Do Differences in Capital Gains and Dividends Tax Rates Bias Real Investments Decisions.

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Abstract

In 2013 the top dividend and capital gain tax rate was raised to 23.8% from 15% ending tax parity between dividend and capital gains. In 2015 President Obama proposed raising both rates again to 28%. Raising both rates together is based on the premise that diverging rates will bias corporate decisions on whether to retain and reinvest earnings. Using the Pecking Order Theory as a framework Torrez (2006) developed a simple model that examines the effect the difference between the dividend and capital gain tax rate has on corporate investment. The model finds that a relative dividend rate tax cuts will increase the corporate cost of capital and lower investment. However many have suggested that changes in the amount of earnings that companies retain depend on the dividend tax rate alone. The objective of this proposal is to test the hypothesis that the difference in dividend and capital gains tax rates are what affect corporate investment rather than dividend tax rates themselves.

Introduction

President Obama proposed raising the top dividend tax rate for 2013 to as much as 44.8% from 15%. The compromise reached with Congress in the American Taxpayer Relief Act of 2012 (ATRA) was an increase of both the top dividend and capital gains tax rate from 15% to 20%. In addition a 3.8% Medicare surcharge was also added in 2013 to both dividend and capital gains tax rates as a result of the Affordable Care Act (ACA) that passed in 2010 for a top dividend and capital gain tax rate of 23.8%. In 2015 President Obama has proposed raising both rates again to 28%. Raising both rates together is based on the premise that diverging rates will bias corporate decisions on whether to retain and reinvest earnings. Chetty and Saez (2010) develop a model where dividend taxation encourages managers to divert earnings into unproductive projects instead of paying out profits to shareholders. Frank, et al. (2012) argue that the dividend tax rate affect corporate investment depending on the amount of cash firms have on hand but pay no attention the capital gain tax rate. If these contentions are correct the ATRA of 2012 should affect corporate investment.

In Torrez (2006), a decrease in the dividend tax rate relative to the capital gains tax rate will have the effect of encouraging companies to increase dividends, this in-turn will lower retained earnings. This simple model predicts that this decrease in retained earnings will actually increase the cost of capital and therefore decrease capital expenditures.

The basic idea is as follows: Corporate officers have a goal of maximizing the after tax returns of shareholders. When dividend tax rates are low relative to capital gain tax rate they will simply increase dividends. When the difference between the dividend tax and capital gain tax rate increases, these managers lower dividend payments and attempt to create capital gains by investing retained earnings that result from the lower dividends. This is of course is with the goal of increasing after tax returns for shareholders.

Given that the top capital gains tax rate has remained equal to the top dividend tax rate for a while and both have increased recently would provide a natural experiment to test whether any affect is from increases in the tax rate are from differences in the two rates or simply an increase in the dividend tax rate. Unfortunately not enough time have passed to see the full effect of the ATRA and the ACA, therefore one must rely on the full specter of all available data to test the hypothesis. The objective of this work is to test the hypothesis that the difference in dividend and capital gains tax rates are what affect corporate investment rather than dividend tax rates themselves using all years for which data is available.

Background

As stated the ATRA and the ACA had the effect of raising the top dividend and capital gains tax rate from 15% to 23.8% in 2013 which were also the top rates in 2014. The reason for raising both rates by the same amount is to avoid creating a bias in business decisions of firms. One such bias would certainly be the investment financing decision and thus investment.

The stated reason for the JGTRRA of 2003 was to encourage investment by cutting taxes, which is the premise of supply side economics. Part of this act lowered dividend taxes to the same rate as capital gains taxes. Proponents of this tax cut argue that this will encourage more corporate

investment. The model underlying this view implies that cutting dividend taxes reduces the corporate cost of capital, and therefore leads to a higher level of investment.

"Lower dividend taxes reduce the tax burden on investors who purchase new equity issues in expectation of future dividend payouts'' (Poterba 2004). Chetty and Saez (2006) obtain similar results empirically and in a 2010 paper they develop a model in which dividend taxation encourages managers to divert earnings into unproductive projects instead of paying out profits to shareholders. I argue that this part of the JGTRRA may actually have increased the corporate cost of capital and lower investment in the economy and any increase in the value of the stock market from this act will simply be a response to an increase in after tax returns and not from an increase in production. Unlike Chetty and Saez (2010) I believe that changes in the dividend tax rate alone will not have an effect, but rather it is difference in the two rates that matter.

Pecking Order Theory predicts that companies prefer to finance real investment internally rather than with external funds if possible. Myer and Majluf (1984) predict that external finance with risky securities is more costly relative to internal finance. The greater the risk premium of the securities issued, the larger the cost difference and the more likely positive net present value investment projects will be rejected. This does not mean that companies will never use debt or equity financing. Pecking Order Theory does however predict that internal financing will be preferred to all forms of external financing and that when a company does finance externally it prefers debt financing to equity financing.

If companies do indeed prefer internal financing it implies that real investments are a positive function of retained earnings. Since retained earnings are negatively related to dividends, Pecking Order Theory implies that real investment is an inverse function of dividends. This combined with the fact that companies tend to smooth dividends over time (Allen and Michaely (2003)) and are hesitant to let dividends fluctuate once they have changed them, could cause a long term decrease in capital expenditures.

Combined with the assumption that the goal of a publicly traded firm is to maximize the return to its shareholders the implication of Pecking Order Theory is therefore a tradeoff between dividends paid and total return[1]. To see this more clearly consider a company who is faced with the choice of multiple investment projects along with the dividend decision. Since external finance is more costly, every dollar paid in dividends implies higher financing costs for those investments. In other words there may be investment projects that would be rejected and would otherwise have a positive net present value.

The problem can be lessened in this situation if the personal tax rate on dividends is higher than that of capital gains. In this case public firms will have less incentive to pay dividends and more incentive to take on investment projects to increase capital gains. This will tend to raise investment spending by public corporations and mean more investment in the economy as a whole.

[1] There are of course many theories as to why companies pay dividends that do not imply a company's goal is to maximize shareholder wealth. However, it is unlikely that a company's\management would respond to changes in the dividend tax rate for any other reason except to benefit their shareholders.

Basic Methodology

The basic equation to be examined will use real investment as the dependent variable. The main independent variable will be the dividend payout rate along with the difference between the top dividend and capital gains tax rate. The control variable will consist of an estimate of Tobin's q and cash flow.

$$I/K = \alpha + \beta*Q + \gamma*(CF/K) + \delta*(DIV/K) + \phi*DIFF + \varepsilon$$

Where I is investment, Q is an estimate of Tobin's q, CF is cash flow, DIV are dividends and K is the capital stock of the company and DIFF is the difference between the top dividend and capital gains tax rate.

I do not expect this difference to affect investment directly rather the effect will be indirect through the amount of dividends paid. Therefore this difference will also be used as an instrument for dividends in the investment regression.

Data

The primary source of data will come from current Standard and Poor's Compustat industrial files. Data on dividends and capital gains tax rates will come from the internet[2]. As is standard in this type of analysis financial, regulated and quasi-public firms are eliminated from the sample.

Investment will consist of Capital Expenditures (CAPX)[3]. The estimate of Tobin's q will be a measure of book-to-market value of each firm. The numerator of this measure will consist of the year end price times the number of common shares outstanding and total book assets minus the book value of equity ((CSHO*PRCC)+AT-(CEQ+TXDB)). The denominator is book assets (AT). Cash flow will be measured as income before extraordinary items plus depreciation and amortization (IB + DP). Investment, cash flow and dividends are normalized by book assets (AT). I use the maximum dividend and capital gain tax rates for the measurement of the spread between the two tax rates. Firms with Tobin's q values in the top and bottom 5% are deleted from the sample. The final dataset includes 284,443 data points from 1960 to 2014.

Preliminary Results

I begin with basic results in Table I below. The results are as expected, basic OLS results indicate dividends are negatively related to investment expenditures. When the spread between the two tax rates are added dividends continue to have a negative relationship while the spread between the two tax rates shows a positive relationship. Fixed effects strengthen the coefficient

[2] Data on the maximum capital gains tax rate is obtained at http://www.cch.com/wbot2012/029CapitalGains.asp while data on maximum dividend tax rate is obtained at http://www.taxpolicycenter.org/taxfacts/displayafact.cfm?Docid=213

[3] Variable names within the Compustat data set are in parenthesis.

on the difference between the two tax rates while it weakens the negative effect that dividends have on investment.

The initial coefficient on dividends is -0.067, when the difference between the maximum dividend tax rate and the capital gains tax rate is added the coefficient is essentially unchanged at -0.071. When added the coefficient on the spread between dividend and capital gains tax rates is 0.050, which implies this spread effects investment positively. Noting that investment decisions are company specific fixed effects are added to the regression. The addition of fixed effects lowers the absolute effect of the coefficient for dividends by over three fifths to -0.025 while the coefficient on the difference between the dividend and capital gains tax rate increase by almost two thirds to 0.074. Adding fixed effect does not increase the explanatory power of the regressions, of which all have an R^2 of around .02. This is not as worrisome as one might believe given this research is concentrating on only one aspect of investment and the low explanatory power of investment regressions in the literature.

Table I:
Ordinary Least Square Regression.
Dependent Variable Investment dividend by Total Assets (I/K)

Variable.	OLS	OLS	Fixed Effects
Intercept	0.0660**	0.5526**	0.0477**
	(0.00051)	(0.00062)	(0.00065)
Tobin's q	0.0067**	0.0078**	0.0094**
	(0.00027)	(0.00027)	(0.00032)
CF/K	0.0475**	0.0461**	0.0525**
	(0.00073)	(0.00072)	(0 .00080)
DIV/K	-0.0645**	-0.0712**	-0.0246**
	(0.00562)	(0.00561)	(0.0059)
DIFF		0.0498**	0.0736**
		(0.00163)	(0.00191)
	R^2=.02	R^2=.02	R^2=.02

** Indicates significance at 1% level. Standard errors are in parentheses under the parameter estimates. Each regression above has a total of 284,443 data points from 1960 to 2014.

Of course simply adding the spread in the dividend and capital gains tax rate to the regression is unsatisfactory to test the hypothesis that this spread is what actually drives the effect dividends have on investment. Torrez (2006) shows the spread between the two tax rates should not affect investment directly, instead the spread will affect investment through its effect on dividend policy. Therefore I will use the difference between dividend and capital gains tax rates as an instrument for dividends in the above regression. In addition to the usual assumptions for instrumental variable regression, the added assumption that dividends are the only independent variables in the regression correlated with the difference between dividend and capital gains tax rate. Computational constraints make estimating fixed effect difficult so dummy variables are created to control for industry effects. The results are in table II below.

Table II:
Instrumental Variables Regression
Using the difference between dividend tax and capital gain tax rate as an instrument for dividend payments.
Dependent Variable Investment dividend by Total Assets (I/K)

		R^2=.04
Variable.	Coefficient	Standard Error
Intercept	0.02930**	0.003907
Tobin's q	0.00984**	0.000384
CF/K	0.04129**	0.001007
DIV/K	2.871451**	0.267463
Industry Dummies		Yes

** Indicates significance at 1% level. Each regression above has a total of 284,443 data points from 1960 to 2014.

As can be seen when the difference between the dividend tax and capital gains tax rate are used as an instrument for dividends, the coefficient on dividends changes from negative to positive. This result strongly suggests that managers do indeed concentrate on trying to achieve capital gains by investing, instead of using earnings to pay dividends when the spread between the two tax rates increase

Many have argued that measurement errors in Tobin's q will bias the coefficients of the other variables in the regression (Riddick and Whited 2009, Cummins, et al. 2006, Erickson and Whited, 2000 2002, 2006, 2012). To address this Erickson et al. (2014) and Erickson and Whited (2000, 2002, 2012) use a higher order estimates in investment regressions to account for measurement errors using Tobin's q as a control variable. This allows them to perform certain robustness checks including a coefficient of determination variable to test how well the regression predicts investment expenditures

Erickson et al. (2014) develop closed-form minimum distance estimators, which are linear in the third and higher cumulants of the observable variables. They find that these cumulant estimators have superior finite sample property when compared to method of moment estimators which Erickson and Whited (2000, 2002, 2012) had used in the past.

Using the third through fifth higher order cumulants the regression is re-estimated. The results are shown in Table III below.

Given that this type of estimation requires deviations from the mean the basic OLS estimate is re-estimated using deviations from the mean of each variable. The OLS estimate is similar to those above. Of the cumulant regressions the fifth-order cumulative estimates are the closest to the OLS estimates with the exception of the coefficient on cash flow that is now insignificant. The τ^2 statistics for the fifth-order estimate implies the estimate of Tobin's q is measured correctly. In addition, a Sargan test suggests the fourth-order estimates have overidentified restricts while the fifth-order are not overidentified.

The third-order estimate is farthest from the OLS results, none of the coefficients on any of the variables are significant. Both the τ^2 and ρ^2 statistics are significant for the third-order estimate

suggesting Tobin's q is not mismeasured and the regression captures 92% of the variation in investment. It seems inconsistent to have a regression who explains 92% of the variation in the dependent variable without having any of the individual coefficients statistically significant. One can only conclude that the third-order estimate is biased or inconsistent.

The difference between the dividend and capital gain tax rate is the only coefficient that is statistically significant in the forth-order estimate. Here however, the ρ^2 and τ^2 statistics are not statistically significant implying the estimate for Tobin's q is lacking along with the estimate for the R^2. As mentioned above Sargin's test of the model being overidentified is not statistically significant.

Table III:
Error-in-Variables Cumulant Estimator Regressions
Dependent Variable Investment dividend by Total Assets (I/K)

Cumulant Estimators	OLS	Third-order	Fourth-order	Fifth-order
Constant	-0.0071**	-4.4086	-0.0508	-0.1557**
	(0.00040)	(3.1071)	(0.04009)	(0.02095)
Tobin's q	0.0045**	2.7110	0.0313	0.0959**
	(0.00022)	(1.9105)	(0.02469)	(0.12881)
CF/K	0.0525**	0.0189	0.0521	0.0513
	(0.00077)	(0.04041)	(0.05107)	(0.05103)
DIV/K	-0.0192**	-3.0921	-0.0329	-0.1229**
	(0.00568)	(2.20661)	(0.00743)	(0.02419)
DIFF	0.0729**	-0.6827516	-0.0497**	0.0474**
	(0.00182)	(0.53940)	(0.03285)	(0.00497)
R^2 or ρ^2	0.02	0.92**	0.03	0.05
		(0.063)	(0.052)	(0.063)
τ^2		0.005**	0.145	0.049**
		(0.001)	(0.114)	(0.006)
Sargan Test p-value			1.165	102.1**
			0.558	0.000

** Indicates significance at 1% level. Standard errors are in parentheses under the parameter estimates Each regression above has a total of 284,443 data points from 1960 to 2014. ρ^2 is an estimate of the R^2 for the higher order cumulant regressions. $\tau^2 \in (0; 1)$ is an index of measurement quality for the proxy for Tobin's q. "Sargan Test" refers to the test of the model overidentifying restrictions from Sargan (1958).

Conclusion

Legislation enacted in 2012 raised both the top marginal tax rate and the capital gains tax rate from 15% to 23.8%. Some have argued that raising dividend taxes will lower investment. Using a simply model, Torrez (2006) predicts that dividends will increase when the spread between dividend and capital gains tax rates decrease which will lead to a lowering of retained earnings. This decrease in retained earnings will in turn increase the cost of capital and therefore decrease capital expenditures. The results of this paper do indeed support this hypothesis, although the

robustness of the results are lacking. It does however seem that some public traded firms' decision makers choose not to pay dividends when the difference in relative tax rates are greatest and instead invest retained earnings in an attempt to increase capital gains for their shareholders.

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