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Article

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NBER Reporter Online

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Suggested Citation: Shackelford, Douglas A. (2004) : Capital gains taxes and equity prices, NBER Reporter Online, National Bureau of Economic Research (NBER), Cambridge, MA, Iss. Fall 2004, pp. 17-20

This Version is available at:
https://hdl.handle.net/10419/61852

Capital Gains Taxes and Equity Prices

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The extent to which individual shareholders' taxes affect equity prices is central to valuation and tax policy. Historically, the dividend tax has attracted more scholarly attention than the capital gains tax. Even today the debate between the traditional view and the (now not-so-new) new view continues, and studies of the 2003 reduction in the dividend tax are already emerging.[1]

Conversely, the appropriate tax on capital gains has long been hotly contested in policy circles but has received comparably little attention from scholars. This is surprising because most companies pay no dividends and those that do pay dividends typically distribute only a small fraction of their profits. Thus, the capital gains tax would appear to be more important for investors than the dividend tax. In recent years scholars have become increasingly interested in the impact of the capital gains tax on share prices. This report summarizes some of that recent research.

Necessary Conditions for Share Prices to be Affected by Taxes

When an investor sells a share of stock, the United States taxes the difference between the sales price and its tax basis, which is usually the purchase price. Except for the period 1988-90, individual investors have been rewarded with a reduced tax rate if they hold the stock for a minimum period, which has ranged from six to 18 months. Currently the appreciation on investments held for more than one year (long-term capital gains) is taxed at a maximum rate of 15 percent while the appreciation on investments held for shorter periods (short-term capital gains) is taxed at the ordinary tax rate, currently capped at 35 percent.

Policy debates about the level and appropriateness of capital gains taxes almost always revolve around the long-term capital gains tax rate and the length of the requisite holding period. Since changes in these policies often provide added power to our tests of the impact of capital gains taxes on share prices, let's consider the necessary conditions for a change in the long-term capital gains tax rate to affect share prices.[2] To begin with, the marginal investor in the firm must be an individual or a flow-through entity that passes capital gains to individual tax returns. If other investors (for example, qualified retirement plans, corporations, tax-exempt organizations, or foreign entities) are setting prices, then changes in the long-term rate should have no effect on prices because preferential rates for long-term gains only apply to individuals.

Furthermore, the marginal investor must be willing to hold the stock for the obligatory long-term holding period, must dispose of the stock in a taxable manner (for example, not as a charitable donation or bequest), must intend to comply with the law (capital gains noncompliance is known to exceed that of wages, dividends, interest, and many other sources of income),[3] and must not have anticipated the tax rate change. In addition, because of complex netting provisions, the long-term capital gains tax rate applies if and only if an individual's long-term capital gains during the year exceed his long-term capital losses and the excess of his short-term capital losses over his short-term capital gains, if any.[4] Finally, inelasticities in the supply of capital must prevent immediate readjustment throughout the economy following the tax rate change.

All of these conditions must hold for a change in the long-term capital gains tax rate to affect prices (other than through indirect macroeconomic shifts). Similar conditions must hold for other changes in the taxation of capital gains to affect share prices. Thus, it is an empirical question whether changes in capital gains taxes affect share prices.

The remainder of this article reviews recent research designed to provide some empirical underpinning. In general, the preliminary evidence suggests that capital gains taxes affect equity prices and may contribute to short-term departures from fundamental prices. An implication of these findings is that changes in capital gains taxation affect firms differently depending upon the composition and preferences of their investors. For example, the results suggest that two firms, identical in all regards, except the tax treatment of their investors, could have different prices (at least temporarily).

Challenges to Empirical Work

Estimating the influence of personal capital gains taxes on equity prices is challenging because of both theoretical and empirical limitations. First, the theory struggles to provide adequate guidance and structure. The reason lies with the realization principle that underpins capital gains taxes. Shareholder capital gains taxes are triggered by trades in the secondary market, share repurchases, and liquidating distributions of a company.[5] In the simplest of worlds, capital gains taxes could be fully avoided by distributing all profits to shareholders as they are earned. This assumes that profits monetize as they are earned, enabling their immediate distribution as cash dividends. It also assumes that expected earnings never change. Under these conditions, share prices would never change and the company's value at liquidation would equal the shareholder's

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original capital contribution. Against this backdrop, a theory of capital gains taxes must assume that the costs created by complete and immediate distribution (including the dividend tax) exceed the otherwise unnecessary capital gains tax that investors incur to monetize their investments.

As if this complication is not enough, individuals who inherit stock assume a tax basis equal to the fair market value of the shares at the date of death. Therefore, a bequest can be sold immediately without incurring any capital gains taxes. Thus, it becomes difficult to explain why so many capital gains taxes are paid without resorting to incompleteness in the capital markets. Consequently, theory struggles to grapple with the existence of capital gains taxes, leaving empirical work with limited guidance or structure.

Empirical work is further impeded because the identity, and thus the tax status, of a firm's shareholders are rarely observable.[6] Thus, although we might predict that the extent to which capital gains taxes affect equity prices is a function of the extent to which individuals hold its stock, we are almost always left with crude estimates of the individual ownership of a specific company. The combination of inadequate theoretical structure and poor measures of the tax status of the shareholders makes it difficult to construct strong tests of the relation between equity prices and individual capital gains taxes and doubtless is a partial explanation for its historical oversight. Having said that, let's now look at some recent work that has found ways to partially overcome these limitations.

Price Responses to Changes in Anticipated Capital Gain Taxes

Wayne Landsman and I had the opportunity to observe the tax status of investors around the 1989 RJR Nabisco leveraged buyout.[7] Examining the confidential records of individual shareholders, we find that, during the period that the stock was in play, shareholders facing smaller capital gains taxes sold their shares at a lower price than did shareholders facing larger capital gains taxes. In other words, shareholders demanded compensation to accelerate their long-term capital gains taxes. We estimate that the share price increased by 20 cents, on average, to entice an investor with one dollar of lower tax basis to sell.

Mark Lang and I examined a legislative change that enabled us to observe capital gains tax effects in stock prices.[8] We study stock price movements for the 2000 largest American firms around the 1997 reduction in the long-term capital gains tax rate from 28 percent to 20 percent. We assume that individuals will be more attracted (from a tax perspective) to firms paying low or no dividends, that is, companies where a higher percentage of their returns would come from capital gains, rather than dividends.

Consistent with this prediction, we find that the raw returns of non-dividend-paying firms were 6.8 percentage points greater than the raw returns of other firms during the May 1997 week when Congress and the White House agreed to reduce the long-term capital gains tax rate. Results qualitatively hold when controls are added. We interpret these findings as evidence that investors discriminated among companies based on the probability that shareholder returns would be affected by the new capital gains tax rates. The fact that we find different returns implies that the necessary conditions, detailed above, held during the investigative period.

Our findings are contrary to predictions in the business press that rate cuts would lead to widespread sell-off of appreciated securities by pent-up investors. Furthermore, we found no reversal of the returns during the summer of 1997, consistent with the rate reduction leading to permanent price differences.

Price Pressure around Holding Periods

It is important to note that the two studies detailed above are unusual. In the RJR Nabisco study, we observe the actual appreciation realized by individual shareholders. Such databases are rare. Access to similar databases at companies or brokerage houses would greatly advance the research in this field. In the 1997 rate reduction study, we are able to employ the power of a short-window event study. This empirical approach is rarely possible with tax legislation. Normally, tax policy evolves over months, if not years, and news slowly leaks to the markets. Thus, event studies must investigate a window so large that tax effects are swamped by other effects. In our case, a short-window approach was an option because the markets were surprised by an eleventh-hour agreement to cut rates after months of failure to reach a budget accord.

Limited in their ability to link equity prices and individual capital gains tax incentives, several recent studies have turned to analyzing price effects around the date when stocks convert from short-term to long-term treatment. Recall that the capital gains tax rate drops dramatically once an investor has held stock for the required minimum period. For example, under current law, gains are taxed up to 35 percent until the stock has been held for one year; the following day the rate is capped at 15 percent. This precipitous fall in rates provides a potentially powerful setting for detecting the footprints of capital gains tax effects in the patterns of price movements. The remainder of this summary will focus on this emerging literature.

Ro Verrecchia and I constructed a theoretical model for evaluating capital gains tax incentives created by the discontinuity in rates.[9] We analyze the impact of the tax penalty associated with short-term capital gains on equity prices and trading volume. Using a stylized model of trade, we show that capital gains taxes can restrain the portfolio rebalancing that would occur in their absence. If investors face tax-disfavored short-term capital gains on the sale of appreciated stock, then they limit the supply of equity. To induce selling, buyers must compensate sellers through higher share prices for the incremental taxes associated with short-term capital gains.

Several empirical studies test whether this rate discontinuity affects equity prices and trading volume. These studies generally investigate short windows and test whether capital gains tax

incentives affect trading volume and, if so, whether the volume surge is large enough to move prices. William Reese recognized that initial public offerings (IPOs) provide a particularly attractive investigative setting for such studies because individuals hold disproportionate shares of these companies and the IPO provides a start date for computing long-term capital gains holding periods.[10] He reports that from 1976-86 trading volume increased and prices fell for appreciated firms when their initial public shareholders (those who buy at the IPO) first qualified for long-term capital gains tax treatment. Reese's findings are consistent with a surge in selling pressure (when the lower rates first apply) that could not be met at the current market price.

Jennifer Blouin, Jana Raedy, and I also examine IPOs to test price pressure arising from holding period effects.[11] On June 24, 1998, the joint Senate-House conference committee released its version of the IRS Restructuring and Reform Act of 1998. The conference bill unexpectedly reduced the marginal tax rate on capital gains from 28 percent to 20 percent for individual investors who had held shares for at least 12 months, but not more than 18. We compare firms whose initial public shareholders immediately benefited from the reduction to other IPO firms to determine whether the pent-up demand to sell by affected shareholders was enough to create downward price pressure in the equity markets.

We find that immediately affected firms recorded mean, incremental, one-day stock price declines of 1.3 percent amid heavy trading. However, the tumble was temporary with prices rebounding on the next trading day. The results imply that transaction costs are large enough to prevent investors from entering the market immediately and fully offsetting the downward price pressure from individuals selling off shares at the first possible tax-favored date. However, the tax-induced drift from fundamentals lasted only one day, on average. This finding is consistent with Reese's IPO study but contrasts with my work with Lang where we found no evidence of a sell-off when capital gain tax rates were reduced unexpectedly in 1997.

Jim Poterba and Scott Weisbenner link holding period incentives for *depreciated* shares to the January effect.[12] They find that turn-of-the-year returns for depreciated firms were greatest from 1970 to 1976 and in 1985 and 1986, years when half of any net long-term capital losses expired unused while short-term capital losses could be deducted fully, a provision that the Tax Reform Act of 1986 eliminated. They interpret this result as consistent with price reversal following a tax-induced, year-end sell-off intended to ensure short-term capital loss treatment. Their findings imply that tax planning around those year-ends was important enough to move prices.

Both Reese and Poterba and Weisbenner investigate unusual trading circumstances and tax conditions that changed with the Tax Reform Act of 1986. My earlier work with Blouin and Raedy is limited to the same unusual firms (IPOs) as Reese (1998), and we examine only one day of legislative news in that study. Therefore, Blouin, Raedy, and I performed another study, described below, that attempted to determine whether these findings in support of price pressure reflect exceptions to the rule (that is, only occur under special tax conditions) or whether they illustrate a more general pricing role for capital gains taxes.[13]

To provide a more general test, we investigate equity trading from 1978 to 1999 around two different disclosures: quarterly earnings announcements and changes to the Standard & Poor's 500 index. Both public disclosures are known to trigger substantial portfolio rebalancing and thus potentially provide a sufficiently powerful setting to detect the impact of capital gains taxes on trading. For each disclosure, we regress both abnormal returns and abnormal trading volume on the estimated incremental taxes that would be triggered if the appreciated property were sold immediately before it qualified for long-term treatment. Incremental taxes are measured as the product of the spread between long-term and short-term capital gains tax rates (which ranged from zero to 50 percent during the years examined) and the change in the firm's price during the requisite holding period (which ranged from six to 18 months). In other words, if an individual is at the long-term/short-term cusp when a disclosure occurs, then the tax measure captures his taxes saved by deferring the sale of appreciated property for precisely one day.

We find that the tax variable is a determinant of equity trading for appreciated stocks around both earnings announcements and additions to the S&P 500 index. The supply of equity shrinks and prices rise with the tax penalty associated with short-term capital gains. The price movement is temporary, though, largely reversing after a week of trading. This reversal implies that preferential treatment for long-term capital gains increases stock market volatility.

These results suggest that the pool of selling shareholders is so thin around these disclosures that buyers must tap one of the most tax-disadvantaged shareholder groups, that is, individual holders of appreciated shares who have not yet met the holding period requirement to qualify for long-term treatment. To attract these investors, buyers must provide additional compensation. In this regard, the results of this study are similar to those in my study with Landsman, where added compensation was required to attract sellers who faced larger taxes on their sales.

To summarize the contribution of this paper, previous work documented that capital gains taxes matter in circumstances where tax planning is particularly salient. Such settings include changes in tax policy, transactions where taxes are important considerations (for example, mergers and acquisitions), companies held disproportionately by individuals, IPOs, and periods when tax planning is prevalent (that is, year-end). Blouin, Raedy, and I conclude from our research that the imprint of capital gains taxes can be observed in settings devoid of any potential biases toward finding tax effects.

Conclusion

These studies reviewed preliminary evidence consistent with capital gains taxes affecting share prices. At a minimum, they provide examples of

instances where share prices impound potential capital gains taxes, a possibility that largely has been ignored in the past. Together, they reject the proposition that the array of necessary conditions for share prices reactions never holds.

The preliminary empirical evidence is consistent with capital gains taxes producing price pressure around heavy trading days. This pressure leads to increased volatility and drifts from fundamentals. In at least one case, the evidence suggests that the price movement may have spanned a longer period, although documenting the permanency of such price movements is difficult, if not impossible.

My hope is that the findings in these papers are sufficiently intriguing to encourage further analysis. These initial studies need further evaluation and many questions remain. Among other issues, policymakers should be particularly interested in the cost-of-capital implications arising from these documented effects of capital gains taxes on share prices.

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[1] *See J.L. Blouin, J.S. Raedy, and D.A. Shackelford, "Did Dividends Increase Immediately After the 2003 Reduction in Tax Rates?" NBER Working Paper 10301, February 2004, and* R. *Chetty and E. Saez, "Do Dividend Payments Respond to Taxes? Preliminary Evidence from the 2003 Dividend Tax Cut," NBER Working Paper No. 10572, June 2004.*

[2] *For a more expanded discussion, see D.A. Shackelford, "Stock Market Reaction to Capital Gains Tax Changes: Empirical Evidence from the 1997 and 1998 Tax Acts," In* Tax Policy and the Economy, Vol. 14, *J. Poterba, ed., Cambridge, MA: MIT Press, 2000, pp. 67-92.*

[3] *For further discussion, see W.R. Landsman, D.A. Shackelford, and R.J. Yetman, "The Determinants of Capital Gains Tax Compliance: Evidence from the RJR Nabisco Leveraged Buyout,"* Journal of Public Economics, *84 (2002), pp. 47-74.*

[4] *See R.J. Rendleman and D.A. Shackelford, "Diversification and the Taxation of Capital Gains and Losses," NBER Working Paper No. 9674, May 2003 for a more thorough discussion of the netting provisions. In that study we show that the impact of capital gains taxation on stock values can be positive or negative depending on the correlation between the stock's returns and those of the overall portfolio. Of particular interest is our finding that valuations for stocks whose returns are negatively correlated with market returns generally are increasing in capital gains tax rates.*

[5] *Note that when a company liquidates, a shareholder pays tax at the capital gains tax rate on the difference between the liquidating dividend that he receives from the company and his tax basis. A common simplifying assumption in some of the dividend tax capitalization literature is that liquidating distributions are taxed at the dividend tax rate. This assumption leads some studies to conclude erroneously that capital gains taxes can be ignored for valuation purposes unless a firm repurchases shares.*

[6] *Even managers of publicly-traded companies often have only a rough understanding of the identity and taxability of their investors.*

[7] *See W.R. Landsman and D.A. Shackelford, "The Lock-in Effect of Capital Gains Taxes: Evidence from the RJR Nabisco Leveraged Buyout,"* National Tax Journal, *48 (1995), pp. 245-59.*

[8] *See M.H. Lang and D.A. Shackelford, "Capitalization of Capital Gains Taxes: Evidence from Stock Price Reactions to the 1997 Rate Reductions,"* Journal of Public Economics, *76 (2000), pp. 69-85.*

[9] *See D.A. Shackelford and R.E. Verrecchia, "Intertemporal Tax Discontinuities," NBER Working Paper No. 7451, December 1999, and in* Journal of Accounting Research, *40 (1) (March 2002), pp. 205-22.*

[10] *See W. Reese, "Capital Gains Taxation and Stock Market Activity: Evidence from the IPOs,"* Journal of Finance, *53 (1998), pp. 1799-820.*

[11] *See J.L. Blouin, J.S. Raedy, and D.A. Shackelford, "Capital Gains Holding Periods and Equity Trading: Evidence from the 1998 Tax Act," NBER Working Paper No. 7827, August 2000, and in the* Journal of the American Taxation Association, *24, (Supplement 2002), pp. 70-93.*

[12] *See J. Poterba and S. Weisbenner, "Capital Gains Tax Rules, Tax Loss Trading, and Turn-of-the-year Returns,"* Journal of Finance, *56 (2001), pp. 356-68.*

[13] *See J.L. Blouin, J.S. Raedy, and D.A. Shackelford, "Capital Gains Taxes and Stock Reactions to Quarterly Earnings Announcements," NBER Working Paper No. 7644, April 2000, and "The Impact of Capital Gains Taxes on Stock Price Reactions to S&P 500 Inclusion," NBER Working Paper No. 8011, November 2000, and "Capital Gains Taxes and Equity Trading: Empirical Evidence,"* Journal of Accounting Research, *41 (4) (September 2003), pp. 611-51.*