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The impact of tax rate changes on intercorporate investment☆

Robert F. Gary [a], Jared A. Moore [b,*], Craig A. Sisneros [c], William D. Terando [d]

[a] Anderson School of Management, MCS 05 3090, University of New Mexico, Albuquerque, NM 87131-0001, United States
[b] College of Business, Oregon State University, 443 Austin Hall, Corvallis, OR 97331, United States
[c] Business School, University of Colorado Denver, Denver, CO 80217-3364, United States
[d] Lacy School of Business, Butler University, Indianapolis, IN 46208, United States

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ABSTRACT

We examine how tax rates impact investment by corporations in the stock market. We regress changes in intercorporate investment on changes in the various individual and corporate top statutory marginal tax rates (MTRs). We find a significant negative association between changes in individual capital gains MTRs and changes in intercorporate investment, while no such association is evident for changes in either individual ordinary or dividend MTRs. These results support the notion that corporations respond to the after-tax rate of return and/or market efficiency consequences brought about by a change in individual capital gains MTRs. We find a significant positive relation between changes in intercorporate investment and changes in corporate MTRs on ordinary income. These results are consistent with corporations scaling back expansion plans and instead investing free cash flows in equity securities as MTRs increase.

1. Introduction

This study investigates whether individual- and corporate-level federal income taxes influence the level of investment in the stock market by corporations. Our study is unique in the sense that it simultaneously considers whether the differential tax costs imposed on individual and corporate ordinary income, capital gain income and dividend income incrementally impact firm investment behavior. The impact of taxes on business decisions has been a topic of great interest in the accounting and finance literatures for more than four decades. Branches of this line of inquiry include the impact of taxes on capital structure (e.g., Aier & Moore, 2008; Cloyd, Limberg, & Robinson, 1997; DeAngelo & Masulis, 1980; Dhaliwal, Trezevant, & Wang, 1992; Graham, Lang, & Shackelford, 2004; Lin & Flannery, 2013; MacKie-Mason, 1990; Modigliani & Miller, 1958, 1963), dividend policy (e.g., Bradford, 1981), compensation policy (e.g., Balsam, Halperin, & Mozes, 1997; Balsam & Ryan, 1996; Gordon & Slemrod, 1998; Hite & Long, 1982), and investment. However, to date, studies that investigate the interaction of taxes and corporate investment decisions have focused primarily on investment in fixed assets (e.g., Billings & Hamilton, 2002; Black, Legoria, & Sellers, 2000; Campbell, Chyz, Dhaliwal, & Schwartz, 2013; Cummins, Hassett, & Hubbard, 1996; Edgerton, 2010; Hageman, Bobek, & Luna, 2015; Kaufman & Gitman, 1988; Kern, 1994), in research and development (R&D) (e.g., Black et al., 2000; Finley, Lusch, & Cook, 2015; Waegenaere, Sansing, & Wielhouwer, 2012), or in foreign direct investment (FDI) (e.g., Brandstetter & Jacob, 2013; Drebler, 2012; Waegenaere et al., 2012). We extend this literature by considering another type of corporate investment, marketable equity securities.

Understanding the factors that drive corporate investment in marketable equity securities is important because the stock market is a likely investment alternative for free cash flows in periods that lack positive net present value projects (e.g., long-term investments, fixed assets, and/or R&D). Further, intercorporate investment comprises more than 14% of the total value of the three major stock exchanges in the United States (French & Poterba, 1991).

We investigate how various individual and corporate statutory marginal tax rates (MTRs) impact intercorporate investment. Specifically, we focus on the highest statutory MTRs applicable to ordinary and capital gain income for corporations and individuals as well as individual dividend income. In each of these cases, existing theory and evidence suggest that a relation between tax rates and intercorporate investment could exist in either direction. As such, predicting the direction of any such association is difficult, and the impact of MTRs on intercorporate investment becomes an empirical question.

To illustrate this point in the context of individual capital gains tax rates, prior research provides evidence consistent with the notion that individual-level capital gains taxes have a negative impact on corporate investment in fixed assets and R&D (e.g., Becker, Jacob, & Jacob, 2013; Black et al., 2000; Campbell et al., 2013; Jugurnath, Stewart, & Brooks, 2008; Poterba & Summers, 1983). These findings are generally

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* Corresponding author.
E-mail address: jared.moore@bus.oregonstate.edu (J.A. Moore).

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attributed to the traditional view of taxes and corporate decision making, which argues that firms make economic decisions based on after-tax returns considering both corporate- and individual-level taxes. Specifically, higher (lower) taxes at either the corporate or individual level lower (raise) the overall after-tax rate of return, consequently driving down (up) the level of corporate investment.

It is less clear, however, whether and how changes in individual capital gains MTRs will impact a firm's decision to invest in equity securities. On one hand, corporations may decide to reduce or delay expansion-related expenditures when higher individual capital gains taxes reduce the overall after-tax return on investment in fixed assets and research and development. In this instance, a corresponding increase in corporate investment in the stock market would reflect a substitution effect for these corporate funds. Accordingly, we would expect to see a positive association between intercorporate investment levels and changes in individual capital gains MTRs.

On the other hand, the traditional view of taxes also suggests that an increase in individual-level capital gains MTRs will reduce the overall after-tax rate of return on intercorporate investment. As such, one might expect a negative association between corporate investment in the stock market and changes in individual capital gains MTRs. Further, individual capital gains tax rates may impact market efficiency by affecting the supply of shares available in the market. Specifically, to the extent that higher capital gains MTRs influence individual investors to hold rather than sell or trade their shares (i.e., the lock-in effect), fewer shares are available for trading. This reduction in market efficiency may act as a disincentive for corporations to participate as investors in the market, also leading to a prediction of a negative association between individual capital gains tax rates and intercorporate investment.

Using a sample of 40 annual observations covering the period 1969 to 2008, we examine how changes in the MTRs on ordinary income, dividends, and capital gains for individuals and ordinary income and capital gains for corporations are associated with corporate investment behavior by regressing changes in aggregate corporate investment in marketable securities on changes in these individual and corporate MTRs.[1] We find a significant negative association between changes in individual capital gains MTRs and changes in the aggregate level of corporate investment in marketable securities while no such association is evident for changes in either ordinary or dividend MTRs for individuals. These results support the notion that corporations respond to the increase (decrease) in overall after-tax rate of return and/or to the market efficiency consequences brought about by a weakening (strengthening) of the lock-in effect once individual capital gains MTRs are lowered (raised).

We also find a significantly positive relation between changes in the aggregate level of corporate investment in marketable securities and changes in the corporate MTR on ordinary income and an insignificantly positive association between changes in intercorporate investment and changes the corporate MTR on capital gains. These results are consistent with corporations scaling back expansion plans as MTRs increase and instead investing free cash flows in equity securities. Further, given that the MTRs on corporate ordinary income and capital gains were the same for much of our sample period, the effects for both rates may be reflected in our finding for MTRs on ordinary income. Thus, these results are also consistent with the notion that as the tax price of capital gains for corporations increases, corporations have more incentive to generate capital gains to offset current capital losses and/or unused capital loss carryforwards (i.e., the ability to deduct capital losses becomes more valuable).

Our findings are useful to policymakers concerned with behavioral responses to changes in tax policy, particularly in light of our finding that changes in *individual* tax policy may affect intercorporate investment behavior. This study should also be of interest to academics who seek to understand the impact of individual and corporate level taxes on corporate investment decisions.

The remainder of this paper is organized as follows: the next section provides a review of prior literature, and we develop our hypotheses in the third section. The fourth section discusses the methodology and data used to test the association between corporate investment and changes in tax rates. The fifth section presents the results of our analyses while the last section discusses our conclusions and possible limitations.

2. Prior literature

Slemrod (1992) posits that "there is a hierarchy of behavioral responses to taxation. At the top of the hierarchy – the most clearly responsive to tax incentives – is the timing of economic transactions." "In the second tier of the hierarchy are financial and accounting responses." "On the bottom of the hierarchy, where the least response is evident, are the real decisions of individuals and firms." Our study investigates the bottom of this hierarchy (theoretically the least responsive to tax changes) as we study how firms shift investments into and out of the stock market as a result of changes to various individual and corporate tax rates.

2.1. Individual taxes and corporate investment

2.1.1. Taxes on dividends and capital gains

2.1.1.1. The traditional view and tax capitalization. There are multiple views on the effects of dividend and capital gains taxation on corporate investment. The traditional view regards the taxation on corporate distributions as a 'double tax' that discourages corporate investment by emphasizing the importance of considering both corporate and individual tax rates when assessing the impact of taxes on corporate investment decision-making. This implies that the combined corporate/individual effective tax rate on corporate income (which would include both dividend and capital gains taxes) influences a firm's economic decisions and that the distribution of the tax burden between the shareholders and the corporation is irrelevant (Poterba & Summers, 1983). The alternate view posits that the stock market capitalizes the tax on dividends and capital gains into a firm's stock price, and therefore it will have no impact on corporate investment decisions. The capitalization of dividend and capital gains taxes has been widely studied with conflicting results (e.g., Ayers, Cloyd, & Robinson, 2002; Collins & Kemsley, 2000; Dhaliwal, Erickson, Frank & Banyi, 2003; Dhaliwal, Li & Trezevant, 2003; Erickson & Maydew, 1998; Hanlon, Myers, & Shevlin, 2003; Harris, Hubbard, & Kemsley, 2001; Harris & Kemsley, 1999; Kemsley, 2001a, 2001b; Lang & Shackelford, 2000).

Poterba and Summers (1983) find support for the traditional view that dividend taxes discourage corporate investment. Alstadsaeter, Jacob, and Michaely (2015) concur that cash-poor firms increase investment following a dividend tax cut, but also find this increase to be offset by a decrease in investment by cash-rich firms. Campbell et al. (2013) provide evidence supporting both studies' conclusions through investigating the Jobs and Growth Tax Relief Reconciliation Act of 2003, which reduced shareholder-level taxes on dividends and capital gains. Campbell et al. find that the increase in investment following the Act is largest for cash-poor firms and that a small subset of larger, older, and cash-rich firms increased dividend payout instead. Nadeau (1988) and Becker et al. (2013) also find that personal income taxation affects corporate investment through its effect on dividend payout.

Black et al. (2000) investigate the adoption of dividend imputation systems in 1987 by both New Zealand and Australia. Dividend imputation eliminates the double taxation on corporate profits by providing a tax credit (based on corporate taxes) to shareholders when they receive a dividend. At the same time, Australia also imposed a new tax on capital gains, which mitigates (or offsets) the advantages of dividend

[1] Federal tax law currently imposes only one corporate tax rate applicable to all taxable income. However, prior to 1988, a preferential rate was imposed on corporate capital gain income.

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imputation (Hamson & Ziegler, 1990). Black et al. (2000) find that corporate investment (the change in gross fixed assets plus R&D expenditures) was positively impacted by the dividend imputation systems adopted in both countries, leading them to conclude that any effects of the new capital gains tax in Australia were more than offset by those of the dividend imputation system.

Jugurnath et al. (2008) investigate the effect of individual taxes on corporate investment decisions using both the U.S. Tax Reform Act of 1986 (TRA86) and the 1987 adoption of Australia's dividend imputation system as settings. While the Australian dividend imputation system reduced the individual dividend tax rate, TRA86 eliminated the preferential tax treatment of capital gains, repealed the investment tax credit, generally lengthened depreciation lifetimes, and reduced corporate marginal tax rates. They find that Australian corporate investment (the change in gross fixed assets plus R&D expenditures) increased following adoption of the dividend imputation system. They also find that U.S. corporate investment decreased following the adoption of TRA86. These findings suggest that corporate investment is negatively associated with individual dividend and capital gain tax rates. Jugurnath et al. (2008) include both individual and corporate tax rates on ordinary income as independent variables in their fixed-effects regressions. The corporate tax rate variable is not significant in either the U.S. or Australian model. However, both models show the individual ordinary income tax rate variable to be significant, but of opposite sign.

Finally, Kaufman and Gitman (1988) and Kern (1994) investigate the impact of TRA86 and the Economic Recovery Tax Act of 1981, respectively, on corporate investment decisions. These studies find that various tax restriction modifications (e.g., changes to the investment tax credit and depreciation systems, the elimination of preferential treatment of long-term capital gains, the extension of the net operating loss carryover time period, changes to the marginal corporate tax rates) can provide either incentive or disincentive for capital investment.

2.1.1.2. The lock-in effect. An additional theory that is potentially useful in explaining the effect of capital gains taxes on trading behavior (generally) is the lock-in effect hypothesis, which posits that capital gains taxes influence the supply of equity because capital gains are taxed upon realization rather than as they accrue (Holt & Shelton, 1962). The lock-in effect occurs when a taxpayer forgoes selling a capital asset to buy another one with a higher expected return because the capital gains tax reduces the expected return below that of holding the original asset. The taxpayer also benefits from holding a capital asset through an interest-free tax deferral by paying taxes on gains only when it is actually sold. This advantage is further enhanced in the estate tax system when unrealized capital gains for a decedent are not taxable to either the estate or his/her heirs. The deferral advantage results in a relatively lower effective tax rate that causes an economic distortion resulting in investors being "locked-in" to the assets they hold (Auerbach, 1992). Thus, lower capital gains taxes would provide incentive for investors to dispose of capital assets and trade more often in order to realize higher gains (Auten & Cordes, 1991).

2.2. Corporate taxes and corporate investment

Palomba (2002) develops an analytical model to examine the dynamics of corporate investment over time in response to a corporate MTR change. The model indicates that while an increase in a corporation's MTR initially results in a decrease in investment, the effect is reversed over time as the firm slowly adapts its financing policy to its new tax rate. That said, long-term investments that are lost to a lower-tax regime are seldom recovered (e.g., Bakija & Slemrod, 2004). Djankov, Ganser, McLiesh, Ramalho, and Shleifer (2008) investigate the effect of corporate income tax rates on corporate investment by mid-sized companies in 85 countries using survey data from a standardized case study. They find that increases in effective corporate tax rates have a large adverse impact on aggregate corporate investment as well as FDI. Their results are robust to controlling for other tax rates, such as personal income taxes.

Cummins et al. (1996) report that prior research finds that changes in corporate tax rates have little effect on corporate investment. However, consistent with Djankov et al. (2008), they find evidence of statistically and economically significant responses in fixed asset investment to corporate tax rate changes in 12 of 14 Organization for Economic Co-operation and Development (OECD) countries by using firm-level panel data. Likewise, Moore (2014) finds an increase in corporate investment in fixed assets for both small and medium-size firms following a 2006 decrease in the Belgian corporate tax rate. Finally, Scholes, Wilson, and Wolfson (1990) find evidence that banks adjust their holdings of municipal bonds in response to changes in the taxation of these securities. They also show that banks adjust their investment decisions as their tax-paying status changes.

FDI is also shown to be sensitive to changes in corporate tax rates. As noted above, Djankov et al. (2008) find a negative association between changes in effective corporate tax rates and FDI. Waegenaere et al. (2012) find that increases in domestic corporate tax rates decrease investment in R&D if production occurs in the domestic country, but increase R&D investment if production occurs in a foreign country. Drebler (2012) studies the impact of corporate taxes on both German multinationals' direct investments abroad and foreign multinationals' investments in Germany. He finds a negative relationship between a foreign country's tax rate and German investment in that country, but is unable to find significant results in Controlled Foreign Corporations' (CFCs') investment in Germany with respect to German tax rates. Similarly, Brandstetter and Jacob (2013), when investigating the 2008 German corporate tax rate reduction, find that domestic firms significantly increased investments in Germany relative to CFCs.

3. Hypothesis development

3.1. Corporate investment responses to individual tax rates

3.1.1. Dividend tax rates

The traditional view of dividend taxation predicts a negative association between individual dividend tax rates and corporate investment. The alternative view posits that the stock market capitalizes dividend taxes into the stock price and therefore predicts that dividend tax rates will not impact corporate investment decisions (Poterba & Summers, 1983). However, even if the traditional view is correct, our measure of corporate investment (ownership of equity in other firms) is not total corporate investment. Firms may purchase equity securities *in lieu of* investing in corporate expansion. Therefore, it is possible that this form of investment will increase due to a substitution effect as expansion plans are put on hold, resulting in a positive relation between individual dividend tax rates and our measure of corporate investment. Therefore, we make no prediction about the association between corporate investment in marketable equity securities and individual dividend tax rate changes.

3.1.2. Capital gains tax rates

Similar to dividend tax rates, the traditional view would predict a negative association between changes in individual capital gains tax rates and corporate investment, while the tax capitalization hypothesis (i.e., alternate view) would predict no association. Also as with dividend tax rates, any effects consistent with the traditional view may be offset by the same substitution effect described above as the stock market may serve as an alternate investment vehicle where fixed asset and/or R&D investment becomes less attractive. However, the lock-in effect hypothesis is also directly relevant to our analysis of how individual capital gains tax rates may impact corporate investment in the stock market. Specifically, prior research suggests that when the capital gains MTR is reduced, the supply curve shifts down as a result of the lock-in effect

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while the demand curve shifts up as a result of the tax capitalization hypothesis (Dai, Maydew, Shackelford, & Zhang, 2008). Both Dai et al. (2008) and Ayers, Li, and Robinson (2008), investigating the capital gains tax rate reduction enacted by the Taxpayer Relief Act of 1997, find evidence suggesting that the tax capitalization hypothesis dominates following the announcement of the rate change, while the lock-in effect dominates after the rate change becomes effective. Since we examine changes in corporate ownership levels after a tax rate change becomes effective, we expect the lock-in effect to dominate and predict a negative association between corporate investment in equity securities and individual capital gains tax rates. Hypothesis 1 (stated in alternative form) is as follows:

H1. Corporate investment in marketable equity securities is negatively associated with changes in individual capital gains MTRs, ceteris paribus.

3.1.3. Ordinary income tax rates

Prior studies report mixed results as to the impact of individual ordinary income tax rates on corporate investment decisions. For example, Jugurnath et al. (2008), find that the TRA86 decrease in individual MTRs on ordinary income had a negative and significant impact on corporate investment in the U.S., while the 1987 decrease in individual MTRs on ordinary income in Australia had a positive and significant impact on corporate investment. Further, while the potential effect of dividend and capital gains taxes on corporate investment decisions is salient, it is not immediately clear from a theoretical perspective that individual tax rates on *ordinary* income should play any role at all in such decisions. Therefore, we make no prediction about the association between corporate investment in equity securities and individual ordinary MTR changes.

3.2. Corporate investment responses to corporate tax rates

3.2.1. Corporate ordinary income tax rates

As discussed previously, prior studies (e.g., Cummins et al., 1996; Djankov et al., 2008) find a negative association between corporate MTRs and aggregate and fixed investment. While at a surface level such findings may point to a prediction of a negative relation between corporate ordinary income tax rate changes and investment in equity securities, we expect a strong substitution effect. Specifically, we posit that firms facing an MTR increase will shift funds targeted for expansion (e.g., fixed assets and R&D) into liquid investments (e.g., the stock market) on average. Thus, we predict a *positive* association between corporate investment in equity securities and changes in corporate ordinary MTRs. Hypothesis 2 (stated in the alternative form) is as follows:

H2. Corporate investment in marketable equity securities is positively associated with changes in corporate MTRs, ceteris paribus.

3.2.2. Corporate capital gains tax rates

There are two competing theories that explain how corporate capital gains tax rates may influence corporate investment in marketable securities (Scholes et al., 1990). First, at a direct level, investment in marketable securities may decrease (increase) as the expected after-tax returns decrease (increase) resulting from a corporate capital gains tax rate increase (decrease). Second, corporations cannot deduct capital losses against ordinary income, but can only offset such losses against current capital gains. Any remaining capital losses can then offset capital gains recognized in the previous three years and/or the next five years. Capital losses become more valuable as the capital gains MTR increases, thus providing incentive for firms to increase investment in corporate securities that may generate offsetting gains. Therefore, we make no prediction about the association between corporate investment in equity securities and corporate capital gains tax rate changes.

4. Methodology and data

4.1. Regression model

Consistent with Poterba and Summers (1983), Nadeau (1988), and Jugurnath et al. (2008), our regression equations of changes in corporate investment include both individual and corporate tax rate change variables.[2] We estimate three ordinary least squares regression models to examine the impact of changes in individual and corporate MTRs on corporate investment in equity securities. The models are specified as follows:

$$Chg\_Invest_t = \alpha_t + \beta_1 Chg\_Ind\_Div\_TR_t + \beta_2 Chg\_Ind\_CG\_TR_t + \beta_3 Chg\_Corp\_TR_t + \beta_4 Chg\_Corp\_CG\_TR_t + \beta_5 Chg\_Mkt\_Rtn_t + \beta_6 Chg\_Inflat_t + \beta_7 Chg\_Unemp_t + \varepsilon_t \quad (1)$$

$$Chg\_Invest_t = \alpha_t + \beta_1 Chg\_Ind\_OI\_TR_t + \beta_2 Chg\_Ind\_CG\_TR_t + \beta_3 Chg\_Corp\_TR_t + \beta_4 Chg\_Corp\_CG\_TR_t + \beta_5 Chg\_Mkt\_Rtn_t + \beta_6 Chg\_Inflat_t + \beta_7 Chg\_Unemp_t + \varepsilon_t \quad (2)$$

$$Chg\_Invest_t = \alpha_t + \beta_1 Chg\_Ind\_OI\_TR_t + \beta_2 Chg\_Ind\_Div\_TR_t + \beta_3 Chg\_Ind\_CG\_TR_t + \beta_4 Chg\_Corp\_TR_t + \beta_5 Chg\_Corp\_CG\_TR_t + \beta_6 Chg\_Mkt\_Rtn_t + \beta_7 Chg\_Inflat_t + \beta_8 Chg\_Unemp_t + \varepsilon_t \quad (3)$$

where:

- Chg_Invest_t the change from year t-1 to year t in the aggregate value of investment in equity securities scaled by the year t-1 aggregate value of investment in equity securities for all firms in the *Compustat* database that have data available in both year t-1 and year t,
- $Chg\_Ind\_Div\_TR_t$ the change from year t-1 to year t in the top statutory MTR applicable to dividends for individuals,
- $Chg\_Ind\_CG\_TR_t$ the change from year t-1 to year t in the top statutory MTR applicable to capital gains for individuals,
- $Chg\_Corp\_TR_t$ the change from year t-1 to year t in the top statutory MTR applicable to ordinary income for corporations,
- $Chg\_Corp\_CG\_TR_t$ the change from year t-1 to year t in the top statutory MTR applicable to capital gains for corporations,
- $Chg\_Mkt\_Rtn_t$ the change from year t-1 to year t in the equally-weighted United States market return, and
- Chg_Inflat_t the change from year t-1 to year t in the United States inflation rate,
- Chg_Unemp_t the change from year t-1 to year t in the United States unemployment rate, and
- $Chg\_Ind\_OI\_TR_t$ the change from year t-1 to year t in the top statutory MTR applicable to ordinary income for individuals.

Model (1) is our base regression equation. The dependent variable, Chg_Invest_t, is our proxy for the change in the aggregate level of investment in the stock market by corporations.[3,4] Our primary independent variables of interest are the tax rate variables. As previously discussed, we make no prediction about the sign of the coefficient on $Chg\_Ind\_Div\_TR_t$, which accounts for changes in the individual dividend tax rate. Consistent with H1, a negative coefficient on $Chg\_Ind\_CG\_TR_t$

[2] Our study only controls for changes in tax rates, and any other modifications to tax law should bias against finding results.

[3] Our proxy includes Compustat variables Short-Term Investments and Investments & Advances – Other. Our proxy should bias against finding results to the extent that these variables contain additional amounts that are not marketable equity securities.

[4] In order to maintain a constant set of firms for year t-1 and year t, we use two sets of firms in the same year. For example, in year 1990, 2931 firms are used that also have year 1989 data available. However for year 1991, 3084 firms are used that have 1990 data available.

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would suggest that an increase (decrease) in the individual capital gains tax rate is associated with reduced (increased) investment in the stock market by corporations.

Chg_Corp_TR$_t$ and *Chg_Corp_CG_TR*$_t$ account for the impact of corporate tax rates on corporate investment decisions. H2 predicts the *Chg_Corp_TR*$_t$ variable to have a positive coefficient. As corporate MTRs increase (decrease), firms are likely to reduce (increase) "expansion" spending such as that on property, plant and equipment (e.g., Cummins et al., 1996; Djankov et al., 2008; Palomba, 2002). As higher MTRs make capital investment less attractive, firms may use the stock market as an alternate use of funds that otherwise would have been used for capital investment.

We make no prediction as to the sign of the *Chg_Corp_CG_TR*$_t$ variable. Investment in marketable securities may decrease (increase) as an increase (decrease) in the corporate capital gains MTR drives down (up) the expected after-tax return. However, given that corporate capital losses may only be offset by corporate capital gains, the generation of capital gains becomes more important as the corporate capital gains MTR increases because the tax benefit from any current capital losses or unused capital loss carryforwards becomes more valuable. Therefore, investment in marketable securities may increase (decrease) as the corporate capital gains tax rate increases (decreases).

In order to control for market performance as well as portfolio appreciation, we include a variable, *Chg_Mkt_Rtn*$_t$, which is the change in the equally weighted return for U.S. stock market from year *t*-1 to year *t*. Consistent with Gary (2009), we predict a positive association between *Chg_Mkt_Rtn*$_t$ and *Chg_Invest*$_t$ as a rising stock market should provide incentive to invest in marketable securities. Finally, we employ *Chg_Inflat*$_t$ and *Chg_Unemp*$_t$ to control for changes in general macroeconomic conditions. We predict the coefficients on both variables will be negative as investment should decrease when economic conditions are weakening.

While Model (1) accounts for multiple individual and corporate tax rate changes that may impact corporate investment behavior, it does not account for changes in the tax rate on ordinary income for individuals. The reason for this omission is that our data indicates a high correlation between changes in individual MTRs on ordinary income and dividends, with Pearson and Spearman coefficients exceeding 80% (see Table 4). The high correlation results from the fact that the individual dividend tax rate was tied to the ordinary income tax rate for our sample period until 2003, when it was then tied to the preferential long-term capital gains tax rate by the Jobs and Growth Tax Relief Act of 2003. To avoid concerns about harmful collinearity, we include in our base regression only the change in the dividend tax rate because it is likely more relevant (at least directly) to investment decisions than the tax rate on ordinary income. Nonetheless, we also estimate two alternate versions of our equation to explicitly examine the individual ordinary income tax rate as well. In Model (2), we replace *Chg_Ind_Div_TR*$_t$ with *Chg_Ind_OI_TR*$_t$, omitting the dividend tax rate variable altogether. In Model (3), we include both *Chg_Ind_Div_TR*$_t$ and *Chg_Ind_OI_TR*$_t$. As with our dividend tax rate variable, we make no prediction about the sign of the coefficient on *Chg_Ind_OI_TR*$_t$ in either Model (2) or Model (3).

4.2. Data and descriptive statistics

We derive our proxy for corporate investment from the Standard & Poor's *Compustat* database, aggregating firm-level data into one observation per year.[5] We collect historical MTRs on individual and corporate ordinary income and individual capital gains from the Tax Foundation website (Tax Foundation, 2010a, 2010b, 2010c), on individual dividend income from Tax Foundation (2005) and CCH (2009), and on corporate capital gains from Taylor (2004) and CCH (2009). We collect data on market returns (including all distributions) of the United States equal-weighted index from CRSP (Center for Research in Security Prices). United States annual inflation data is obtained from InflationData.com (2010) and data on annual unemployment rates is obtained from the United States Department of Labor (BLS, 2010). Our final sample consists of 40 year observations spanning the period 1969 through 2008.

Table 1 presents the highest statutory individual and corporate MTRs for each year in our sample. All three of the individual tax rates changed ten times during our sample period, with all ordinary income and dividend rate changes occurring in the same years. Changes to the individual capital gains tax rate range from −0.211% (in 1979) to 0.140% (in 1970), while changes in the individual ordinary income rate range from −0.200% (in 1982) to 0.086% (in 1994). The change pattern for the dividend tax rate follows that of the ordinary income tax rate exactly until 2003 when the federal government began taxing dividends at the capital gains rate. All three rates have generally trended downward over our sample period.

Corporate tax rates changed less frequently over our sample period than did individual rates. The ordinary and capital gains MTRs changed six and five times, respectively, with both rates changing in the same years in every case but one. The one exception is 1988 when only the ordinary income tax rate changed to merge the two rates together, and the two rates have been the same ever since. Changes to the ordinary income MTR range from −0.06% (in 1987 and 1988) to 0.010% (in 1993). Changes to the capital gains MTRs range from −0.020% (in 1979) to 0.06% (in 1987). The ordinary income MTR generally trended

Table 1
Maximum statutory tax rates by year.

Year	Individual			Corporate	
	Ordinary	Capital gains	Dividend	Ordinary	Capital gains
1969	77.00%	27.50%	77.00%	52.80%	25.00%
1970	71.75%	41.50%	71.75%	49.20%	28.00%
1971	70.00%	47.00%	70.00%	48.00%	30.00%
1972	70.00%	53.20%	70.00%	48.00%	30.00%
1973	70.00%	52.70%	70.00%	48.00%	30.00%
1974	70.00%	52.70%	70.00%	48.00%	30.00%
1975	70.00%	52.70%	70.00%	48.00%	30.00%
1976	70.00%	49.10%	70.00%	48.00%	30.00%
1977	70.00%	49.10%	70.00%	48.00%	30.00%
1978	70.00%	49.10%	70.00%	48.00%	30.00%
1979	70.00%	28.00%	70.00%	46.00%	28.00%
1980	70.00%	28.00%	70.00%	46.00%	28.00%
1981	70.00%	28.00%	70.00%	46.00%	28.00%
1982	50.00%	20.00%	50.00%	46.00%	28.00%
1983	50.00%	20.00%	50.00%	46.00%	28.00%
1984	50.00%	20.00%	50.00%	46.00%	28.00%
1985	50.00%	20.00%	50.00%	46.00%	28.00%
1986	50.00%	20.00%	50.00%	46.00%	28.00%
1987	38.50%	28.00%	38.50%	40.00%	34.00%
1988	28.00%	28.00%	28.00%	34.00%	34.00%
1989	28.00%	28.00%	28.00%	34.00%	34.00%
1990	28.00%	28.00%	28.00%	34.00%	34.00%
1991	31.00%	28.00%	31.00%	34.00%	34.00%
1992	31.00%	28.00%	31.00%	34.00%	34.00%
1993	31.00%	28.00%	31.00%	35.00%	35.00%
1994	39.60%	28.00%	39.60%	35.00%	35.00%
1995	39.60%	28.00%	39.60%	35.00%	35.00%
1996	39.60%	28.00%	39.60%	35.00%	35.00%
1997	39.60%	20.00%	39.60%	35.00%	35.00%
1998	39.60%	20.00%	39.60%	35.00%	35.00%
1999	39.60%	20.00%	39.60%	35.00%	35.00%
2000	39.60%	20.00%	39.60%	35.00%	35.00%
2001	39.10%	20.00%	39.10%	35.00%	35.00%
2002	38.60%	20.00%	38.60%	35.00%	35.00%
2003	35.00%	15.00%	15.00%	35.00%	35.00%
2004	35.00%	15.00%	15.00%	35.00%	35.00%
2005	35.00%	15.00%	15.00%	35.00%	35.00%
2006	35.00%	15.00%	15.00%	35.00%	35.00%
2007	35.00%	15.00%	15.00%	35.00%	35.00%
2008	35.00%	15.00%	15.00%	35.00%	35.00%

[5] See footnotes 3 and 4.

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downward while the capital gains MTR trended upward until the late 1980s when the two rates merged. Thereafter, the corporate MTR has been relatively stable.

Table 2 presents the number of firms used in the measurement of the dependent variable for each sample observation by year, as well as data on average total assets and investment. Mean (median) total assets for the sample firms increased by 2011 (483) percent from 1969 to 2008, while mean (median) investment increased by 4324 (27) percent during the same period.

Descriptive statistics for our regression variables are shown in Table 3. Chg_Invest_t has a mean (median) value of 0.7 (9.2) percent and ranges from −73.8 to 39.3%. The mean values for the tax rate change variables are all slightly negative (ranging from −1.5 to −0.3%) with the one exception of $Chg\_Corp\_CG\_TR_t$, which has a mean of 0.3%. All of the tax rate change variables have zero values at the 25th, 50th, and 75th percentiles, reflecting no rate change in most sample years. Finally, the mean (median) value for Chg_Inflat_t is −1.1 (16) percent, while the same for Chg_Unemp_t is 5.5 (−20) percent.

Pearson (upper diagonal) and Spearman (lower diagonal) correlation coefficients for our regression variables are reported in Table 4. As previously discussed, the correlation coefficient (on both diagonals) between $Chg\_Ind\_Div\_TR_t$ and $Chg\_Ind\_OI\_TR_t$ exceeds 0.80, prompting the omission of the individual ordinary income rate variable from our base regression model (Model (1)). Two other pairs of variables have correlation coefficients above 0.60: $Chg\_Corp\_CG\_TR_t$ and $Chg\_Ind\_CG\_TR_t$ have correlation coefficients of 0.67 and 0.60 on the Pearson and Spearman diagonals, respectively, and $Chg\_Corp\_CG\_TR_t$ and $Chg\_Corp\_TR_t$ have correlation coefficients of −0.61 and −0.21 on the Pearson and Spearman diagonals, respectively. No other correlation coefficient exceeds 0.55, suggesting that after omitting the individual ordinary income tax rate variable from the model, harmful collinearity is not a significant issue in our data.

Table 3
Descriptive statistics.

Variable	Full sample (n = 40)						
	Mean	Std. dev.	Min	25%	Median	75%	Max
Chg_Invest_t	0.007	0.257	−0.738	−0.036	0.092	0.168	0.393
$Chg\_Ind\_OI\_TR_t$	−0.010	0.043	−0.200	0.000	0.000	0.000	0.086
$Chg\_Ind\_Div\_TR_t$	−0.015	0.056	−0.236	0.000	0.000	0.000	0.086
$Chg\_Ind\_CG\_TR_t$	−0.003	0.049	−0.211	0.000	0.000	0.000	0.140
$Chg\_Corp\_TR_t$	−0.004	0.015	−0.060	0.000	0.000	0.000	0.010
$Chg\_Corp\_CG\_TR_t$	0.003	0.011	−0.020	0.000	0.000	0.000	0.060
$Chg\_Mkt\_Rtn_t$	−0.020	0.383	−0.679	−0.277	−0.107	0.214	0.930
Chg_Inflat_t	−0.011	1.810	−4.190	−1.085	0.160	0.875	4.870
Chg_Unemp_t	0.055	0.936	−2.100	−0.500	−0.200	0.700	2.900

Chg_Invest_t is the change from year t-1 to year t in the aggregate value of investment by *Compustat* firms; $Chg\_Ind\_OI\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to ordinary income for individuals; $Chg\_Ind\_Div\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to dividends for individuals; $Chg\_Ind\_CG\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to capital gains for individuals; $Chg\_Corp\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to ordinary income for corporations; $Chg\_Corp\_CG\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to capital gains for corporations; $Chg\_Mkt\_Rtn_t$ is the change from year t-1 to year t in the equal-weighted United States market return; Chg_Inflat_t is the change from year t-1 to year t in the United States inflation rate; and Chg_Unemp_t is the change from year t-1 to year t in the United States unemployment rate.

Table 2
Firm statistics.

Year	N	Total assets ($k)			Investments ($k)		
		Mean	Median	Std. dev.	Mean	Median	Std. dev.
1969	896	331	53	1012	25	1.486	135
1970	1196	336	54	999	22	1.397	116
1971	1228	363	58	1126	28	1.795	164
1972	1315	371	59	1161	31	1.877	176
1973	1420	407	64	1409	37	1.685	214
1974	1761	505	77	1593	37	1.465	243
1975	2257	425	51	1452	37	1.258	274
1976	2482	465	47	1608	46	1.257	329
1977	2472	533	50	1815	64	1.181	598
1978	2411	623	58	2106	77	1.510	696
1979	2297	776	65	2760	95	1.546	855
1980	2100	851	64	3080	110	1.781	950
1981	1994	928	64	3372	132	2.299	1207
1982	1863	901	61	3247	119	2.452	1134
1983	1786	926	62	3335	131	2.817	1322
1984	1698	974	63	3565	147	2.570	1400
1985	1629	1088	61	4216	172	2.400	1871
1986	1669	1138	57	4620	201	2.702	2233
1987	1699	1169	60	4956	225	1.857	2725
1988	1884	1214	70	5017	115	0.301	1106
1989	2773	1539	97	5933	129	0.303	1134
1990	2931	1641	92	6526	152	0.178	1474
1991	3084	1638	85	6708	162	0.262	1595
1992	3275	1568	86	6628	163	0.400	1735
1993	3623	1519	88	7408	155	0.583	2.107
1994	3969	1498	94	7207	133	0.797	1149
1995	4282	1626	102	8016	175	0.735	1435
1996	4901	1700	103	9152	212	0.731	2345
1997	5079	1784	114	10,708	244	0.728	3476
1998	4999	2094	133	12,108	302	0.429	3949
1999	5182	2394	123	16,097	350	0.409	5139
2000	5094	2699	142	17,801	417	0.407	6686
2001	4921	3150	134	23,103	528	0.250	9330
2002	4710	3705	139	27,680	654	0.293	10,627
2003	4602	4255	152	33,927	762	0.332	13,435
2004	4490	4781	176	40,999	905	0.910	16,279
2005	4332	4970	194	41,097	951	1.218	17,226
2006	4249	5887	215	54,005	1255	1.531	23,806
2007	4028	6819	263	61,164	1391	1.999	26,121
2008	3606	6989	309	59,591	1106	1.885	19,624

N is the number of firms in our sample for the listed year that report investments (≥$0) for both the listed year and the previous year and have a December fiscal year-end. *Total assets* are the assets (in thousands) at the end of the listed year. *Investments* is the sum of "Investments and Advances – Other" plus "Short-Term Investments – Total" (in thousands) for the end of the listed year as reported by *Compustat*.

5. Empiricial results

5.1. Main results

Our regression results are presented in Table 5. The results for Model (1) are presented in Column 1. The estimated coefficient on $Chg\_Ind\_CG\_TR_t$ is significantly negative ($p < 0.05$), indicating that an increase (decrease) in the individual capital gains MTR is associated with a decrease (increase) in investment by corporations, consistent with H1. Consistent with H2, the estimated coefficient on the tax rate on corporate ordinary income ($Chg\_Corp\_TR_t$) is positive and significant in the model ($p < 0.01$), suggesting that an increase (decrease) in the corporate MTR is associated with an increase (decrease) in corporate investment. Both of the other tax rate variables in the model have positive coefficients, neither of which is significant. The weak result for $Chg\_Corp\_CG\_TR_t$ could be attributable to the high correlation between it and $Chg\_Corp\_TR_t$, which stems in large part from the ordinary and capital gain tax rates being merged together for much of the sample period.

The results for our macroeconomic control variables are generally consistent with predictions. Both Chg_Inflat_t and Chg_Unemp_t have significantly negative coefficients ($p < 0.05$) as expected. Finally, the coefficient on the market return variable ($Chg\_Mkt\_Ret_t$) is positive as expected, but insignificantly so.

Columns 2 and 3 in Table 5 present the results of Models (2) and (3), respectively, where the change in the individual ordinary income tax rate ($Chg\_Ind\_OI\_TR_t$) is inserted either in place of or in addition to the individual dividend tax rate variable. In both cases, $Chg\_Ind\_OI\_TR_t$ is insignificant, and the results for all other variables in the model remain consistent with those reported above for the base specification. Most

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Table 4
Pearson/Spearman correlation matrix.

	Chg_Invest_t	$Chg\_Ind\_OI\_TR_t$	$Chg\_Ind\_Div\_TR_t$	$Chg\_Ind\_CG\_TR_t$	$Chg\_Corp\_TR_t$	$Chg\_Corp\_CG\_TR_t$	$Chg\_Mkt\_Rtn_t$	Chg_Inflat_t	Chg_Unemp_t
Chg_Invest_t		0.19	0.10	**−0.37**	**0.47**	**−0.34**	0.01	−0.30	−0.19
$Chg\_Ind\_OI\_TR_t$	−0.01		**0.83**	−0.01	**0.55**	**−0.40**	−0.22	0.18	−0.24
$Chg\_Ind\_Div\_TR_t$	−0.03	**1.00**		0.08	**0.39**	−0.29	**−0.37**	0.10	−0.20
$Chg\_Ind\_CG\_TR_t$	**−0.33**	−0.04	−0.01		−0.24	**0.67**	−0.10	−0.07	0.07
$Chg\_Corp\_TR_t$	0.15	**0.51**	**0.49**	−0.27		**−0.61**	−0.13	−0.19	0.07
$Chg\_Corp\_CG\_TR_t$	−0.18	**−0.41**	**−0.40**	**0.60**	−0.21		0.01	0.02	0.02
$Chg\_Mkt\_Rtn_t$	−0.07	**−0.34**	**−0.35**	−0.09	−0.23	0.10		−0.14	**0.45**
Chg_Inflat_t	−0.24	0.09	0.09	0.04	−0.17	−0.09	−0.21		−0.27
Chg_Unemp_t	−0.13	−0.20	−0.20	0.11	−0.02	0.03	0.28	−0.28	

Pearson and Spearman correlation coefficients appear in the upper and lower diagonals, respectively. Bolded font indicates a statistically significant correlation at the $p \le 0.05$ level. Chg_Invest_t is the change from year t-1 to year t in the aggregate value of investment by *Compustat* firms; $Chg\_Ind\_OI\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to ordinary income for individuals; $Chg\_Ind\_Div\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to dividends for individuals; $Chg\_Ind\_CG\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to capital gains for individuals; $Chg\_Corp\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to ordinary income for corporations; $Chg\_Corp\_CG\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to capital gains for corporations; $Chg\_Mkt\_Rtn_t$ is the change from year t-1 to year t in the equal-weighted United States market return; Chg_Inflat_t is the change from year t-1 to year t in the United States inflation rate; and Chg_Unemp_t is the change from year t-1 to year t in the United States unemployment rate.

Table 5
OLS regression results.

		Dependent variable — $ChgInvest_t$					
Independent variables		1		2		3	
(Predicted sign)		Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
Intercept	(?)	0.03435	0.95	0.03349	0.93	0.03396	0.90
Tax rate variables							
$Chg\_Ind\_OI\_TR_t$	(?)			0.17611	0.16	0.09472	0.05
$Chg\_Ind\_Div\_TR_t$	(?)	0.12202	0.16			0.07172	0.06
$Chg\_Ind\_CG\_TR_t$	(−)	−2.04626	−2.00 ##	−2.05054	−1.98 ##	−2.05568	−1.95 ##
$Chg\_Corp\_TR_t$	(+)	8.47690	2.66 ###	8.33929	2.39 ##	8.38835	2.31 ##
$Chg\_Corp\_CG\_TR_t$	(?)	5.18742	1.00	5.18874	1.00	5.21870	0.99
Control variables							
$Chg\_Mkt\_Ret_t$	(+)	0.09795	0.94	0.09331	0.92	0.09597	0.85
Chg_Inflat_t	(−)	−0.04477	−2.25 ##	−0.04532	−2.19 ##	−0.04513	−2.12 ##
Chg_Unemp_t	(−)	−0.09484	−2.26 ##	−0.09363	−2.16 ##	−0.09410	−2.10 ##
N		40		40		40	
F-stat.		3.84	($p < 0.01$)	3.84	($p < 0.01$)	3.25	($p < 0.01$)
Adj. R^2		0.3374		0.3374		0.3161	

###, ##, and # indicate significance based on a two-tailed (one-tailed) test at the 1%, 5% and 10% levels, respectively. The dependent variable is Chg_Invest_t, which is defined as the change from year t-1 to year t in the aggregate value of investment by Compustat firms. $Chg\_Ind\_OI\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to ordinary income for individuals; $Chg\_Ind\_Div\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to dividends for individuals; $Chg\_Ind\_CG\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to capital gains for individuals; $Chg\_Corp\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to ordinary income for corporations; $Chg\_Corp\_CG\_TR_t$ is the change from year t-1 to year t in the top statutory tax rate applicable to capital gains for corporations; $Chg\_Mkt\_Rtn_t$ is the change from year t-1 to year t in the equal-weighted United States market return; Chg_Inflat_t is the change from year t-1 to year t in the United States inflation rate; and Chg_Unemp_t is the change from year t-1 to year t in the United States unemployment rate.

notably, $Chg\_Ind\_CG\_TR_t$ and $Chg\_Corp\_TR_t$ remain significantly negative and positive, respectively, continuing to support both H1 and H2.

5.2. Sensitivity analysis

We perform a number of additional analyses to test the robustness of our results to alternate model specifications. First, we add control variables to Models (1) through (3) for the purpose of accounting for firms' capacity or flexibility to invest in the stock market. These variables are the percentage of firms that experienced an increase in working capital from year t-1 to year t (to capture firms' liquidity and general financial flexibility), the percentage of firms that experienced an increase in foreign earnings from year t-1 to year t (to capture firms' permanently reinvested foreign earnings), and the percentage of firms with a net operating loss carryforward for tax purposes in either year t-1 or year t (to capture the potentially reduced sensitivity to tax rate changes for firms with net operating loss carryforwards). Second (separately), we re-estimate each regression model adding further controls for changes in macroeconomic conditions (i.e., prime interest rate, median housing price, and gross domestic product). Third (separately), we re-estimate each regression model adding controls for alternative corporate investment vehicles commonly examined in prior literature (i.e., aggregate R&D expenditures, subsidiary acquisitions, and changes in gross fixed assets).

Finally, the basis upon which firms report investment in marketable equity securities on the balance sheet changed from cost to market during our sample period as a result of the implementation of Statement of Financial Accounting Standards (SFAS) No. 115, Accounting for Certain Investments in Debt and Equity Securities, which became effective in 1994. Given that our dependent variable is estimated from these financial statement disclosures, we perform a test to ensure that our results are not influenced by the accounting standard change. Specifically, we re-estimate Models (1) and (2) inserting an indicator variable coded 1 for all years after 1993, and 0 otherwise, and interaction terms between this indicator variable and our individual tax rate variables (i.e., dividends, ordinary income, and capital gains as applicable).[6] In both cases, a significant coefficient on either interaction term would

[6] We do not interact the pre- vs. post-SFAS No. 115 indicator variable with the corporate tax rate variables because the two corporate rates had been merged together by that time, and the combined corporate tax rate did not change after the implementation of SFAS No. 115.

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indicate that the association between our measure of corporate investment and the tax rate variable corresponding to that interaction term differed between the pre- vs. post-SFAS No. 115 periods.

Our conclusions with respect to all of the tax rate variables are unchanged by any of these modifications. Specifically, $Chg\_Ind\_CG\_TR_t$ (negative) and $Chg\_Corp\_TR_t$ (positive) remain the only significant tax rate variables, and none of the interaction terms for the SFAS No. 115 test is significant. Further, the magnitudes of the coefficients on the main tax rate variables remain similar to those reported in Table 5 for our main analyses.

5.3. Summary

In summary, our results indicate that intercorporate investment is positively associated with changes in the top statutory corporate MTR and negatively associated with changes in the top statutory individual capital gains MTR but is not significantly associated with the MTRs on dividends or ordinary income for individuals or capital gains for corporations. The results for individual-level tax rates suggests that corporations respond to the after-tax rate of return and/or market efficiency consequences brought about by a weakening (strengthening) of the lock-in effect once individual capital gains tax rates are lowered (raised). The results for corporate-level tax rates on ordinary income suggest that as corporations scale back expansion plans as a result of increases in tax rates, there is a substitution effect of investing those excess funds in the stock market. However, given that the MTRs on corporate ordinary income and capital gains were the same for much of our sample period, our finding for tax rates on ordinary income may also capture the effects of tax rates on corporate capital gains, potentially explaining the insignificant direct result for corporate capital gains tax rates. Thus, our findings on corporate tax rates may also reflect the notion that as the tax price of capital gains for corporations increases, corporations have more incentive to generate capital gains to utilize current capital losses and/or unused capital loss carryforwards (i.e., the ability to deduct capital losses becomes more valuable). These effects appear to overwhelm any effect of the reduction in after-tax returns on these investments caused by the increase in corporate tax rates.

Based on the reported coefficients for the base model in Table 5 (Model (1)), our main results indicate that corporate investment in marketable securities increases by approximately 2% for each one percentage point decrease in the individual capital gains tax rate, or approximately $23,000 ($39,000) for the mean (median) firm in our 2008 sample. Likewise, corporate investment increases by approximately 8.5% for each one percentage point increase in the corporate ordinary income tax rate. Therefore, corporate investment should increase by approximately $94,000 ($160,000) for the mean (median) firm in our 2008 sample following a one percentage point increase in the corporate ordinary income tax rate. Our evidence suggests that, in aggregate, changes in the marginal tax rates on individual capital gains and corporate ordinary income have a potentially economically significant impact on intercorporate investment.

6. Conclusions and limitations

This study investigates whether changes in various individual- and corporate-level statutory tax rates impact the level of investment by corporations in the stock market. While the effects of taxes on business decisions have been examined extensively in the prior literature in the contexts of capital structure, dividend policy, compensation policy, and expansion-related investment, no study of which we are aware considers the impact of tax policy on corporate investment in marketable equity securities. We extend this literature by considering another (non-expansion related) type of corporate investment, marketable equity securities.

Using an ordinary least squares regression methodology and a sample of 40 annual observations covering the period 1969 to 2008, we find that changes in individual capital gains MTRs are negatively and significantly related to changes in the aggregate level of corporate investment in other corporations. We find no such association for changes in either ordinary or dividend MTRs for individuals. The results for individual-level tax rates suggests that corporations respond to the after-tax rate of return and/or market efficiency consequences brought about by a weakening (strengthening) of the lock-in effect once individual capital gains tax rates are lowered (raised).

We also find a significantly (insignificantly) positive relation between changes in the aggregate level of corporate investment in marketable securities and changes in corporate MTRs on ordinary income (capital gains). These results suggest that as corporations scale back expansion plans as a result of increases in tax rates, they invest the excess funds in the stock market. Further, as the MTRs on corporate ordinary income and capital gains were the same for much of our sample period, the effects for both rates may be captured in our finding for tax rates on ordinary income, potentially leading to the weak direct result for corporate capital gains tax rates. Accordingly, our findings on corporate tax rates may also reflect the notion that as the tax price of capital gains for corporations increases, corporations have more incentive to generate capital gains to utilize current capital losses and/or unused capital loss carryforwards (i.e., the ability to deduct capital losses becomes more valuable). These effects appear to overwhelm any effect of the reduction in after-tax returns on these investments caused by the increase in tax rates.

These findings should be of use to policymakers to the extent that they are concerned about behavioral responses to changes in tax policy. This study should also be of interest to academics who seek to understand the impact of taxes on businesses in that it broadens the inquiry to include a type of corporate investment that has not previously been considered in the literature. Consistent with some prior research, our results suggest that real corporate decisions are influenced by individual tax policy.

This study should be read bearing in mind some limitations. First, our measure of changes in aggregate corporate investment may not fully reflect new investment in the stock market from year to year or may include variation that results from market fluctuations (vs. new investment). However, we do not see it as likely that this measurement error biases our investment measure systematically in one way or the other. Further, given that our proxy contains more than just investment in marketable equity securities, we believe that any bias that does exist is likely in the direction of making the tests of our hypothesized associations weaker, thus biasing against rejecting the null.

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