The impact of taxes on dividends and corporate financial policy has been debated by scholars for decades. The current decade has provided an unusual opportunity to test the various theories that have been proposed, and to draw empirical lessons for tax policy. In 2003, the taxation of dividend income was transformed when Congress passed the Jobs and Growth Tax Relief Reconciliation Act (JGTRRA). This reform reduced the dividend tax rate from a maximum of 38.6 percent (for taxpayers in the highest bracket before 2003) to a maximum of 15 percent. The tax relief provided by JGTRRA applied to dividends paid by all U.S. firms and to dividends from most—but, importantly, not all—for eign corporations. This chapter reviews some of the major lessons that scholars have drawn from studying the impact of the 2003 tax reform. The focus is on both dividend policy and financial policy (with the latter interpreted broadly to encompass U.S. investors' preference for holding equity versus debt). The framework used here emphasizes the integrated nature of global financial markets in the 2000s, and envisages JGTRRA as a reform that

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changed the personal tax regime facing a subset of the world’s investors—namely, those investors resident in the United States.

This chapter explores two types of consequences of JGTRRA. The first has to do with the effect of JGTRRA on dividends and stock prices. We would expect U.S. stockholders to have become more inclined to receive equity returns in the form of dividends after JGTRRA. This would be true of Americans holding stock in both U.S. and foreign firms, but only in the former are U.S. shareholders likely to be a large and influential constituency in determining payout policy. Thus, the empirical literature has focused on the dividend behavior of U.S. firms in the aftermath of JGTRRA (e.g., Blouin, Raedy, and Shackelford 2004, 2007; Chetty and Saez 2005; Brown, Liang, and Weisbenner 2007). The main conclusion is that there was a large and immediate positive response of dividends paid by U.S. firms, especially in the form of new dividend initiations, after JGTRRA. While there are many potential alternative explanations, Chetty and Saez (2005) argue strongly for a causal impact of the tax reform. Moreover, the increase in dividends was concentrated among firms in which an influential constituency benefited from the tax cut, highlighting possible agency influences in determining firms’ responses to the tax reform (Chetty and Saez 2007). In addition, the literature has examined the impact of JGTRRA on stock prices and firm value, using a variety of approaches (Auerbach and Hassett 2006, 2007; Dhaliwal, Kroll, and Li 2007; Amromin, Harrison, and Sharpe 2006). The main lesson drawn is that stock prices rose for high-dividend firms relative to low-dividend firms, while the value of non-dividend-paying firms also rose.

The second type of consequence concerns the effect of reductions in the taxation of equity returns brought about by JGTRRA. These reductions would be expected to increase U.S. investors’ preference for holding equity rather than debt. This conclusion is illustrated within a simple framework that extends Miller’s (1977) theory of financial equilibrium to an international setting. In this model, JGTRRA induces U.S. investors to hold more equity, but has no systematic effect on U.S. firms’ propensity to issue equity rather than debt. While it is difficult to test for these portfolio effects, Desai and Dharmapala (2007) exploit a relatively obscure feature of JGTRRA—its restriction of the favorable tax rate on foreign
dividends to those countries that have signed tax treaties with the United States—to find evidence consistent with an increase in U.S. investors’ equity holdings in foreign countries that enjoyed favorable dividend tax treatment under the act.

The overall findings of this literature appear to be most consistent with the new view of dividend taxation (described in the section below). However, they also leave some unresolved issues for future inquiry. For instance, the temporary nature of JGTRRA (the tax cuts are scheduled to expire in 2010) and the fact that the tax cut was deficit financed complicate the analysis of the long-term consequences. However, there can be little doubt that it has had a substantial effect on the policies of U.S. firms and on the behavior of U.S. investors at home and abroad, underscoring the important role of taxation in determining choices by firms and investors.

JGTRRA was intended by its proponents as an important step forward in the integration of corporate and personal taxes. Scholars have long argued for corporate tax integration as a means of reducing the distortions—to organizational form, payout policy, and financing decisions—created by the “double taxation” of corporate income (e.g., Hubbard 1993, 2005). The chapter ends with some reflections on two related questions: whether the dividend tax regime created by JGTRRA should be extended, and how corporate tax integration may best be pursued in the future. It argues that the increasing degree of international financial integration that has characterized the 2000s tends to reduce the effectiveness of JGTRRA’s shareholder-level (partial) dividend exclusion mechanism as a means of achieving corporate tax integration. Instead, alternative approaches that are specifically directed at U.S. firms may be more effective in this environment in influencing firm policies on payout and capital structure. Reductions in the corporate tax rate may also be desirable in this new context.

The chapter is structured as follows. It first discusses the lessons of JGTRRA regarding dividends, payout policy, and firm value. It then develops a simple model of international financial equilibrium, discusses the evidence on U.S. investors’ portfolio responses to JGTRRA, and draws out some implications of the experience with JGTRRA for policies designed to achieve corporate tax integration.
Lessons about Dividends, Payout Policy, and Firm Value

The primary questions addressed by the literature on JGTRRA center on how the reform affected the propensity of U.S. firms to pay dividends, how the change in this propensity affected total levels of payout, and how the reform influenced firm valuation. The discussion of these findings below begins with a simple equilibrium condition that serves as a framework for characterizing the various theories that have guided researchers in this area. It also provides some insights into how the relevant variables would respond to a reform such as JGTRRA. It then discusses the empirical literature on payout and valuation, and summarizes the lessons that flow from this research.

A Simple Equilibrium Condition. Consider a taxable investor who faces a dividend tax rate of \( t_d \in (0, 1) \) and holds stock in a firm while also holding another asset such as a bond. Let the (fixed) after-tax return to the investor from the bond be \( r^+ \). Suppose that the firm’s pretax rate of return is \( r \), and assume that both the corporate and the capital gains tax rates are zero. The firm pays out a fraction \( d \in (0, 1) \) of the returns to the shareholder as dividends, with the remaining fraction \( 1 – d \) being received in the form of (tax-exempt) capital gains. Let \( u(dr) \) be an increasing, concave function of the dividend returns paid by the firm, and let \( \gamma \) and \( \alpha \) be nonnegative parameters. Then, assuming that both the stock and the alternative asset are riskless, the following condition must be satisfied if the investor holds the firm’s stock:

\[
\gamma u(dr) + r(1 – \alpha dt_d) = r^+. \tag{1}
\]

The tax penalty usually imposed on dividends relative to capital gains (triggered whenever the firm sets \( d > 0 \)) is offset here by \( u(dr) \), which represents in reduced form any of a variety of benefits that have been hypothesized to be derived by shareholders from the payment of cash dividends.

Equation (1) nests several of the major theoretical approaches that have been used in the analysis of dividend taxation. Most straightforwardly, Miller and Scholes (1978) argue that the marginal investor will generally be tax exempt. This can be represented by imposing the restrictions \( \gamma = \alpha = 0 \), so that \( r = r^+ \). In this view, the firm’s pretax return (and hence its share price)
as well as its dividend policy are independent of \( t_d \); JGTRRA would thus affect neither the firm’s dividend policy nor its valuation. As discussed below, perhaps the clearest and least contentious conclusion to emerge from the analysis of the effects of JGTRRA is that this tax irrelevance theory is contradicted by the evidence.

The new view of dividend taxation (Auerbach 1979; Bradford 1981; King 1977), on the other hand, is premised on the assumption that shareholders are burdened by the existence of dividend taxes. Moreover, this burden is assumed to be inescapable, as all payout must take the form of dividends at some point in time. Even when the firm retains current earnings for reinvestment, dividend taxes are not avoided; rather, the returns generated by that investment are haunted by the specter of future dividend taxes. As is well known, these assumptions imply that when retained earnings are the marginal source of funds for investment, firms’ investment decisions are unaffected by dividend taxes. In terms of equation (1), the new view can be represented by setting \( \gamma = 0 \) and \( \alpha = (1/d) \), so that a firm issuing new equity must offer a pretax return:

\[
r = \frac{r^+}{1 - t_d}.
\]  
(2)

The dividend tax is capitalized into the firm’s value, regardless of whether this particular firm pays dividends or not. Under the new view, a reduction in \( t_d \) would lead to a reduction in the firm’s required pretax return \( r \) (i.e., to an increase in the firm’s share price). However, as \( d \) is determined as a residual after the firm has exhausted its investment opportunities, which are independent of \( t_d \), there should be no change in \( d \). As discussed below, however, this result applies only to a permanent change in \( t_d \); a temporary reduction makes dividend payout today less costly in tax terms than future payout, and would be expected to lead to an increase in \( d \).

The new view is often contrasted with what is termed the “traditional view” of dividend taxation (implicit in Feldstein 1970 and described in Poterba and Summers 1985). The traditional view imposes fewer restrictions on equation (1), and can be represented by setting \( \gamma > 0 \) and \( \alpha = 1 \). It assumes that firms have the option of paying returns to shareholders in the form of dividends or capital gains, but that there exists some reason why the firm must pay dividends despite the tax penalty. Under this assumption,
the firm’s own dividend yield $d$ becomes relevant to its valuation (unlike in the new view): the pretax return the firm must pay its shareholders is increasing in $d$ (holding fixed the benefits from dividends). It follows that a reduction in $t_d$ would reduce the firm’s cost of capital and so induce it to increase its level of investment (again in contrast to the new view).

The traditional view per se does not provide a theory of why dividend payments are necessary or desirable from the point of view of shareholders. However, financial economists have developed a variety of theories to explain what Black (1976) terms the “dividend puzzle”—i.e., why firms pay dividends despite the tax penalty. One influential theory (originating with Bhattacharya 1979) is that managers can use dividends to signal private information about future firm performance to investors. In some formulations of the signaling theory, it is precisely the tax penalty associated with dividends that enables them to serve as a credible signal: firms with better future prospects are able to “burn money” through dividends to an extent that firms with less rosy prospects cannot. Another widely discussed theory (Jensen 1986) is premised on the idea that the retention of earnings creates the temptation for managers to use this free cash flow for purposes (such as unprofitable investments) that do not enhance shareholder value. The payment of dividends can thus avert these agency problems by returning cash to shareholders. The monitoring theory (Allen, Bernardo, and Welch 2000) starts with the observation that much investment in the stock market occurs through institutions (such as pension funds) that are tax exempt or tax favored, and that institutions also generally have greater capacity to monitor managers than do individual shareholders. Thus, the payment of dividends can drive away individual investors and attract a clientele of institutions which provide “monitoring services” that raise the value of the firm.

These theories are not entirely compelling. For instance, even if managers have private information about future performance, the signaling theory gives rise to another puzzle—namely, why a less costly method of signaling has not been devised. Similarly, the free cash flow theory per se does not explain why firms cannot disgorge cash to shareholders through repurchases rather than dividends. In other words, Black’s (1976) “dividend puzzle” continues to elude any simple solution. In equation (1), any or all of the theories described above are represented in reduced form by $u(dr)$; it
should be stressed, though, that this is merely a “black box” approach that reflects our ignorance of the precise factors at work.

Without necessarily imposing any of the restrictions discussed above, equation (1) can be used to straightforwardly derive some likely consequences of JGTRRA. The tax reform disturbed the initial equilibrium by reducing $t_d$. Equation (1) suggests two possible channels through which equilibrium could be restored: an increase in $d$ and a decrease in $r$ (in the short run, the latter would be manifested in the form of an increase in the firm's share price).\(^6\) The rest of this section discusses the empirical evidence on both these questions.

**The Effects of JGTRRA on Dividends.** Evidence that JGTRRA was followed by a large increase in dividend payout began to emerge soon after the legislation was passed. Blouin, Raedy, and Shackelford (2004) compare the payout policies of a sample of firms that declared dividends in the six months following the enactment of JGTRRA with those of a control group that declared dividends during the corresponding six-month period in 2002. They find that firms substantially increased both their regular and special dividend payments following JGTRRA. They do not, however, find that this effect is stronger for firms that have more individual ownership. Consequently, they are cautious about inferring a causal connection between the tax reform and the increase in dividend payments.

Chetty and Saez (2005) also analyze this question, using a large sample of firms over the period from 1980 to the second quarter of 2004. They, too, find a large increase in dividends following JGTRRA, but distinguish between increases along the intensive margin (i.e., increases in the amount paid by firms that previously paid dividends) and the extensive margins (i.e., dividend initiations by firms that were previously nonpayers). They find a particularly large effect in the latter case, with a substantial increase in initiations after the reform. To address the issue of causality, they develop an identification strategy that involves using a control group of firms with nontaxable institutions as the largest shareholders.\(^7\) The idea is that if the surge in dividends was caused by the tax cut, it should only be observed among firms with taxable shareholders. On the other hand, other possible explanations, such as changes in the corporate governance environment or the general economic climate, would arguably apply to all firms, including
those with large nontaxable ownership. Chetty and Saez (2005) find that
there is indeed no increase in dividends for the control group. They argue
that, notwithstanding potentially confounding factors such as contemporane-
ous corporate governance scandals, this result suggests a causal role for
JGTRRA in increasing dividends.

The dividend increase after JGTRRA was large in magnitude—amount-
ing to a 20 percent increase in payments (Chetty and Saez 2005)—but its
efficiency consequences depend, in large measure, on whether total payout
increased as well. For instance, under the agency theory (Jensen 1986)
JGTRRA would have beneficial consequences only to the extent that it
encouraged managers to disgorge more cash to shareholders. If the
observed growth in dividends merely represented a substitution from share
repurchases to dividends—a change in the form of payout—then more cash
in aggregate would not be paid out.

Researchers have vigorously debated the question of whether total pay-
out increased as a result of JGTRRA. Brown, Liang, and Weisbenner (2007)
find that among those firms that initiated dividends following JGTRRA,
about one-third did not increase total payout. As this is a substantially
larger fraction than was true for firms initiating dividends in years prior to
2003, they view this as evidence of substitution among those firms that ini-
tiated dividends in the wake of JGTRRA. Blouin, Raedy, and Shackelford
(2007) point out that dividend initiators in 2003 paid only a small fraction
of aggregate dividends. They find evidence of substitution between divi-
dends and repurchases—in particular, an increase in the fraction of payout
in the form of dividends after JGTRRA—in a broader sample of firms.
Moreover, the extent of this substitution increases with the fraction of indi-
vidual ownership in the firm; the authors interpret this as evidence that the
change was caused by the reform rather than reflecting a general trend
toward dividend payment over time. On the other hand, Chetty and Saez
(2005, 2006) argue that the time-series pattern of share repurchases is
too volatile to support any robust inference about substitution. However,
they do find that for the subsample of firms that initiated dividends after
JGTRRA, share repurchases increased as well, casting some doubt on the
substitution hypothesis.

Equation (1) suggests that the magnitude of the increase in $d$ in
response to JGTRRA should be larger the smaller is $\gamma$. A small $\gamma$ would be
expected, for instance, when there is more shareholder monitoring of management or better alignment of managerial incentives (so that, for example, the disgorgement of free cash flow is less important to shareholders). Indeed, Chetty and Saez (2005) find that the increase in dividends was concentrated among firms where managers owned substantial amounts of stock, among firms where taxable institutions were large shareholders, and among those where a large independent shareholder served on the board of directors. However, an incentive-alignment story cannot necessarily account for all of the evidence. For instance, Brown, Liang, and Weisbenner (2007) find that dividend increases were concentrated among firms whose managers had relatively large stock holdings. In contrast, managers with large amounts of unexercised stock options (which are typically not dividend protected) did not change their behavior in response to JGTRRA. This suggests that in addition to the strength of incentive alignment, self-interest played a role in how managers responded to JGTRRA. This evidence has led Chetty and Saez (2007) to develop an agency theory of managers’ responses to the tax reform, which is discussed below.

The Effects of JGTRRA on Firm Value. Equation (1) suggests that equilibrium can be restored following JGTRRA through a decrease in the firm’s pretax return $r$ (as well as by increases in $d$). In other words, the reduction of the tax penalty for dividends implies that shareholders can now be compensated less for holding stock in a dividend-paying firm. This would be manifested in the short term by an increase in the share price. Equation (1) also predicts that the valuation response to JGTRRA is increasing in the firm’s initial dividend yield $d$. The empirical literature has found results broadly consistent with both these predictions.

Auerbach and Hassett (2007) identify significant event dates during the period from December 2002 to May 2003 as the president’s initial proposal was announced and made its way through Congress. The vicissitudes undergone by the proposal provide an abundance of opportunities to use an event-study approach to measure market reactions to changes in the probability of JGTRRA’s enactment. Auerbach and Hassett (2007) analyze abnormal returns for subsets of firms expected to be differentially affected by the reform. They find that news events indicating a higher probability of enactment were associated with higher abnormal returns (relative to the
market) for firms with higher dividend yields. Dhaliwal, Krull, and Li (2007) find a similar result using an alternative approach that uses analysts’ earnings forecasts—obtained from the Institutional Brokers’ Estimate System (I/B/E/S) database—to construct a measure of the *ex ante* rate of return demanded by equity investors. They find that following JGTRRA the implied cost of equity capital for high-dividend-yield firms decreased relative to that for low-dividend-yield firms. For non-dividend-paying firms, Auerbach and Hassett (2007) and Dhaliwal, Krull, and Li (2007) find a positive reaction (using the different approaches outlined above) that is even larger than the effect for dividend-paying firms. Auerbach and Hassett (2007) also report a similar finding for firms that are predicted to issue new shares in the future.9

The event-study approach of Auerbach and Hassett (2007) does not address the overall market reaction to JGTRRA, as the market return is used as the control. Dhaliwal, Krull, and Li (2007) find an overall decrease in the implied cost of equity capital for U.S. firms. Their approach, however, requires that there was no change in investors’ risk preferences over the period studied. Amromin, Harrison, and Sharpe (2006) use European stock markets (and real estate investment trusts, which are subject to distinctive tax treatment) as controls, and find no aggregate impact of JGTRRA on the U.S. stock market. However, Auerbach and Hassett (2006) point out that this approach is not sufficiently precise to detect a positive reaction of the magnitude that might be expected, such as the 6 percent increase in market value predicted by Poterba (2004).

**Interpreting the Evidence.** The scholarly literature suggests that JGTRRA led to a substantial and rapid increase in dividends. There is evidence of an increase in the value of firms with higher dividend yields, but also of an even larger increase in the value of non-dividend-paying firms. This picture, in its entirety, may seem difficult to reconcile with any of the existing theories outlined above. However, it is possible to explain these apparently divergent findings using the interpretation of the new view presented by Auerbach and Hassett (2007).

Consider three representative firms H, L and Y, where H is a dividend-paying firm with a high dividend yield, L is a dividend-paying firm with a low dividend yield, and Y is a young firm that has yet to pay dividends.
Under the new view, a dividend tax cut that is expected to be permanent would increase the value of Y more than that of L (because Y is likely to issue additional equity, the dividends on which will also benefit from the lower tax rate), and it would increase the value of L more than that of H (as L is more likely to issue shares than H). For concreteness, assume that Y’s value would increase by 10 percent, L’s by 5 percent, and H’s by 4 percent. On the other hand, if the tax cut were expected to be temporary and of short duration, then H would enjoy the largest increase in value (as it would pay the most dividends during the brief period of lower rates), followed by L and then by Y: assume that H’s value would rise by 3 percent, L’s would rise by 1 percent, and Y’s would be unaffected. Auerbach and Hassett (2007) construct a test based on the 2004 presidential elections that provides some evidence consistent with this assumed pattern, suggesting that increases in the probability of the tax cuts being made permanent were associated with a decrease in the valuation premium for H relative to L.

Suppose that investors, aware of the political and budgetary uncertainty about the duration of the tax cut, believe that there is a probability of one-half that the cut will be permanent. Then the observed valuation increases would be 3.5 percent for H, 3 percent for L, and 5 percent for Y; in relative terms, this pattern is consistent with the empirical evidence. The probability of one-half that the tax cut will be temporary will (under the new view) also induce higher dividend payments, as found in the literature discussed above. However, under the new view, these dividend increases are inefficient, in the sense that firms eschew profitable investment projects in order to pay dividends during the temporary period of low tax rates (Bank 2007; Dharmapala 2007; see also Korinek and Stiglitz 2008).

On the other hand, the evidence appears less favorable to the traditional view. Of course, the traditional view per se does not explain dividend payment, so it is difficult to determine whether the dividend response is consistent with this theory. However, a central contention of the traditional view is that a reduction in dividend taxes leads to higher investment. This will eventually be reflected in higher dividends, but not with the immediacy of the observed response to JGTRRA (Chetty and Saez 2007). Moreover, the test described above using the 2004 presidential election tends to support the new view over the traditional view (Auerbach and Hassett 2007).
Overall, the evidence consistent with the new view suggests that JGTRRA may not have had any positive impact on investment.\textsuperscript{10}

As discussed earlier, the increase in dividends was concentrated among firms where managers or influential shareholders were directly affected by the reform. The importance of agency issues in firms’ responses to JGTRRA lies beyond the scope of both the new and traditional views. Chetty and Saez (2007) construct a model in which managers can invest in a “pet project” that does not generate benefits for shareholders; they can also pay dividends or invest in profitable projects. When managers pursue the pet project, and there is imperfect alignment of interests between managers and shareholders, managers will pay lower dividends than shareholders would wish. A dividend tax cut raises the cost to managers of investing in their pet project—or more precisely reduces the tax penalty associated with paying out dividends—and so induces an immediate increase in dividend payments. This model provides a unified explanation for many of the responses to JGTRRA that researchers have found.\textsuperscript{11}

Consistent with this model, Chetty and Saez (2006) find some evidence that JGTRRA led to a reallocation of funds from firms with lower growth prospects (measured using analysts’ forecasts, as reported in the I/B/E/S database) to those with greater investment opportunities. If there was any positive efficiency impact of JGTRRA, it is most likely to have occurred through this reshuffling of funds: the increase in dividend payments would have enabled investors to reinvest in firms that issue new shares to finance profitable investment opportunities. This process is likely to enhance efficiency to the extent that the retained earnings in more mature firms would have been used for lower-value projects or consumed as managerial rents.

\textbf{Lessons about Corporate Financial Policy and Portfolio Choices}

The aim of this section is to analyze the consequences of JGTRRA for corporate financial policy and the portfolio choices of U.S. investors (with a particular focus on their preference for debt versus equity). These consequences are illustrated using a simple framework that extends the model of financial equilibrium introduced by Miller (1977), although the formulation below is closer to the version in Auerbach (2002) and Desai,
Dharmapala, and Fung (2007). As will be obvious, this model presents a highly simplified view of the world. Nonetheless, it provides some important insights, which are used to derive predictions about the effects of JGTRRA. The section then discusses some relevant empirical evidence.

**International Financial Equilibrium.** As is well known, the corporate tax system creates a preference for debt financing, as interest payments are tax deductible to the corporation, while returns paid to equity holders are not. In a setting where firms endogenously issue both equity and bonds, Miller (1977) argues that this tax advantage of debt is offset for some investors by a personal tax preference for equity returns because of the lower personal tax rate on the latter. Miller uses this insight to characterize an equilibrium in which each firm is indifferent about its debt-equity ratio; investors sort into clienteles for stocks and bonds according to their personal tax characteristics. The Miller model assumes a closed economy, but it has been extended to the international context by Hodder and Senbet (1990), some of whose central insights are used in the model below.

Assume that there are two countries: the United States (denoted US) and a foreign country (denoted F). Firms in this model are assumed to have an exogenously fixed country of residence (although they may operate abroad through a subsidiary, as discussed below). They face a residence-based corporate tax on their worldwide income of $\tau_{US} \epsilon(0, 1)$ if resident in US and $\tau_F \epsilon(0, 1)$ if resident in F; their foreign operations face a source-based tax imposed by the host country, with a (limited) foreign tax credit allowed by their home country. Without loss of generality (and in deference to current realities) it is assumed that $\tau_{US} > \tau_F$. Firms can issue two kinds of assets: bonds and stock. Firms pay interest on the bonds they issue, and pay equity returns in the form of dividends and/or capital gains (the distinction does not matter for the purposes of this model). There is no risk associated with the returns from either bonds or equity.

There exists a continuum of investors in each country. These investors are distinguished by their personal tax rate $t$. US investors face tax rates in the interval $[0, t_{USmax}]$ and investors resident in F face tax rates in the interval $[0, t_{Fmax}]$. For concreteness, it is assumed that $t_{Fmax} > t_{USmax}$. This is not, however, crucial to any of the results. Both $t_{Fmax}$ and $t_{USmax}$ are assumed to be sufficiently large that some investors in each country wish to hold
equity. Investors are assumed to face only residence-based personal taxes. They are also restricted to holding nonnegative amounts of the two kinds of assets—corporate bonds and equity—issued by firms. The returns from these assets differ in their tax treatment at the personal level, with equity returns being taxed more lightly. Specifically, it is assumed that a US investor with personal tax rate \( t \) faces a tax rate of \( t \) on interest income and a tax rate of \( e^{\text{US}} t \) on equity returns, while an investor with personal tax rate \( t \) resident in F faces a tax rate of \( t \) on interest income and a tax rate of \( e^F t \) on equity returns; \( e^{\text{US}} \) and \( e^F \) are country-specific parameters in the interval \([0, 1]\). For concreteness, it is assumed that \( e^F > e^{\text{US}} \); this is not, however, crucial to any of the results.

In Miller’s (1977) equilibrium, the pretax returns on bonds and stock adjust to equate the return to equity and the net-of-tax interest rate (see also Auerbach 2002). It is therefore possible to define a parameter \( \theta(t) \) that captures the degree of preference of investors for bonds relative to equity. Specifically, \( \theta(t) \) is the ratio of the after-personal-tax value of $1 of interest income to the after-personal-tax value of $1 of equity income. For US investors:

\[
\theta^{\text{US}}(t) \equiv \frac{1 - t}{1 - e^{\text{US}} t} \quad (3)
\]

and for investors in F:

\[
\theta^F(t) \equiv \frac{1 - t}{1 - e^F t} \quad (4)
\]

The smaller is \( \theta \), the greater is the investor’s tax preference for equity. As \( \theta^{\text{US}}(t) < 0 \) and \( \theta^F(t) < 0 \), the personal tax preference for bonds decreases with the investor’s tax rate.

A firm’s corporate tax preference for debt depends on the corporate tax rate at which it is able to deduct interest payments. For US firms, this rate will always be \( \tau^{\text{US}} \) regardless of whether the interest payments are made by the parent or by a subsidiary in F. For firms resident in F, however, there is an incentive to deduct interest payments in US rather than in F (see Hodder and Senbet 1990). These firms can arrange to deduct payments in US through a variety of strategies that involve transferring interest deductions.
to a US subsidiary. Thus all firms will have a corporate tax preference for debt that is given by $(1 - \tau_{US})$.

The corporate tax preference for debt and investors' personal tax preference for equity are depicted in figure 9-1. To characterize the financial equilibrium shown in figure 9-1, attention is restricted to cases where each country’s investors hold assets issued in both countries. Let $r_{US}$ be the pretax return to equity issued by US firms, and let $r_{F}$ be the pretax return to equity issued by F firms. Similarly, let $i_{US}$ be the pretax return to debt issued by US firms, and let $i_{F}$ be the pretax return to debt issued by F firms. If US investors facing some sufficiently high personal tax rate $t$ hold both US and F equities, then it must be the case that

$$r_{F}(1 - \tau_{F})(1 - e^{US}t) = r_{US}(1 - \tau_{US})(1 - e^{US}t) \quad (5)$$

and hence that

$$r_{F}(1 - \tau_{F}) = r_{US}(1 - \tau_{US}) = r^* \quad (6)$$
where $r^*$ is the world after-corporate-tax return to equity. That is, returns after corporate taxes are equated across US and F firms.\(^{18}\) If US investors with sufficiently low $t$ hold both US and F bonds, then $i_F(1-t) = i_{US}(1-t)$, and hence $i_F = i_{US} = i^*$ (i.e., the interest rates offered by US and F firms are equated at $i^*$).

In figure 9-1, equilibrium requires that the personal tax preference for equity—given by $\theta^{US}$ and $\theta^F$—equal the corporate tax preference for debt—given by $(1 - t^{US})$. US investors facing the personal tax rate $t^{US*}$ are indifferent between holding bonds issued in either country and equity issued by firms in either country; thus

$$i^*(1 - t^{US*}) = r^*(1 - e^{US}t^{US*}) \quad (7)$$

(and an analogous condition holds for F investors facing the personal tax rate $t^{F*}$). Hence

$$\frac{r^*}{i^*} = \frac{1 - t^{US*}}{1 - e^{US}t^{US*}} = \theta^{US}(t^{US*}) = \frac{1 - t^{F*}}{1 - e^{F}t^{F*}} = \theta^F(t^{F*}) = 1 - r^{US}, \quad (8)$$

so that

$$i^*(1 - \tau^{US}) = r^*. \quad (9)$$

The left-hand side represents the cost of borrowing to a firm (whether located in US or F), taking into account the subsidy provided by the (US) corporate tax, while the right-hand side represents the rate of return demanded by equity holders. Thus each firm is indifferent about its debt-equity ratio in this international financial equilibrium. All US investors with personal tax rates above $t^{US*}$ and all F investors with personal tax rates above $t^{F*}$ hold stock. All US investors with personal tax rates below $t^{US*}$ and all F investors with personal tax rates below $t^{F*}$ hold bonds. In each case, the national origin of the assets owned by each investor is indeterminate. Firms issue a sufficient number of bonds to satisfy the demand of investors who prefer bonds and a sufficient amount of equity to satisfy the demand of investors who prefer equity. Thus, there is a determinate debt-equity ratio at the global level; however, as each firm is indifferent about its capital structure, the aggregate debt-equity ratio at the national level is indeterminate.
The Effect of JGTRRA on U.S. Investors’ Equity Holdings. JGTRRA can be viewed as having disturbed the international financial equilibrium characterized above by reducing the parameter $e^{US}$, thereby increasing the tax preference for equity among U.S. investors. This is depicted in figure 9-1 as a shift of $\theta^{US}(t)$ to $\theta^{US+}(t)$; clearly, the new equilibrium involves a larger fraction of U.S. investors wishing to hold stock. This change entails that firms issue more equity and that the global debt-equity ratio falls. However, there is no necessary presumption in this model that the firms issuing the additional equity are U.S. firms: the increased demand for equity by U.S. investors could be satisfied (in theory, entirely) by foreign firms. The capital structure of U.S. firms is indeterminate in both the old and the new equilibria, and so within this framework there is no basis for predicting that JGTRRA would reduce U.S. firms’ use of debt, as was suggested by some proponents of the reform.

Obviously, if U.S. investors are highly home-biased, then the reduction in the global debt-equity ratio will surely be concentrated among U.S. firms. There is indeed considerable evidence of home bias in U.S. equity holdings. Figure 9-2 depicts the location of U.S. equity holdings in 2004, computed from the Treasury International Capital (TIC) system dataset. The TIC system reports the portfolio holdings of foreign securities by U.S. investors and the portfolio holdings of U.S. securities by foreign residents. It is based on periodic surveys of banks, other financial institutions, securities brokers, and dealers. The holdings are divided into equity foreign portfolio investment (FPI) and debt FPI, with the latter category further subdivided into long-term and short-term debt. While there are some limitations of the TIC data, they nonetheless represent the best available source of information on inbound and outbound U.S. FPI. As shown in figure 9-2, the TIC data indicate that most portfolio equity investment by U.S. investors—88 percent—is located in the U.S.

However, this is not necessarily the most relevant information in this context. JGTRRA induced U.S. investors to hold more equity, so what matters more is whether these incremental holdings of equity are in U.S. or foreign stocks; it is the location of these incremental holdings that determines how much less debt U.S. firms issue. The home bias of U.S. investors has clearly eroded over time. Figure 9-3 depicts the location of the increase in equity holdings by U.S. investors from 2004 to 2005 (in each case, the data
Figure 9-2
Holdings of Domestic and Foreign Equity by U.S. Portfolio Investors, 2004

Source: Author’s calculations, based on data from the U.S. Department of the Treasury, Treasury International Capital System.
Note: U.S. investors’ aggregate holdings are computed as U.S. market capitalization minus foreigners’ holdings of U.S. equities plus U.S. investors’ foreign equity holdings.

Figure 9-3
Increases in Holdings of Domestic and Foreign Equity by U.S. Portfolio Investors, 2004–5

Source: Author’s calculations, based on data from U.S. Department of the Treasury, Treasury International Capital System.
Note: U.S. investors’ aggregate holdings in each year are computed as U.S. market capitalization minus foreigners’ holdings of U.S. equities plus U.S. investors’ foreign equity holdings.
are for December 31 of the relevant year). Specifically, what figure 9-3 reports is the percentage of this increase—43 percent—that was accounted for by increased holdings of foreign equity. This suggests that any increase in U.S. investors’ desire for equity as a result of JGTRRA would have been met in substantial measure by the acquisition of stock in foreign rather than U.S. corporations.

Thus, it seems reasonable to conclude that the main discernible effect of JGTRRA is likely to be on U.S. investors’ portfolio choices. To be sure, there is likely to be some impact on the global debt-equity ratio, but any observed change in this variable would potentially be confounded with changes (other than JGTRRA) that occurred in 2003. Thus the main focus here is on changes in U.S. investors’ portfolios. However, it is difficult to test this prediction using domestic (U.S.) holdings, due to possible supply-side responses by U.S. firms (in terms of the types of assets that they issue). In addition, the very existence of a home bias suggests that U.S. investment in U.S. firms may reflect different forces than U.S. investment in foreign firms. There is of course no other “home” country for U.S. investors that can be used to control for these potential differences.

These considerations suggest that a more promising approach would be to compare U.S. investment across different foreign countries. Indeed, a relatively obscure provision of JGTRRA relating to the treatment of foreign dividends provides a source of identification for just such an approach (Desai and Dharmapala 2007). The lower tax rate for dividends under JGTRRA applies only to dividends paid by “qualified” foreign corporations. A foreign corporation is deemed to be qualified if it satisfies at least one of three tests established by the legislation. Of these, the most relevant is the “treaty test,” which establishes that a corporation resident in a country with which the United States has a tax treaty meeting certain criteria qualifies for the lower dividend tax rate. In October 2003, the IRS released a list of fifty-two countries that were deemed to satisfy the treaty test; these countries (listed in table 9-1) are referred to below as “treaty” countries, while all those excluded from the list are referred to as “nontreaty” countries.

Qualification provides the U.S. shareholders of foreign corporations with a substantially lower tax rate—for a top-bracket U.S. shareholder, dividends from a British firm are taxed at 15 percent, while dividends from an Argentine firm are taxed at 35 percent. Desai and Dharmapala (2007) use
this difference in tax rates to analyze the sensitivity of portfolio choices to dividend taxation, and they find a substantial effect. This same source of variation can be used to shed some light on the predictions of the simple model presented above. In particular, if a foreign country is a treaty country, then the reduced dividend tax applies, and U.S. investors will wish to increase their equity holdings in both U.S. firms and the foreign country’s firms, relative to holdings of debt. On the other hand, if a foreign country is a nontreaty country, then there is no reduction in dividend taxes for its firms, and so while U.S. investors will want to increase equity holdings in U.S. firms, there is no incentive to do so in the other country’s firms. Thus if U.S. investors responded to JGTRRA’s incentives to switch from debt to equity holdings, then this effect should appear only in treaty countries. It might be expected, therefore, that the equity-to-debt ratio for U.S. investment in treaty countries would rise, relative to the corresponding ratio for nontreaty countries.

Figure 9-4 shows how the ratio of equity to debt in U.S. portfolio holdings changed after JGTRRA in treaty and nontreaty countries. The equity-
The equity-to-debt ratio for treaty countries is computed by aggregating U.S. investors’ equity holdings across treaty countries and dividing by U.S. investors’ debt holdings in the same group of countries. An analogous procedure is used for the equity-to-debt ratio in nontreaty countries. The comparison is between 2001 (the last year prior to the reform for which TIC data are available) and 2004. The equity-to-debt ratio in treaty countries remained essentially unchanged over this period, apparently contradicting the theoretical prediction. However, using nontreaty countries as a control group suggests a different picture: the equity-to-debt ratio for nontreaty countries fell sharply over this period, so that (as expected) the equity-to-debt ratio for U.S. investment in treaty countries rose, relative to the corresponding ratio for nontreaty countries.

A more rigorous test along these lines is presented by Desai and Dharmapala (2007), although the primary emphasis of their paper is the location of equity FPI across countries, rather than the mix of equity and debt. Desai and Dharmapala (2007) undertake a difference-in-difference analysis using panel data on U.S. equity FPI, comparing investment in treaty and non-
treaty countries before and after JGTRRA. Column 5 of table 3 in Desai and Dharmapala (2007) reports results controlling for debt FPI (and so essentially captures the effect on the equity-to-debt ratio); this also controls for other relevant factors such as changes in GDP, changes in market capitalization, and changes in a stock market returns index. U.S. equity FPI in treaty countries (relative to nontreaty countries) rose after JGTRRA, implying that the equity-to-debt ratio would also have risen correspondingly.

The overall lesson is that JGTRRA appears to have induced U.S. investors to hold more equity. On the other hand, the effects of JGTRRA on the capital structure of U.S. firms are not clear on theoretical grounds. Moreover, there does not appear to be any empirical evidence on this issue. Possibly, this is because dividends from all U.S. firms were subject to JGTRRA, and it is therefore difficult to find a valid control group.

**Lessons about Corporate Tax Integration**

JGTRRA was intended by its proponents as an important step forward in the integration of corporate and personal taxes. Scholars have long argued for corporate tax integration (CTI) as a means of reducing the distortions—to organizational form, payout policy, and financing decisions—created by the “double taxation” of corporate income (e.g., Hubbard 1993, 2005). This section begins by clarifying the efficiency consequences of these distortions. It then discusses some international dimensions of CTI. The section ends with some reflections on two related questions: whether the dividend tax regime created by JGTRRA should be extended, and how further advances toward CTI may best be pursued in the future.

**The Efficiency Costs of Corporate Financial Distortions.** The undesirability of distortions to corporate financial decisions is generally presumed by economists. However, conceptualizing—not to mention quantifying—the social costs of these distortions is not entirely straightforward (in contrast, it is easier to understand the efficiency costs of distortions to firms’ investment decisions due to corporate taxes). Consider the case where firms use more debt than they otherwise would because of the tax deductibility
of interest payments. This practice can potentially give rise to more bankruptcies than would otherwise occur, along with the associated transaction costs of reorganization. Suppose that these transaction costs are manifested in the form of fees paid to lawyers. The fees are of course simply a transfer, but may give rise to a social cost via labor market incentives. Specifically, the returns to entering the legal profession would rise, drawing in some individuals at the margin who would (absent the tax incentive for firms to use too much debt) have been more productive in some other occupation. In this account, the efficiency cost of distortions to firms’ capital structure is a reduction in society’s output due to a misallocation of labor.

Similar examples can be given for distortions to firms’ payout decisions. If the tax penalty on dividends causes firms to retain earnings that they would otherwise have paid out, then managers may use these retained earnings for negative-value projects or consume them as rents. Inefficient projects entail an obvious social cost, but there may also be distortions to the labor market. As shareholders reduce managerial compensation to take account of the private benefits enjoyed by managers, the managerial profession will tend to attract those individuals who value private benefits over standard forms of compensation, even if such individuals would be more productive in some other occupation (absent the tax incentive for firms to retain too much of their earnings).

These types of social costs are generally not borne by shareholders as such, but rather are dispersed across society in the form of lower output. Even in the case of excessive retention of earnings, the expected agency costs are presumably capitalized into the share price. Thus, the efficiency gains from eliminating these distortions are conceptually separate from any redistribution toward shareholders that may be entailed by the actual implementation of CTI. In addition, although these social costs are inherently very difficult to quantify, that does not imply that they are necessarily small in magnitude.

**Corporate Tax Integration and International Financial Integration.** Historically, the dominant approach to CTI has involved dividend imputation credits. Under an imputation system, shareholders receive a credit for corporate taxes paid at the firm level; this credit can be used to offset shareholders’ personal tax liability on their dividend income. Imputation credits,
however, are typically restricted to corporate taxes paid by domestic firms, resulting in a lower tax rate on domestic equity returns than on foreign equity returns. This creates a tax incentive to invest in domestic rather than foreign corporations, potentially causing inefficient underdiversification among domestic investors (see e.g. Fuest and Huber 2001; Avi-Yonah 2005). From an individual investor's point of view, it may be rational to accept a higher level of risk by concentrating on domestic equities in order to obtain the higher expected after-tax return on those domestic securities. However, from society's point of view, the tax payments are (to a first approximation) simply a transfer. Thus, society as a whole ends up with a welfare loss by bearing more risk than necessary for the expected returns obtained. This implies that while CTI ameliorates domestic distortions, it creates new inefficiencies in international portfolio choices. Comparing U.S. FPI in treaty and nontreaty countries after JGTRRA, Desai and Dharmapala (2007) find a large elasticity of equity FPI with respect to dividend taxes. Thus, an important lesson from investors' response to JGTRRA is that tax-induced international portfolio distortions may be substantial.

In the 2000s, international diversification issues have become more important than ever. At the same time, the dividend imputation systems of Europe have encountered legal problems, running afoul of the European Union's nondiscrimination principles (see, e.g., Graetz and Warren 2007). As a result, there has been a movement away from dividend imputation toward shareholder-level dividend exclusion. JGTRRA's partial shareholder-level dividend exclusion can be viewed as part of this worldwide trend. As a mechanism for CTI in a globalized economy, JGTRRA's approach appears to be superior to a dividend imputation system. Most importantly, it does not restrict its partial dividend exclusion to dividends paid by U.S. firms. However, as discussed above, JGTRRA does not treat all foreign countries identically. Admittedly, most U.S. equity FPI is subject to the favorable tax regime under JGTRRA. Nonetheless, dividends from firms located in some significant destinations for U.S. investment—such as Argentina, Brazil, Hong Kong, Malaysia, Singapore, and Taiwan—do not qualify for this favorable treatment.

The various justifications offered for JGTRRA's distinction between treaty and nontreaty countries are not entirely persuasive. In the legislative discussion surrounding the act, concern was expressed about extending the
benefits of JGTRRA to income on which no corporate tax had ever been paid (Sheppard 2004). However, the distinction that JGTRRA draws between treaty and nontreaty countries does not have any necessary relationship to countries’ corporate tax rates. The focus on information exchange in defining which treaties are eligible for “qualification” may reflect fears about tax avoidance strategies or about tax evasion, but these concerns have never been described in detail. Moreover, concerns about the exchange of information are perhaps best addressed through the tax information exchange agreements (TIEAs) that the United States has signed with many countries, including some with which it does not have tax treaties. Yet JGTRRA uses treaty status rather than the presence of TIEAs as the basis for its applicability. Thus while JGTRRA’s treatment of foreign dividends is clearly preferable to that of most dividend imputation systems, it nonetheless distorts the location of FPI.

While the effects of CTI on international portfolio diversification are widely appreciated, the model used in the section above suggests another dimension to the interaction between global financial integration and CTI. In particular, it suggests a growing disjuncture between two different effects of CTI: influencing the portfolio choices of investors resident in the United States, and influencing the behavior of firms resident in the United States. In a closed economy, these two effects are intrinsically linked, as the number and types of securities issued by domestic firms must meet the demands of domestic investors. However, this link is severed in an open economy, as illustrated by the model used above. Thus while JGTRRA was apparently able to induce U.S. firms to pay more dividends, its efficacy in achieving this aim was reduced by the fact that a typical U.S. shareholder benefiting from the tax cut held about a tenth of her portfolio overseas. The revenue loss from the lower tax rate on foreign (treaty country) dividends is of course not compensated for by any payout policy changes by U.S. firms. This dissipation is much larger in the case of the impact of JGTRRA on U.S. firms’ capital structure. As figure 9-3 suggests, we would expect nearly half of the increase in demand for equities by U.S. investors to be satisfied by foreign firms. Thus the impact on U.S. firms’ capital structure is likely to be only about half what it would be in a closed economy. This is not, of course, to argue that the tax cut should not have been extended to foreign dividends. Rather, the point is that in a globalized economy, there are
constraints on what governments can accomplish, and the achievement of CTI is no exception to this rule.

Future Directions for Dividend Tax Policy. The higher costs of achieving CTI raise several questions about future policy. Most obvious is the impending issue of whether the dividend tax cuts (scheduled to expire in 2010) should be extended. If they are not, then it is unlikely that the increases in dividends in the wake of JGTRRA would be reversed; firms, after all, are loath to reduce regular dividend payments. However, there would be reduced pressure on managers of firms that do not currently pay dividends to do so in the future. This might in turn slow down the reallocation of investment funds that Chetty and Saez (2006, 2007) argue was spurred by JGTRRA. In any event, as JGTRRA achieved only a partial implementation of CTI, there is scope for further progress toward this goal, regardless of whether the tax cuts are extended or allowed to lapse.

One policy option that goes beyond merely extending the tax cuts would be to further reduce dividend taxes, perhaps moving to full dividend exclusion. There are of course many budgetary and distributional concerns that are relevant to this decision. One issue that has not attracted much attention, however, is the impact on international portfolio choices. A dividend tax rate below 15 percent would be less than the withholding tax rates imposed by foreign countries on dividends paid to U.S. shareholders (typically, this rate is 15 percent for treaty countries). For example, consider a U.S. investor who owns stock in the United States and France. If the United States dividend tax rate were lowered to zero, the dividends she receives from her U.S. stock would be tax exempt, but she would pay a 15 percent withholding tax to France on her French dividends. Moreover, she would not have a U.S. tax liability on the French dividends against which to claim a foreign tax credit. This outcome would obviously discourage international diversification.

Of course, tax treaties could be renegotiated, perhaps to eliminate withholding taxes altogether. However, as treaty provisions are typically reciprocal, this would entail an additional revenue cost to the United States (from eliminating withholding taxes imposed by the United States on dividends paid by U.S. firms to foreign shareholders), in addition to the direct revenue loss from reducing dividend taxes on U.S. residents. It therefore
seems inadvisable to pursue further dividend tax cuts without taking account of these international ramifications.

**Firm-Level Approaches to Corporate Tax Integration.** The previous arguments suggest that if the aim of policymakers is to influence corporate financial policy, then they should perhaps use measures directed more specifically at U.S. firms. One such approach is a firm-level deduction for dividends paid (Hubbard 1993, 2005). This would create neutrality between debt and equity financing if firms pay out all their profits as dividends. A more general way to achieve neutrality is an allowance for corporate equity (ACE) systems (e.g., see Devereux and Freeman 1991; Klemm 2007). An ACE system allows firms to deduct a normal rate of return on their equity. As this rate of return is, to a first approximation, equal to the return the firm must pay on its bonds, an ACE system eliminates the incentive under the current tax system to issue excessive amounts of debt. In addition, it is possible to eliminate distortions to corporate financial policy by disallowing interest deductions, as in the Comprehensive Business Income Tax (CBIT) model developed by the Treasury in the 1990s (Kleinbard 2007).

Beyond its effects on financial policy, an ACE system has other significant advantages, for instance eliminating distortions to investment at the margin. Moreover, it is not merely a theoretical curiosity: a variant of an ACE has been used in Brazil since 1996, and an ACE system was introduced in Belgium in 2006. Nonetheless, none of the firm-level approaches to CTI has been widely adopted. One major reason is the substantial revenue cost involved (Hubbard 1993, 2005). An ACE system taxes only the economic rents generated in the corporate sector, and so necessarily narrows the corporate tax base. Moreover, much of the revenue loss is associated with inframarginal equity—i.e., equity that was (or would have been) issued despite the current tax preference for debt. In theory, it is possible to limit the revenue loss by distinguishing between old and new equity, and ensuring neutrality with debt only for the latter. However, this is difficult to achieve in practice for an ACE because firms have an incentive to repurchase existing stock and issue new equity. Thus policymakers must decide whether the efficiency gains discussed at the beginning of this section warrant incurring the significant revenue losses involved.
Finally, another firm-level policy that can ameliorate distortions to corporate financial policy (and to the choice of organizational form) is a reduction in the corporate tax rate. This would not only reduce the tax advantage of debt, but would likely have a variety of other potential benefits as well. For instance, the U.S. corporate tax rate is widely viewed as being out of step with foreign rates, and there is growing evidence that the burden of the tax falls to a substantial degree on workers (see, e.g., Viard 2008). Reducing the corporate tax rate would lessen both these problems.

**Conclusion**

The 2003 tax reform provided scholars with an unusual opportunity to analyze the impact of a large reduction in dividend taxes. A number of important lessons for tax policy can be distilled from this episode. The fall in dividend taxes led to a substantial and immediate increase in dividend payments by U.S. firms, especially in the form of dividend initiations. These dividend increases were concentrated among firms with influential shareholders or managers who benefited from the reform. JGTRRA also increased the value of firms with high dividend yields relative to firms with lower yields, while also raising the value of firms that had yet to pay any dividends. These findings are most consistent with the new view of dividend taxation, but leave some unresolved issues for future inquiry. The reform also appears to have changed U.S. investors’ preference for equity over debt. However, in an ever more financially integrated world, there is no clear basis for expecting significant changes in U.S. firms’ capital structure. Finally, JGTRRA offers important lessons for policies relating to the integration of corporate and personal taxes. In particular, it appears that JGTRRA’s shareholder-level approach may be less effective in a financially integrated world economy than measures directed specifically at U.S. firms. However, many of the longer-term consequences of the reform are still unclear, especially given the ostensibly temporary nature of the tax cut.
Notes

1. JGTRRA is not, however, entirely unique in providing the opportunity to study the impact of dividend taxation. See Bond, Devereux, and Klemm (2007a, 2007b) for an analysis of a 1997 reform to the tax treatment of dividends in the UK.

2. In the Miller (1977) model discussed below, for example, \( t_d \) would be the dividend tax rate faced by the marginal investor who is indifferent between equity and bonds. However, this type of restriction is not imposed at this stage. The discussion here and below relies on the “marginal investor” approach to market equilibrium. An alternative approach would be to use a framework such as the after-tax capital asset pricing model (CAPM) developed by Brennan (1970). In this approach, the market equilibrium is influenced by all investors, with each investor’s influence being weighted by her wealth and risk tolerance; see also Auerbach and King (1983) and Bond, Devereux, and Klemm (2007a, 2007b).

3. Equivalently, \( r \) could be interpreted as the after-corporate-tax (but before-personal-tax) rate of return.

4. For this reason, the new view is also sometimes referred to as the “trapped equity” view. The argument that dividend taxes are unavoidable is supported, for example, by the existence of U.S. tax rules (e.g., Section 302) that potentially subject share repurchases to the higher dividend tax rate if repurchases are undertaken with sufficient regularity. However, repurchases by U.S. firms have grown substantially in recent decades without triggering these tax provisions.

5. The new view does not address this puzzle, as it assumes that dividend taxes are unavoidable in the long run.

6. Implicit differentiation of equation (1) suggests that reducing \( t_d \) results in an increase in \( d \), as long as the initial \( t_d \) is sufficiently large relative to the marginal utility of dividend returns. A reduction in \( t_d \) also leads to a decrease in the required pre-tax return \( r \); in the short run, this would be manifested in the form of an increase in the firm’s share price. Moreover, the valuation response to JGTRRA is predicted to be increasing in the firm’s initial dividend yield \( d \) (subject to the same condition that the initial \( t_d \) is “sufficiently large”).

7. Empirically identifying nontaxable institutions in itself poses a considerable challenge, as the standard data source (Thomson Financial’s database, which reports institutional ownership based on 13-F filings) does not classify institutions by tax status. Chetty and Saez (2005) thus hand-classify institutions (based on their names) into categories subject to different tax treatment.

8. Another aspect of valuation that has been examined by researchers is the impact of JGTRRA on ex-dividend day price behavior. This term refers to the change in the price of a stock at the time a dividend is paid. This price change reveals how much investors value the dividend, and in particular provides evidence on whether dividend taxes are incorporated into their valuation. Elton and Gruber (1970) find that the price falls by less than the amount of the dividend, suggesting the capitalization
of dividend taxes. Chetty, Rosenberg, and Saez (2007) find that the magnitude of this phenomenon changed in 2003 in a manner consistent with JGTRRA’s reduction of dividend taxes. However, they also show that this inference is not robust because of the long-run time-series volatility in ex-dividend-day price behavior.

9. Amromin, Harrison, and Sharpe (2006) argue that the positive abnormal returns for non-dividend-paying stock were unrelated to the tax reform, and were also found among non-dividend-paying UK stocks over this period. However, Auerbach and Hassett (2006) find that the magnitude of the abnormal returns for nonpayers was positively related to the predicted probability of issuing new shares, suggesting that the effect was indeed related to JGTRRA.

10. A direct test of the impact of JGTRRA on corporate investment would be very difficult, given the long-run time-series volatility of investment (see, for example, Chetty and Saez 2005).

11. However, there are certain possibilities this model does not encompass, such as a signaling value for dividends, or circumstances in which managers are so intent on enjoying leisure that they forgo profitable investment opportunities and pay excessively high dividends. The study by Chetty and Saez (2007) is also an example of a growing literature analyzing the linkages between taxation and corporate governance, as are studies by Desai and Dharmapala (2006, 2008); for a survey of this literature, see Desai and Dharmapala (forthcoming). Bank (2007), however, cautions against using the tax code to achieve corporate governance objectives.


13. See Auerbach and King (1983) for a model of financial equilibrium that incorporates uncertainty about asset returns.

14. In practice, these assumptions mean that a firm resident in F faces a tax rate of $\tau_F$ on its domestic operations and a tax rate of $\tau_{US}$ on its US operations, while a firm resident in US faces a tax rate of $\tau_{US}$ on both its domestic and foreign operations. Note that these corporate taxes are assumed to offer full deductibility of losses, as in Miller (1977).

15. A minimal necessary condition for the Miller equilibrium is that the maximum personal tax rate exceeds the corporate rate. It is much less clear that this is the case today in the United States than when Miller (1977) proposed his theory. However, even today (when the maximum federal tax rate of 35 percent equals the corporate rate), incorporating state taxes into the analysis may result in some investors facing a personal tax rate on interest income that exceeds the corporate rate. Also, nontax considerations are ignored here, but subtracting the nontax cost of debt (e.g., a bankruptcy cost) from the expression for the tax advantage of debt will also result in some investors preferring equity.

16. For example, suppose that an F corporation needs $100 of loans to finance a new factory in F; assume the factory will generate a return of $15 and that the interest rate demanded by lenders is 10 percent. Instead of issuing bonds itself, the F
corporation could set up a subsidiary in US, which would then borrow $100 and use the proceeds to repurchase stock owned by the parent. The parent then invests in the factory and generates the $15 return; it uses $10 of that return to infuse new equity into the US subsidiary, which the latter uses to pay interest on the bonds. These interest payments are thus deducted at the higher US tax rate $\tau^{US}$ (recall that the corporate tax is assumed to treat losses symmetrically). In practice, such strategies are restricted by “thin capitalization” rules, such as Section 162(j) of the United States tax code. However, Desai, Foley, and Hines (2004) find evidence consistent with multinational corporations locating debt in higher-tax countries.

17. Given the existence of source-based corporate taxation, it might be thought that firms resident in F would face a corporate tax rate that is some weighted average of $\tau^{F}$ and $\tau^{US}$ (as they face the US tax rate on their US operations). It is implicitly assumed in equation (5) that F firms are able to source their (positive) income solely in F, just as they were earlier assumed to be able to source all interest deductions in US. The basic conclusions are unaffected, however, if F firms face a weighted average of $\tau^{F}$ and $\tau^{US}$.

18. This condition is similar, for example, to that in Devereux (2000). Note that the pre-tax return does not reflect shareholder-level taxes. This situation is thus a little different from that assumed in some of the theories of dividend taxation discussed earlier; however, this difference does not matter for the questions addressed in this section.

19. The TIC data are available at www.treas.gov/tic/ and are described in more detail in Bertaut, Grieve, and Tryon (2006) and Desai and Dharmapala (2007). Following Cai and Warnock (2006), the approach here is to compute U.S. investors’ aggregate holdings as U.S. market capitalization minus foreigners’ holdings of U.S. equities plus U.S. investors’ foreign equity holdings (all of which are obtained from TIC).

20. In addition, under the “possessions test,” corporations resident in a U.S. possession (such as Puerto Rico), or certain former U.S. territories that are treated as possessions for tax purposes, automatically qualify. Under the “market test,” dividends from corporations whose shares are traded in the United States are also eligible for the favorable dividend tax treatment.

21. IRS 2003. Desai and Dharmapala (2007) calculate that these fifty-two countries together hosted 82 percent of U.S. outbound equity FPI holdings in 2001. Thus, most U.S. portfolio investment is subject to the favorable tax regime under JGTRRA. Nonetheless, firms located in some significant destinations for U.S. investment—such as Argentina, Brazil, Hong Kong, Malaysia, Singapore, and Taiwan—do not qualify for this favorable treatment.

22. JGTRRA reduced the top marginal rate on ordinary income from 38.6 percent to 35 percent, but this affects interest income and dividends from nontreaty countries symmetrically.

23. In particular, note that these ratios are not obtained by averaging equity-to-debt ratios across countries. Thus the weight placed on countries where there is little U.S. investment is very small.
24. This could represent a reallocation of equity investment from nontreaty to treaty countries. Up to a point, that would be consistent with the story being told here, but this reallocation may have occurred without any net increase in foreign equity holdings. This seems unlikely, given the trend toward higher levels of investment abroad over this period (see figure 9-3), but is difficult to test as there is no good control for the overall level of U.S. equity FPI.

25. For example, the German tax reform of 2001 abandoned dividend imputation in favor of partial dividend exclusion (Fuest and Huber 2001).

26. Another possible reason for this distinction—that Congress wished to provide researchers with a “natural experiment”—can safely be dismissed.

27. On the other hand, if policymakers are primarily interested in influencing the portfolio holdings of U.S. investors rather than the behavior of U.S. firms, then shareholder-level dividend exclusion involves no such dissipation. For instance, if stock market participation is viewed as being inefficiently low, then there may be some potential justification for government policy to promote equity holdings (see Desai, Dharmapala, and Fung 2007 for a discussion). However, the political rhetoric surrounding JGTRRA did not focus on these types of issues.

28. Given the ostensibly temporary nature of the tax cut, it is perhaps somewhat surprising that firms did not rely more on increases in special dividends.

29. Wacker (2004, table 1) details the withholding tax rates specified in the tax treaties to which the United States is a signatory.

30. This problem would be mitigated, at least in part, if the taxpayer had other foreign-source income (such as interest) that was subject to U.S. taxation, or could gain exposure to French stocks through derivative instruments such as equity swaps.

31. Klemm (2007) analyzes the consequences of the Brazilian system and finds a substantial increase in dividend payments but only a limited impact on capital structure.

32. Another reason is that these forms of CTI appear to benefit foreign shareholders (see, e.g., Avi-Yonah 2005). However, as discussed above, the efficiency gains from eliminating distortions to corporate financial policy primarily take the form of increases in domestic output.

33. However, it may be possible to implement a rough form of grandfathering with a firm-level dividend deduction by restricting deductibility to dividends above some prereform baseline level (or above a baseline ratio relative to earnings).
References


REFERENCES


A Response to Dhammika Dharmapala

Douglas A. Shackelford

The 2003 Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) reduced the maximum individual tax rate on dividend income from 38.1 percent to 15 percent. This dramatic reduction in the dividend tax rate has prompted several studies of how dividend policy, the capital market, and portfolios responded to the rate reduction.

Dharmapala provides an excellent review of this research. He summarizes the findings, evaluates them in light of extant theories, and posits directions for future work. I strongly recommend his chapter to anyone interested in this area of inquiry. My comments here will offer some further perspective on the issues Dharmapala addresses and critique the inferences being drawn from the studies in this field.

I conclude that, although we have documented many facts about the impact of JGTRRA, we may not completely understand what these facts mean or what their broader implications are for dividend taxation. Our current theories are inadequate to explain the findings, some of which are puzzling and in conflict with each other. Indeed, understanding the findings may be difficult unless and until the dividend rate reduction expires (as it is scheduled to do at the end of 2010).

Why JGTRRA Might Have Had No Effect on Dividend Policy

We now know, among other things, that the number of companies paying dividends and the amounts they paid increased substantially following the

The author appreciates helpful discussions with Jennifer Blouin and Kevin Markle.
May 2003 enactment of JGTRRA. However, to appreciate the research findings, we need to consider the prevailing thought at the time of JGTRRA’s passage, when there were many reasons to doubt that JGTRRA would substantially increase regular quarterly dividend issuances.

Blouin, Raedy, and Shackelford (2004) detail several reasons why JGTRRA might be expected to have no effect on dividend policy. I summarize their reasons here and refer the interested reader to their paper for more details. In essence, each of their reasons questions whether dividend taxation for U.S. individuals is a binding constraint on dividend issuances.

**Shareholders Not Benefiting from JGTRRA Influence Dividend Policy.** The JGTRRA dividend tax rate reduction directly benefited individuals who held shares in taxable accounts and indirectly benefited individuals who held shares in flow-through entities (for example, mutual funds, partnerships, trusts, S corporations, and limited liability corporations) in which the dividend income was passed through to personal U.S. tax returns. For the reduced rates to apply, individual shareholders must have held shares for at least 60 days in the 120-day period beginning 60 days before the ex-dividend date. The legislation, then, did not affect the taxation of individuals with shorter trading horizons or of tax-exempt organizations, tax-deferred accounts (e.g., pensions, IRAs, and 401(k)s), corporations, and foreigners. Thus, if unaffected shareholders controlled or substantially influenced a firm’s dividend policy (and in many companies they may have done so, since they held majority interests), the firm likely would not have significantly altered its distribution policy following JGTRRA.1

**Repurchases Remained More Tax-Efficient than Dividends.** Even after the JGTRRA dividend tax rate cut, repurchases remained the tax-efficient means of distributing profits to shareholders. Although the maximum statutory tax rate on dividends now equals the top rate on long-term capital gains (which JGTRRA reduced from 20 percent to 15 percent), dividends continue to be taxed disadvantageously compared with capital gains for at least four reasons: 1) Dividends accelerate the tax payment that can be deferred until the stock is sold (or fully avoided if held until the shareholder dies). 2) Shareholders are able to time the realization of capital gains so that the capital gains tax is paid when the shareholder’s marginal tax rate
is low. Shareholders are unable to similarly time the realization of dividend income. 3) With capital gains, a portion of the proceeds is treated as a return of basis and thus goes untaxed. Conversely, basis cannot offset dividend income. 4) Since only $3,000 of capital losses (net of capital gains) can be deducted each year, capital gains, unlike dividends, enable individuals to accelerate utilization of their pool of capital losses, an important consideration for many individuals following the downturn in the equity markets in the early 2000s.

**Dividends Were Unpopular.** In 2003, dividends were unpopular. Fama and French (2001) documented that the number of publicly traded companies paying dividends fell from 67 percent in 1978 to 21 percent in 1999. Only 70 percent of the Standard & Poor’s 500 were paying dividends at the end of 2001, down from 94 percent in 1980 (Teitelbaum 2002). DeAngelo, DeAngelo, and Skinner (2004) found that just twenty-five companies accounted for over half of the total dollar amount of dividends in the United States in 2000. Regardless of the dividend tax rate, unprofitable and cash-constrained firms (of which there were many following the economic downturn in the early part of the decade) were in no position to increase dividends (consistent with work dating back to Lintner 1956). In addition, growth firms, a large sector of the economy, typically enjoyed investment opportunities with higher expected returns than shareholders could expect from investing increased dividend payments. Moreover, even many highly profitable firms with substantial cash balances were paying no dividends (e.g., Intel, Dell, Cisco, and—until 2003—Microsoft).

**Rate Reductions Were Temporary.** The JGTRRA dividend tax rate reductions were scheduled to expire at the end of 2008 (now deferred to the end of 2010). If a firm increased its regular quarterly dividends in 2003 in response to the tax cut and then reduced its dividends when the lower rates expired, it could have difficulty convincing the capital markets that the cut in dividends was a response to the tax change rather than an indication of economic setbacks. To the extent that the market (mis)attributed the reduction in dividends to factors unrelated to taxes, the firm could face a drop in share prices, because share prices typically decline following cutbacks in dividend payments. (Imagine if the tax rates had expired in 2008, as
originally scheduled, and firms were trying to convince the market today that they were cutting their dividends for tax reasons, rather than in response to the current economic downturn.) Furthermore, it was unclear in 2003 whether the dividend tax rate reductions would remain in place until 2008, because the 2004 Democratic presidential candidate, John Kerry, had promised to restore the higher dividend tax rate for individuals in the two highest tax brackets. In short, the costs of rescinding their regular quarterly dividend payments may have discouraged firms from increasing their dividends following JGTRRA. An alternative dividend distribution might have been a one-time special dividend, which would have avoided a (perceived) long-term commitment to a higher level of payout.

**Adjustments Distort Dividend Signaling.** Scholars have long debated the reasons that firms pay dividends, given the tax costs to shareholders. Among the asserted benefits of regular quarterly dividends is that they alleviate asymmetric information costs by conveying (costly) information about future earnings to the market (see Bhattacharya 1979, Miller and Rock 1985, and John and Williams 1985, among others). If so, tax-motivated adjustments in the quarterly dividends could distort the intended signal. Again, special dividends could enable firms to distribute cash at the lower dividend tax rate without losing any of the signaling or other benefits of regular quarterly dividends.

**Increased Dividends Have Adverse Implications for Stock Options.** Because stock options are not dividend protected, increasing dividends in response to JGTRRA could have forced firms to grant additional stock options to employees or shift to other forms of compensation. For some firms, the costs of restructuring existing compensation arrangements and undermining the incentives provided by stock options may have exceeded the benefits of lower dividend taxes for their individual investors. Microsoft, for instance, had to get shareholder approval to amend its stock option plans before it could issue its $32 billion special dividend in 2004.

**Alternative Minimum Tax Dulls Benefit.** For individual shareholders paying the alternative minimum tax (AMT), the maximum dividend tax rate before the rate reduction was 28 percent. Since many individual share-
holders in dividend-paying firms likely faced the AMT in 2003 (or could reasonably expect to face it in the future), they benefited less from the dividend tax rate reduction than did investors not facing the AMT. Specifically, their tax cut was a less dramatic reduction from 28 percent to 15 percent, rather than the 38.1 percent to 15 percent enjoyed by individual investors in the top regular tax bracket. Thus, while still substantial, the tax benefit for some individual shareholders was diminished by the AMT.

**Summary.** Given the increase in dividends since 2003, it is easy to forget that there were many reasons in 2003 to expect little, if any, response to a reduction in dividend tax rates. However, the increase in dividends after 2003 does not exclude the possibility that the increase was caused (at least in part) by nontax factors.

**Nontax Explanations for the Increase in Dividends**

There are at least four explanations for the dividend increase following JGTRRA that are not related to taxes. Given that these explanations are plausible and cannot be ruled out, a causal link between the dividend tax rate cut and the dividend increase cannot be definitively established.

One alternative explanation for the dividend increase is that the economy was strengthening rapidly in 2003. Since dividends typically increase as the economy expands, macroeconomic effects may have driven the dividend increase following enactment of JGTRRA more than the dividend tax rate cuts did. Julio and Ikenberry (2004) even claim that dividends had already begun to rise before 2003. Federal Express, Maxim Integrated Products, and Outback Steakhouse, for example, initiated quarterly dividends in 2002.

A second explanation is that following the collapse of Enron, WorldCom, and other companies that had reported high profits but little cash, the capital markets began to look increasingly to cash flow rather than accounting earnings to assess a firm’s financial strength. If capital markets did indeed put greater emphasis on cash flow, then while the dividend tax rate was falling, dividends were becoming a more important instrument for signaling quality.

A third explanation is that many companies had large cash balances in 2003. To the extent that these funds reflected a lack of investment
opportunities, companies might have increased shareholder distributions without any dividend tax rate reduction. Consistent with a need to distribute excess cash, the total amount of repurchases actually increased more than the total amount of dividends in the two years following JGTRRA’s passage (Blouin, Raedy, and Shackelford 2007).

Finally, the most highly publicized dividend initiation in 2003 provides compelling evidence that JGTRRA was not the driving force behind every dividend initiation. Some observers—for example, Aboody and Kasznik (2008), Brown, Liang, and Weisbenner (2007), and Chetty and Saez (2005)—point to Microsoft’s January 17, 2003, announcement that it would begin to distribute dividends as evidence of JGTRRA’s impact on dividend initiations; but Brav et al. (2007) and Blouin, Raedy, and Shackelford (2007) stress how unlikely it was that JGTRRA drove Microsoft’s decision. The Microsoft announcement preceded JGTRRA’s passage by over five months (JGTRRA was a controversial bill that passed only after Vice President Cheney cast the tie-breaking vote) and followed President Bush’s initial announcement of his plan for dividend tax relief by only ten days.3 Although Microsoft’s decision was driven principally by its holding over $43 billion in cash, the factors that caused Microsoft to initiate dividends likely mattered in the dividend initiations of at least some other companies in 2003. (That said, it should be noted that JGTRRA may have played a role in Microsoft’s subsequent decisions to increase its quarterly dividends and issue a very large special dividend.)

What We Have Learned from the Extant Studies

This section lists the principal findings from extant research on why JGTRRA might not have exerted much influence on dividend increases. First, managers themselves claim that JGTRRA had little impact on their dividend payouts. Brav et al. (2005) surveyed managers before passage of the dividend tax rate cut and found that they expected it to have little effect on their dividend policy. In a follow-up survey after passage, managers reported that it had indeed had little impact on their dividends, leading Brav et al. (2007) to conclude that JGTRRA affected the dividend payments only for a few firms at the margin.

These survey responses are consistent with individuals who hold stock through taxable accounts having relatively little influence over dividend
policy. Nonetheless, dividends did increase substantially following JGTRRA. These increases are consistent with (a) managers not being forthright about the reasons for their dividend increases, (b) nontax factors being an important consideration (though largely ignored in the literature), and (c) dividends regaining popularity (for whatever reason) around the time of legislation.

Second, dividend initiations increased in 2003 (Chetty and Saez 2005), an important development because dividends are sticky, partly because the market penalizes firms for cutting or omitting dividends. Thus if JGTRRA increased dividend initiations, it likely had a long-term effect on firms' distributions. However, Brown, Liang, and Weisbenner (2007) claim that the 2003 dividend initiations coincided with reductions in repurchases for companies held mostly by officers and directors. Blouin, Raedy, and Shackelford (2007) add that this substitution pattern for insider-controlled firms held for a much larger set of dividend-paying firms, the noninitiators, which accounted for 97 percent of the total dividends paid in 2003. Thus, while JGTRRA may have increased dividend initiations, total corporate distributions may not have increased if reductions in repurchases offset the dividend increases.

Third, repurchases increased even more than dividends (Blouin, Raedy, and Shackelford 2007). The finding that both these forms of shareholder distributions increased is consistent with distributions being affected by both the dividend and capital gains tax rate reductions in JGTRRA. However, given the greater reduction in the dividend tax rate, it is surprising (and somewhat disturbing) that repurchases increased more than dividends. Nonetheless, this finding is consistent with repurchases continuing to be more tax-efficient than dividends, even after JGTRRA.

Fourth, Blouin, Raedy, and Shackelford (2004) document that some firms paid special dividends soon after passage of JGTRRA, but special dividends (despite the advantages noted above) were not widespread and were far less common and smaller in amount than the increases in regular quarterly dividends. The one (very large) exception was Microsoft's $32 billion special dividend in 2004. However, it is unclear to what extent taxes, as opposed to an exorbitant cash balance, drove this special dividend. Nonetheless, the data suggest that special dividends did not become an important and widespread vehicle for distributing cash after JGTRRA (see discussions in Blouin, Raedy, and Shackelford 2004, and
Korinek and Stiglitz 2008). They also imply that firms neither expected the rate reductions to expire nor were particularly concerned about deleterious effects on signaling and other purported benefits of dividends.

Fifth, Desai and Dharmapala (2007) claim that some extraordinary shifts in foreign equity holdings occurred after JGTRRA. Exploiting the fact that the dividend tax rate reduction applies to dividends from companies in some countries, but not all countries, Desai and Dharmapala (2007) report that more equity flowed to those countries where the dividend tax cut applied than to those countries where it did not. Their estimates imply seemingly unrealistic elasticities and remarkably quick responses by individual investors. However, assuming that their findings hold and that foreign portfolio holdings are indeed highly responsive to taxes, then we must ask whether individual investors in domestic companies also dramatically shifted their holdings to companies whose returns were most advantaged by the rate reduction (e.g., companies with large dividend payouts) and, if not, why foreign and domestic portfolio responses differed.

Sixth, during this period when the tax costs of paying dividends to individual investors decreased significantly (and thus equity became more attractive to individual investors), proportional holdings by individual investors fell dramatically. Blouin, Raedy, and Shackelford (2007) report that average holdings in dividend-paying stocks by individuals who were not insiders fell from 36 percent in 2001–2002 to 27 percent in 2003–2004. Individual equity investments through taxable accounts have been falling as a percentage of total shareholdings for many years, but surprisingly JGTRRA appears to have done little to reverse that trend. If JGTRRA did slow the decline, then imagine how large the decline would have been if the dividend tax rate had not been cut.

Seventh, changes in share prices varied across stocks according to their dividend policy (Auerbach and Hassett 2007; Dhaliwal, Krull, and Li 2007). As expected, the share prices for companies that paid large dividends rose more than the share prices for companies that paid small dividends. Surprisingly, however, the share prices of companies that did not pay any dividends outperformed the high-dividend-paying stocks. This finding is consistent with an expectation by the market that the dividend tax cuts would continue until the non-dividend-paying stocks were paying large dividends, a time far beyond the original 2008 sunset.
Enough time has elapsed and enough studies have been conducted for us to conclude that these facts are accurate. Taken together, however, these facts are difficult, if not impossible, to reconcile. In short, we know what happened following JGTRRA, but we do not know why. I hope that new emerging models, such as Korinek and Stiglitz (2008), Chetty and Saez (2007), and Gordon and Dietz (2006), will provide the theoretical structure needed to reconcile the facts that have been documented. I am pessimistic about our ability to really understand what happened after JGTRRA until theory catches up with the empirical work and makes sense of the findings we have.

Great Paper, circa 2013

Perhaps further understanding of JGTRRA is a few years away. If the JGTRRA tax rates expire, are repealed, or are substantially altered, scholars will have an excellent opportunity to revisit the JGTRRA studies. This round-trip experience with dividend tax changes would aid in our ability to separate the changes that were tax related from those that were not. For example, suppose the dividend and capital gains tax rate cuts expire at the end of 2010, as scheduled. Based on the extant studies, we would expect 1) managers to deny that the expirations will affect their payouts, 2) dividend initiations to slow, particularly among insider-dominated companies, 3) repurchases to crowd out dividends in insider-dominated companies, 4) little change to occur in special dividends, 5) large and immediate rebalancing to take place among foreign portfolio holdings, and 6) share price declines to fall most heavily on non-dividend-paying firms, less heavily on high-dividend–paying firms, and least heavily on low-dividend–paying firms. To the extent that these reversals occur, they will inspire confidence that the original JGTRRA links were not spurious, i.e., the changes attributed to JGTRRA were indeed caused by it. However, if they do not occur, doubts will be raised about the extent to which JGTRRA actually caused the changes that have been attributed to it.

It is difficult to know what to expect about two puzzling findings: the relative change in repurchases and dividends (recall that repurchases increased more rapidly than dividends following JGTRRA) and the
percentage of shares held in taxable accounts by individual investors, which, contrary to expectations, fell sharply following JGTRRA.

The Forgotten Capital Gains Tax Cut

To my knowledge, no one has studied the effects of JGTRRA’s reduction in the capital gains tax rate from 20 percent to 15 percent. This is particularly surprising, given the sizable increases in capital gains realizations in 1986 in advance of an increase in the capital gains tax rate from 20 percent to 28 percent (Burman, Clausing, and O’Hare 1994), and given capital markets responses (price, volume, and volatility) following the 1997 reduction in the capital gains tax rate from 28 percent to 20 percent (Dai, Maydew, et al. 2008; Dai, Shackelford, and Zhang 2008). The rare opportunity to study an even more substantial cut in the dividend tax rate is the reason that the capital gains tax rate change has been ignored. However, if the sole change in JGTRRA had been a five percentage point reduction in the capital gains tax rate, many scholars would have studied its impact. Moreover, given some of the surprising JGTRRA findings (e.g., repurchases, which are taxed at the capital gains tax rate, increased more rapidly than dividends, and non-dividend-paying firms outperformed dividend-paying firms), research is warranted to identify the effects of the 2003 capital gains tax rate reduction on corporate distributions. Segregating the dividend tax effects from the capital gains tax effects could greatly aid our understanding of the full effects of JGTRRA.

Conclusion

Not surprisingly, the extraordinary dividend tax rate reductions in JGTRRA have generated considerable research. Dharmapala provides an excellent review and analysis of the scholarly work, and I strongly recommend his chapter.

My comments here provide further context for understanding the impact of JGTRRA. To summarize: A priori, it was not clear that the rate reductions in JGTRRA would substantially affect corporate payouts. Even
the finding that dividends increased after its enactment does not rule out the possibility that some nontax factors played an important role in the dividend increases. Nevertheless, the evidence clearly points to some predictable reactions to the dividend tax rate cut, namely, an increase in dividends, dividend initiations, substitution of dividends for repurchases, and shifts toward (at least foreign) portfolio holdings that qualify for the lower tax rate. That said, there are several puzzling findings: repurchases increased more than dividends, few special dividends were paid, individual holdings of dividend-paying stocks decreased dramatically, and non-dividend-paying shares showed a stronger market response than dividend-paying shares. It is difficult to reconcile these findings with prior findings about corporate and capital market responses to dividend taxes. We know much about the effects of JGTRRA, but I do not think that we can explain why they happened. We need a new theory to help reconcile the empirical findings, research into the effects of the forgotten capital gains tax cuts, and a new round of studies should the JGTRRA rate cuts expire.
Notes

1. In 2003, the literature was mixed about whether the tax status of shareholders affected dividend policy. See Barclay, Holderness, and Sheehan (forthcoming), Pérez-González (2003), and Lie and Lie (1999), among others.

2. For example, gross domestic product grew more in the four quarters following passage of JGTRRA (7.2 percent) than it had in the previous nine quarters combined (6.9 percent).

3. On December 25, 2002, the New York Times reported that the Bush administration was considering some form of dividend tax relief (see Lohr 2002). To my knowledge, that was the first such public report. However, no plan was rolled out until January 7, 2003.

4. When Microsoft announced its special dividend and made a simultaneous boost to its quarterly dividend, it made no mention of dividend taxes affecting either decision. See Microsoft 2004.


Teitelbaum, Richard. 2002. Playing the dividend market with income stocks, you don’t just get the chicken, you get the eggs too. The trick is to pick ‘em right. Fortune, December 9.