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Taxation and Corporate Payout Policy

By JAMES POTERBA*

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 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 $\tau_{\mathrm{div},h}$ and $\tau_{\mathrm{cg},h}$ denote the marginal tax rates on dividends and long-term capital gains, respectively, for investor h, then the aggregate dividend tax-preference parameter is

$$(1) \qquad \theta_t = \sum_h w_{h,t}[(1 - \tau_{\mathrm{div},h,t})/(1 - \tau_{\mathrm{cg},h,t})]$$

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 $\theta_{\mathrm{corp},t} = (1 - \tau_{\mathrm{corp,div},t})/(1 - \tau_{\mathrm{corp,retentions},t})$.

Table 1 reports $w_{\mathrm{household},t}$, the share of corporate equity owned by households in taxable accounts, along with $\tau_{\mathrm{div,household},t}$, 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 1960's, but declined to roughly 60 percent by the late 1980's. In 2003, taxable households owned 57 percent of corporate stock.

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	0.111	0.913
1930	0.914	0.099	0.922
1931	0.913	0.092	0.928
1932	0.911	0.200	0.839
1933	0.910	0.192	0.846
1934	0.909	0.240	0.806
1935	0.908	0.245	0.802
1936	0.907	0.338	0.786
1937	0.906	0.309	0.818
1938	0.905	0.238	0.810
1939	0.903	0.270	0.782
1940	0.904	0.320	0.740
1941	0.904	0.391	0.678
1942	0.904	0.478	0.601
1943	0.904	0.525	0.559
1944	0.904	0.443	0.632
1945	0.899	0.458	0.621
1946	0.896	0.464	0.617
1947	0.894	0.475	0.609
1948	0.891	0.417	0.661
1949	0.887	0.397	0.680
1950	0.887	0.427	0.654
1951	0.888	0.461	0.623
1952	0.882	0.476	0.613
1953	0.876	0.455	0.634
1954	0.877	0.446	0.641
1955	0.872	0.455	0.636
1956	0.874	0.453	0.636
1957	0.868	0.443	0.647
1958	0.867	0.440	0.649
1959	0.864	0.439	0.652
1960	0.859	0.444	0.650
1961	0.855	0.442	0.653
1962	0.855	0.440	0.655
1963	0.847	0.427	0.669
1964	0.844	0.419	0.677
1965	0.842	0.407	0.687
1966	0.835	0.398	0.697
1967	0.833	0.401	0.695
1968	0.833	0.442	0.662
1969	0.815	0.440	0.685
1970	0.802	0.423	0.704
1971	0.786	0.407	0.723
1972	0.782	0.416	0.717
1973	0.759	0.430	0.717
1974	0.727	0.431	0.728
1975	0.718	0.420	0.740
1976	0.729	0.456	0.709
1977	0.707	0.466	0.712
1978	0.683	0.471	0.719
1979	0.689	0.460	0.711
1980	0.688	0.464	0.709
1981	0.670	0.445	0.729

TABLE 1—Continued.

Year	Share of equity owned by households	Weighted average household marginal tax rate on dividends	Weighted average investor tax price (θ)
1982	0.639	0.379	0.783
1983	0.617	0.378	0.792
1984	0.598	0.374	0.801
1985	0.582	0.376	0.805
1986	0.613	0.355	0.807
1987	0.604	0.319	0.843
1988	0.630	0.290	0.856
1989	0.628	0.291	0.856
1990	0.616	0.293	0.858
1991	0.626	0.298	0.852
1992	0.628	0.300	0.850
1993	0.620	0.320	0.838
1994	0.607	0.324	0.840
1995	0.609	0.328	0.837
1996	0.610	0.324	0.839
1997	0.616	0.333	0.827
1998	0.611	0.335	0.823
1999	0.631	0.337	0.816
2000	0.606	0.323	0.831
2001	0.594	0.324	0.834
2002	0.580	0.321	0.841
2003	0.572	0.185	0.920

Sources: Column 1 is based on data from the Board of Governors of the Federal Reserve System (2004). Column 2 is based on tabulations from the NBER TAXSIM model for years after 1960, and on data from published U.S. Department of the Treasury *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.

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 National Bureau of Economic Research (NBER) TAXSIM model for the period since 1960, with earlier years tabulated from published summary data on income-tax returns. 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 18.5 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 1990's and then declined by nearly 2 percentage points between 1999 and

2002. The estimates for 2001 and 2002 include the tax changes in the 2001 Economic Growth and Tax Relief Reconciliation Act (EGTRRA).

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 12.1 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 and the 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 0.650. In 1970 it was 0.704, and by 1985 it had increased to 0.805. In 2002 it was 0.841.

The JGTRRA-induced reduction in the weighted-average household marginal tax rate on dividend income translates into a 7.9-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 ($\Delta \ln[\text{Profit}]_t$) and the change in 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:

$$
\begin{aligned}
(2) \quad \Delta \ln D_t = {} & \beta_0 + \beta_1 \times \Delta \ln(\text{Profit})_t \\
& + \beta_2 \times \Delta \ln \theta_t + \beta_3 \times \Delta \ln \theta_{\text{corp},t} \\
& + \beta_4 \times \ln D_{t-1} \\
& + \beta_5 \times \ln(\text{Profit})_{t-1} \\
& + \beta_6 \times \ln \theta_{t-1} \\
& + \beta_7 \times \ln \theta_{\text{corp},t-1} + \varepsilon_t.
\end{aligned}
$$

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 1930's. 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-1970's dividend-control period. The resulting estimates are

$$
\begin{aligned}
(3) \quad \Delta \ln D_t = {} & \underset{(0.048)}{0.108} + \underset{(0.061)}{0.116} \times \Delta \ln(\text{Profit})_t \\
& - \underset{(0.378)}{0.094} \times \Delta \ln \theta_t + \underset{(0.442)}{4.311} \times \Delta \ln \theta_{\text{corp},t} \\
& - \underset{(0.058)}{0.146} \times \ln D_{t-1} + \underset{(0.044)}{0.109} \times \ln(\text{Profit})_{t-1} \\
& + \underset{(0.195)}{0.484} \times \ln \theta_{t-1} + \underset{(0.479)}{0.200} \times \ln \theta_{\text{corp},t-1}.
\end{aligned}
$$

The R^2 for this equation is 0.736. 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 3.3. 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 bootstrap iteration, I resampled data, with replacement, from the 1935–2002 sample, reestimated 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 [1.34, 7.35]. 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 0.841 to 0.920. This translates into a change of 0.094 in ln θ, which would raise the long-run level of dividends by 31 percent if the payout elasticity is 3.3. The U.S. corporate sector paid dividends of $359 billion in 2002, so a 31-percent increase in payout would result in an increase of $111 billion 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 $\beta_6 + (1 + \beta_4) \times \beta_6$, the effect in the third year is $\beta_6 \times [1 + (1 + \beta_6) + (1 + \beta_6)^2]$, and so on. 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 et al. (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 et al. (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 cor-

porate 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 (1985). 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 30 in the first two quarters of 2003. The implied increase in stock-market value, $690 billion, represents roughly 6 percent of the $11.4 trillion aggregate value of U.S. equities at the end of March 2003.

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