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TAXATION AND CORPORATE PAYOUT POLICY

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ABSTRACT

This paper presents new evidence on how corporate payout policy responds to the differential between the tax burden on dividend income and that on accruing capital gains. It describes the construction of weighted average marginal tax rate series for the period since 1929, and it suggests that the enactment of the Job Growth of Taxpayer Relief Reconciliation Act of 2003 should raise the after-tax value of dividends relative to capital gains by more than five percentage points. The impact of this change on payout depends on the elasticity of dividend payments with respect to the after-tax value of dividend income relative to capital gains. Time series estimates suggest an elasticity of more than three, and imply that the recent tax reform could ultimately increase dividends by almost twenty percent.

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The Job Growth and Taxpayer Relief Reconciliation Act of 2003 (JGTRRA) substantially reduced the individual income tax burden on dividends. It also reduced tax rates on capital gains from the sale of corporate stock. Before JGTRRA, an individual investor in the top federal income tax bracket received after-tax dividends equal to 61.5 percent of his pretax dividends. After-tax capital gains, by comparison, were at least 80 percent of the pretax gain. Tax deferral and the prospect of basis step-up at death could generate an effective capital gains tax rate below the statutory rate of 20 percent. The ratio of the after-tax income from dividends and to the after-tax income from capital gains for a top tax rate investor, assuming a 20 percent capital gains tax rate, was 0.769. JGTRRA raised this ratio to 1.00. Proponents of dividend tax relief argue that lowering the dividend tax will raise corporate dividend payout by reducing the tax cost of paying dividends and that it will reduce the corporate cost of capital, thereby encouraging investment.

This paper explores the potential impact of JGTRRA on corporate payout behavior by examining the historical relationship between the relative tax burden on dividends and capital gains and the share of corporate earnings that is distributed as cash dividends. It also considers actual changes in payout behavior since JGTRRA was enacted, and discusses the interaction between payout decisions and investment decisions.

I. Measuring the Tax Burden on Dividends and Capital Gains

The standard approach to measuring the relative tax burden on dividends and capital gains assumes that each investor's tax parameters affect the aggregate tax preference for dividends versus capital gains in proportion to the investor's ownership of corporate stock. If $\tau_{div,h}$ and $\tau_{cg,h}$ denote the marginal tax rates on dividends and long-term capital gains, respectively, for investor h, then the aggregate dividend tax preference parameter is

$$\theta_t = \Sigma\, w_{h,t}*[(1-\tau_{div,h,t})/(1-\tau_{cg,h,t})] \quad (1)$$

where $w_{h,t}$ indicates the share of corporate stock owned at time t by investor h.

Equation (1) focuses on the tax burdens that investors face on dividends and capital gains. While those are usually the only taxes that distinguish between different components of equity returns, in 1936 and 1937, corporations were taxed at different rates on distributed and undistributed earnings. For those years, the corporate tax preference parameter is $\theta_{c,t} = (1-\tau_{c,div,t})/(1-\tau_{c,retentions,t})$.

Table 1 reports $w_{h,t}$, the share of corporate equity owned by households in taxable accounts, along with $\tau_{div,h,t,}$ the weighted average marginal tax rate on dividends received by the household sector, and θ_t, the aggregate tax preference parameter. The first column shows the household equity ownership share. Equity held through both defined benefit and defined contribution pension plans is excluded from the measure of taxable household ownership, while equity held by mutual funds is included in proportion to the household sector's ownership of such funds. Taxable household stock holdings accounted for over 80 percent of outstanding corporate stock in the late 1960s, but declined to roughly sixty percent by the late 1980s. In 2002, taxable households owned 57 percent of corporate stock. The entry for 2003 is an estimate; it equals the 2002 value.

The second column of Table 1 shows the weighted average marginal tax rate on dividends received by taxable households. The estimates are based on data from the NBER TAXSIM model for the period since 1960, with earlier years tabulated from published income tax returns from Statistics of Income volumes. The entries reflect the combined federal as well as state marginal income tax rate, recognizing potential federal income tax deductibility of state income taxes. Thus the estimated marginal tax rate for 2003 is 17 percent, with most households facing a 15 percent marginal federal tax rate. The table shows that the weighted average marginal tax rate rose in the late 1990s and then declined by roughly two percentage points between 1999 and 2002. The estimates for 2001 and 2002 include the 2001 (EGTRRA) tax law changes.

The estimate for 2003 incorporates the JGTRRA changes. It caps the ordinary federal income tax rate on dividend income at 15 percent and also limits the statutory tax rate on long-term capital gains to this value. Some taxpayers who face the Alternative Minimum Tax may face higher

tax rates. JGTRRA is predicted to reduce the weighted average marginal tax rate on dividend income by 11.9 percentage points.

The last column of Table 1 shows the aggregate investor tax preference for dividends versus capital gains. This data series captures the impact of both falling marginal tax rates on households as well as shifting ownership patterns. The calculations follow Poterba (1987) in assuming that the effective capital gains tax rate is only 0.25 times the statutory rate, as a result of gain deferral and the opportunity to step up basis at death. The entries in the last column of Table 1 show that there has been a long-term increase in the after-tax value of dividends relative to capital gains. In 1960 this ratio was 0.659. In 1970 it was 0.72, and by 1985 it had increased to 0.824. In 2002 it was 0.863.

The JGTRRA-induced reduction in the weighted-average household marginal tax rate on dividend income translates into a 6.7 percentage point increase in θ. This weighted-average tax preference across all investors changes by less than the change in the weighted-average household marginal dividend tax rate because households account for only 57 percent of equity holdings in 2002 and because the 2003 reform also changed capital gains tax rates.

II. Tax Incentives and Aggregate Payout Behavior

To study how the weighted average tax preference parameter defined in (1) affects aggregate dividend payments, I use annual data from the National Income and Product Accounts (NIPA) to estimate an aggregate time-series model for corporate dividends. The model, in the tradition of John Lintner (1956), relates the annual change in real dividends, $\Delta \ln D_t$, to the current change in corporate profits ($\Delta \ln Profit_t$) and the relative tax burden on dividends versus capital gains ($\Delta \ln \theta_t$), as well as to lagged levels of dividends, profits, and the relative tax burden.

$$(2) \quad \Delta \ln D_t = \beta_0 + \beta_1 * \Delta \ln Profit_t + \beta_2 * \Delta \ln \theta_t + \beta_3 * \Delta \ln \theta_{corp,t} + \beta_4 * \ln D_{t-1} + \beta_5 * \ln Profit_{t-1} + \beta_6 * \ln \theta_{t-1} + \beta_7 * \ln \theta_{corp,t-1} + \varepsilon_t.$$

The long-run elasticity of dividend payout with respect to the tax preference measure (θ) is $-\beta_6/\beta_4$.

NIPA data are available in a consistent format beginning in 1929, but corporate profits are negative for several years in the early 1930s. To avoid the problems this raises for a log-log specification relating dividends and profits, my estimation sample begins in 1935. I estimate equation (2) using NIPA corporate profits with capital consumption and inventory valuation adjustment for 1935-2002. The estimating equation includes indicator variables for the World War II years, 1942-1945, since dividends were controlled by government regulation and likely follow a different dynamic in this period than in others. I do not report the coefficients on these variables, or on an indicator variable for the early 1970s dividend control period. The resulting estimates are:

$$\Delta \ln D_t = \underset{}{0.090} + \underset{(0.044)}{0.114}*\Delta \ln \text{profit}_t - \underset{(0.061)}{0.064}*\Delta \ln \theta_t + \underset{(0.420)}{4.283}*\Delta \ln \theta_{corp,t} - \underset{(0.465)}{0.137}*\ln D_{t-1} + \underset{(0.056)}{0.103}*\ln \text{profit}_{t-1} + \underset{(0.043)}{0.440}*\ln \theta_{t-1} + \underset{(0.179)}{0.419}*\ln \theta_{corp,t-1} \quad (3)$$
$$(0.530)$$

The R^2 for this equation is 0.730. The estimated coefficients imply a long-run dividend elasticity with respect to profits of 0.75. One cannot reject the null hypothesis that this elasticity is unity.

The estimates suggest that the relative tax burden on dividends and on capital gains affects the share of earnings that is distributed as dividends. While short-run changes in θ have a small and statistically insignificantly effect on aggregate dividends, the long run elasticity of dividends with respect to θ is 3.2. This elasticity is substantially larger than my (1987) estimate using data spanning 1935-1985, a finding that is somewhat surprising given the growth of share repurchases and other non-dividend forms of cash distributions during the last two decades.

Finding the confidence interval for the long-run elasticity is an econometric challenge, since the elasticity is the ratio of two coefficients, $-\beta_6/\beta_4$, and β_4 can take values close to zero. I estimated the confidence interval using a bootstrap algorithm. For each boostrap iteration, I resampled data, with replacement, from the 1935-2002 sample, re-estimated the parameters β_4 and β_6, and computed the long-run elasticity $-\beta_6/\beta_4$. The interval that includes 95 percent of the resulting elasticity

estimates, with 2.5 percent above and 2.5 percent below, is [1.14, 7.76]. Thus the estimates suggest a positive elasticity of dividends with respect to dividend taxes, but with a limited precision.

The estimates in equation (3) can be used to evaluate the long-run effect of JGTRRA on dividend payout. Recall that JGTRRA is predicted to raise θ from 0.863 to 0.930. This translates into a change of 0.075 in ln θ, which would raise the long-run level of dividends by 24 percent if the payout elasticity is 3.2. The U.S. corporate sector paid dividends of $359 billion in 2002, so a 24 percent increase in payout would result in a $86 billion increase in dividends. The model predicts that this adjustment would occur slowly. With $\beta_2 = 0$, the elasticity of dividends with respect to taxes in the year after the dividend tax reform is β_6, the elasticity in the second year is $\beta_6 + (1+\beta_4)*\beta_6$, the effect in the third year is $\beta_6*[1 + (1+\beta_6) + (1+\beta_6)^2]$, etc. Even three years after a tax change, just over one quarter of the long-run effect on dividend payout will have occurred.

Media accounts of corporate dividend policy in the months since passage of JGTRRA have emphasized the decisions by several large firms, such as Microsoft, to initiate or increase their dividend payment. Jennifer Blouin, Jana Raedy, and Douglas Shackelford (2004) report that dividend payments increased in the quarter after JGTRRA was enacted. Data on dividend changes by firms in the Standard and Poors' 500 confirm this finding. During 2003, the "net dividend increase" percentage, defined as (number of firms increasing dividends – number of firms reducing dividends)/500, was 38.7 percent. This contrasts with 29.8 percent for 2002 and 30.2 percent in 2001. It is difficult to draw strong conclusions from this time series evidence, however, because 2001 and 2002 witnessed many fewer dividend increases than past years. The "net increaser percentage" for 2000, for example, was 39.4 percent, and in 1999 it was 43 percent. Further work is needed to control for earnings shocks that may have affected payout and to disentangle long-term trend effects from the short-run effects in 2003.

III. Dividends, Investment, and Share Prices

Supporters of JGTRRA argued that reducing the dividend tax would encourage corporate investment. Robert Carroll, Kevin Hassett, and James Mackie (2003) and Jane Gravelle (2003) offer detailed analyses of the bill's potential impact on investment under various assumptions about corporate financial behavior. The foregoing results suggest that JGTRRA will increase corporate dividends. Some might claim that this finding is inconsistent with a favorable investment impact, since higher dividend payouts would reduce the firm's retained earnings and hence the funds available for investment. Yet analysis of the corporate cash flow identity

(4) After-Tax Profits + Net New Share Issues = Dividends + Investment

shows that this need not be the case. Dividends and investment could both increase, even if after-tax profits were constant, if firms reduced their use of share repurchases or increased their new share issues.

The effect of dividend taxation on corporate investment is controversial. Alan Auerbach (2002) summarizes the literature to date and carefully delineates the assumptions that are required for dividend tax relief to increase corporate investment. The finding that dividends respond to changes in the relative tax burden on dividends and capital gains is consistent with the "traditional" view of dividend taxation, explained in Poterba and Lawrence Summers (1984). 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 taxable investors who purchase new equity issues in expectation of future dividend payouts. The aggregate evidence does not address potential differences across firms. Auerbach and Kevin Hassett (2003) point out that there is likely to be substantial heterogeneity across firms, with only some firms responding to dividend taxes as the traditional view suggests.

By reducing the tax burden on future dividends, JGTRRA should also increase stock prices. To quantify the law's impact, one needs to forecast future investment, the future capital stock, and future corporate dividends. A crude, but probably informative, estimate of this impact can be

computed by capitalizing the annual flow of foregone dividend taxes. The U. S. Congressional Budget Office (2004) estimates that the dividend and capital gains tax provisions of JGTRRA will reduce federal income tax revenues by $23 billion in 2004, and by larger amounts in future years. This revenue stream can be capitalized using a price-earnings ratio such as that for the S&P 500, which was approximately thirty in the first two quarters of 2003. The implied increase in stock market value, $690 billion, represents roughly six percent of the $11.4 trillion aggregate value of U.S. equities at the end of March 2003.

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Table 1: Investor Tax Preference for Dividends versus Capital Gains, 1929-2003

Year	Share of Equity Owned by Households	Weighted Average Household Marginal Tax Rate on Dividends	Weighted Average Investor Tax Price (θ)
1929	0.915	0.104	0.918
1930	0.914	0.092	0.928
1931	0.913	0.079	0.939
1932	0.911	0.158	0.874
1933	0.910	0.161	0.872
1934	0.909	0.208	0.833
1935	0.908	0.218	0.825
1936	0.907	0.282	0.838
1937	0.906	0.280	0.846
1938	0.905	0.212	0.831
1939	0.903	0.233	0.814
1940	0.904	0.282	0.773
1941	0.904	0.350	0.714
1942	0.904	0.461	0.616
1943	0.904	0.521	0.562
1944	0.904	0.438	0.636
1945	0.899	0.454	0.625
1946	0.896	0.459	0.622
1947	0.894	0.469	0.614
1948	0.891	0.411	0.667
1949	0.887	0.388	0.688
1950	0.887	0.418	0.662
1951	0.888	0.454	0.629
1952	0.882	0.470	0.618
1953	0.876	0.449	0.639
1954	0.877	0.438	0.648
1955	0.872	0.446	0.643
1956	0.874	0.444	0.644
1957	0.868	0.434	0.655
1958	0.867	0.431	0.658
1959	0.864	0.428	0.661
1960	0.859	0.432	0.659
1961	0.855	0.430	0.663
1962	0.855	0.427	0.665
1963	0.847	0.415	0.679
1964	0.844	0.403	0.690
1965	0.842	0.392	0.700
1966	0.835	0.382	0.710
1967	0.833	0.385	0.708
1968	0.833	0.423	0.677
1969	0.815	0.421	0.700
1970	0.802	0.402	0.720
1971	0.786	0.382	0.742
1972	0.782	0.388	0.738

1973	0.759	0.399	0.739
1974	0.727	0.403	0.748
1975	0.718	0.387	0.762
1976	0.729	0.421	0.734
1977	0.707	0.431	0.736
1978	0.683	0.437	0.741
1979	0.689	0.430	0.732
1980	0.688	0.433	0.730
1981	0.670	0.416	0.748
1982	0.639	0.352	0.800
1983	0.617	0.346	0.811
1984	0.598	0.339	0.821
1985	0.582	0.343	0.824
1986	0.613	0.322	0.826
1987	0.604	0.291	0.861
1988	0.630	0.264	0.874
1989	0.628	0.266	0.873
1990	0.616	0.265	0.876
1991	0.626	0.269	0.871
1992	0.628	0.269	0.871
1993	0.620	0.287	0.860
1994	0.606	0.291	0.862
1995	0.608	0.296	0.858
1996	0.609	0.295	0.859
1997	0.616	0.305	0.846
1998	0.610	0.306	0.842
1999	0.630	0.310	0.834
2000	0.605	0.298	0.847
2001	0.590	0.297	0.852
2002	0.571	0.289	0.863
2003	0.571	0.170	0.930

Source: Column 1 is based on data from the Federal Reserve Board Flow of Funds Accounts. Column 2 is based on tabulations from the NBER TAXSIM model for years after 1960, and on data from published Statistics of Income volumes for earlier years. The tax rate includes the federal marginal income tax rate plus an estimate of the state marginal income tax rate, net of federal income tax deductibility. Column 3 is a weighted average of tax burdens on various investor categories, as described in the text.