these papers involves the relationship between the propensities of firms to initiate dividends and the fractions of their ownership comprised by insiders or institutions.

I make two points related to the evidence on initiations.[15] First, I document that the

[14]Several alternative specifications and robustness checks are presented in the working paper version.

[15]Unfortunately, REITs must pay a dividend in every year that they are profitable, so there are very few REITs that initiate dividends by this definition. Thus, I cannot perform the same falsification exercises

Figure 4: Regular Dividend Initiation Announcements



Source: CRSP, Wurgler personal website.

tax cut coincided with large increases in a measure of investor demand for dividends that has been shown in prior literature to predict initiations. Second, I point out that the firms on the margin of dividend initiation would have only a small impact on aggregate dividend payouts. Even if previous authors' findings that a firm's propensity to initiate dividends varied with the taxable status of its owners are correct, the impact of this variation on aggregate dividend payouts could be tiny.

Figure 4 presents data on firms announcing a dividend initiation in the 10 quarters surrounding the tax cut.[16] It appears that the surge in dividend initiations began too early

using REITs that I have performed for other measures of dividend behavior.

[16]Figure II of Chetty and Saez [2005] presents data on firms *paying* a dividend for the first time in more

to be attributed entirely to the tax cut. Recall that the cut was first proposed in early January 2003, before being enacted in late May. Thus it is feasible that firms initiating dividends in quarters one and two of 2003 may have believed that these dividends would qualify for reduced taxation with some probability, but they would not have been certain until 2003Q3. Both Chetty and Saez [2005] and Brown, Liang, and Weisbenner [2007] argue that the introduction of the dividend tax cut legislation came as a surprise to market participants, so we should see no anticipatory effects of the legislation prior to 2003Q1. It is clear in Figure 4, however, that initiations had already begun to increase in late 2002. They continued to increase sharply in quarters 1 and 2 of 2003, when the tax cut was only a possibility.

Further, this increase in dividend initiations coincided with a surge in the measure of the "dividend premium" proposed by Baker and Wurgler [2004]. This measure is constructed as the one-year lagged difference in the logarithms of the average market-to-book ratio of dividend payers and non-payers.[17] Baker and Wurgler [2004] find that this measure can explain 60% of the variation in annual dividend initiation rates from 1963 to 2000. They suggest that their dividend premium measure captures investor sentiment in such a way that it is high when "investors are seeking firms that exhibit salient characteristics of safety, including dividend payment." Thus it is quite plausible that the deflation of the internet boom and the corporate scandals of 2001 and 2002 created investor demand for dividends that is reflected in this dividend premium. Because the measure is constructed from stock prices with a one-year lag, it is not possible that the tax cut affected the dividend premium measure in mid-2003 if the proposal of the tax cut was unanticipated, as previous authors have argued. Although a noticeable spike in initiations remains in 2003Q3, initiations clearly rise and fall with this dividend premium around the tax cut. That is, in the second and third quarters of 2002—*before the tax cut had ever been discussed*—the stock market was already

than a year, while here I present data on firms *announcing* a dividend initiation. As many firms announce dividend payments in the quarter before they are paid, the series presented by Chetty and Saez [2005] displays a more pronounced increase in 2003Q3.

[17] These data were downloaded from http://pages.stern.nyu.edu/ jwurgler/.

forecasting an increase in dividend initiations in the second and third quarters of 2003.

Note also that the amount of money involved in dividend initiations was small relative to aggregate dividend payouts. The second panel of Figure 4 shows that firms announced dividend initiations in 2003Q3, immediately after enactment of the tax cut, of $386 million, or about 1.3% of aggregate dividend declarations.[18] Brown, Liang, and Weisbenner [2007] estimate that about 64% of the number of initiations in the second half of 2003 were unexplained by their set of controls for earnings, assets and the like. They do not control for the Baker-Wurgler premium or any similar measures. If we nonetheless assume that 64% of initiation amounts in 2003Q3 were caused by the tax cut, these initiations would account for 0.8% of aggregate dividend payouts. Thus, even if one believed that some of the increase in *initiations* was caused by the tax cut, one could still believe that increases in *aggregate payouts* were not driven primarily by the tax cut.

It is worth noting that in an agency-based model of dividend payouts, it is the aggregate payout amounts that matter most for understanding the impact of dividend taxation on efficiency and welfare. In these models, dividend taxation reduces efficiency by increasing the amount of money that is retained and spent wastefully by management instead of being distributed to shareholders. Thus it is the effect of dividend taxation on aggregate payout amounts that matters, not the number of small dividends initiated by small firms.

More obviously, changes in aggregate payout amounts are also what matters for understanding the effects of tax changes on the amount of tax revenue collected. If dividend payouts react strongly to the dividend tax rate, then the revenue raised from increasing dividend tax rates might be far smaller than otherwise anticipated. For example, the estimates from Chetty and Saez [2005] imply that the dividend tax increases currently scheduled

[18]It is interesting to note that the firm announcing the largest initiation by dollar amount in 2003Q3 was Harrah's Entertainment, whose CEO, Gary Loveman, holds a Ph.D. in economics and may be less prone to behavioral biases towards inertia than others. The biggest spike in the figure, however, is in 2003Q1, when Microsoft announced a $900 million dividend. This payment was announced on January 16, 2003, nine days after President Bush announced his intention to push for a dividend tax cut, 42 days *before* legislation including a dividend tax cut was introduced in the House of Representatives, and 132 days before it became law. It seems unlikely that the tax cut played a significant role in Microsoft's decision to begin paying regular dividends.

for 2011 would only raise about half as much revenue as they would if aggregate dividend payouts did not respond to the tax rate at all.

To summarize, Chetty and Saez [2005] document large increases in aggregate dividend payouts after the tax cut, and then present evidence suggesting some causal effect of the tax cut on the number of dividend initiations. They imply that their evidence supporting *some* role for the tax cut in determining *initiations* proves that the *entire* increase in *payouts* was caused by the tax cut. The facts presented here lend little support to this line of reasoning. There could be large changes in initiations with only small effects on aggregate dividend payouts, and it is these aggregate amounts that matter most for understanding both the revenue and welfare effects of tax changes.

4 Conclusions

This paper has presented evidence that casts some doubt on the claim that the 2003 tax cut caused a large increase in aggregate regular dividend payouts. First, I documented that the post-tax cut increase in dividend payouts coincided with a surge in corporate profits. In fact, the ratio of dividend payouts to profits did not rise after the tax cut. Second, share repurchases rose even more rapidly than dividend payouts, despite their newly disadvantaged tax status. Third, dividend payouts by Real Estate Investment Trusts also rose sharply, even though REIT dividends did not qualify for the tax cut. Finally, the stock market was already forecasting an increase in dividend initiations in mid-2002, before the tax cut had been proposed.

At the very least, these facts make clear that important non-tax-related changes in payout behavior occurred at the same time as the tax cut. Thus any estimates of the tax cut's effect should be treated cautiously. I suspect, however, that many readers would be willing to go a step further. Although we can never know exactly what would have happened to dividend payouts if the tax cut had never occurred, the evidence presented here makes a strong case

that they would have risen substantially anyway. Anyone claiming otherwise would need a more compelling explanation for all four of the facts documented in this paper.

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