JOURNAL OF FINANCIAL AND QUANTITATIVE ANALYSIS VOL. 34, NO. 4, DECEMBER 1999

The Role of Personal Taxes in Corporate Decisions: An Empirical Analysis of Share Repurchases and Dividends

Erik Lie and Heidi J. Lie*

Abstract

This study investigates the impact of personal taxation on corporate managers' choices between share repurchases and dividends as a means of disbursing cash. Consistent with the notion that personal taxation influences the choice of disbursement method, we find that managers are more likely to choose a share repurchase if the firm has a low dividend yield, if the firm's stock has experienced losses or small recent capital gains, and if the payout occured before the Tax Reform Act of 1986. Further, managers are more sensitive to the shareholders' tax situations if institutional investors hold a large fraction of the shares.

I. Introduction

Prior studies in financial economics suggest that corporate and personal taxation play important roles in determining corporate financial policy. Most of these studies focus on whether taxation affects the debt ratio and the level of cash payouts to shareholders.[1] However, the method by which a firm distributes cash also has tax consequences for its shareholders. For example, Barclay and Smith (1988) assert that the tax code generally favors share repurchases over dividends as a means of distributing cash. As a case in point, consider the following excerpt from the Dec. 8, 1987, *Wall Street Journal*:

*Both authors, School of Business Administration, College of William & Mary, PO Box 8795, Williamsburg, VA 23187. The authors thank Dave Denis, Diane Denis, Randy Heron, John McConnell, Paul Malatesta (the editor), and Michael Weisbach (the referee) for helpful comments.

[1] See Modigliani and Miller (1963), Miller (1977), DeAngelo and Masulis (1980), Bradley, Jarrell, and Kim (1984), Titman and Wessels (1988), MacKie-Mason (1990), Givoly, Hahn, Ofer, and Sarig (1992), Gentry (1994), Graham (1996), and Graham, Lemmon, and Schallheim (1998) for studies on the relationship between taxes and capital structure. See Miller and Modigliani (1961), Miller and Scholes (1978), Lewellen, Stanley, Lease, and Schlarbaum (1978), Feenberg (1981), Peterson, Peterson, and Ang (1985), and Strickland (1996) for studies on the impact of taxes on the decision to retain or distribute earnings via dividend payments.

> [Allegis Corp.'s] largest shareholder.... Coniston Partners, is pushing for a previously announced payout to holders to take the form of a partial stock buy-back instead of a special dividend.... A stock buy-back ... would get more favorable tax treatment than a one-time dividend, Coniston has argued.... An Allegis spokeswoman ... said: "Our financial advisers are mindful of the tax consequences for individual shareholders of the special dividend. They are looking at whether there could be alternative ways of distributing the net proceeds to shareholders."

Nevertheless, Bagwell and Shoven (1989) and Barclay and Smith (1988) report that dividends are more popular than share repurchases as measured by total dollars distributed. This evidence appears to refute the idea that the tax code favors share repurchases over dividends, and also gives rise to the question as to whether taxes have a consequential impact on the choice of the form of disbursement.

In this paper, we examine empirically whether managers consider the tax situation of the firm's investors when deciding the means by which funds are disbursed to shareholders by using samples of self-tender offers, open market repurchase programs, special dividends, and regular dividend increases. Both self-tender offers and special dividends are one-time events that take place within a short period. Aside from their tax treatment, we view these transactions as quite similar. In contrast, open market repurchase programs and dividend increases have longer term ramifications. Stephens and Weisbach (1998) report that open-market share repurchases often take place during several years. Further, Brickley (1983) shows that regular dividend increases typically lead to permanently higher dividends. Consequently, the payout decision consists of two dimensions, as Figure 1 illustrates. Specifically, managers decide whether the payout will take place immediately or over time, and whether the payout takes the form of a share repurchase or a dividend. For this reason, we choose to compare the use of self-tender offers to the use of special dividends, and the use of open market share repurchases to the use of regular dividend increases.[2]

FIGURE 1
A Decision Matrix for Payout Mechanisms

	One-Time Payout	Payout over Time
Dividend	Special dividend	Increase regular dividend
Share Repurchase	Self-tender offer	Open-market repurchase program

[2]We also considered aggregating the self-tender offers with the open market repurchase programs, and the special dividends with the regular dividend increases. Since we have considerably more open market repurchase programs and regular dividend increases than self-tender offers and special dividends, however, we feared that the more frequent events would dominate the empirical results, such that the insight provided by self-tender offers and special dividends would be lost.

We find that tax-related factors are indeed important in determining the manner in which firms make payouts to shareholders. Managers are more likely to choose self-tender offers over special dividends and open market share repurchase programs over regular dividend increases if the firms' shareholders have low tax rates on capital gains relative to tax rates on dividends. (We proxy shareholders' relative tax rates using the firms' dividend yield and an indicator variable that equals one if the payout occurred before the Tax Reform Act of 1986.) Further, managers are more likely to choose special dividends and regular dividend increases if the firm's stock has recently experienced a large capital gain, in which case the investors would pay higher capital gains taxes if they tendered their shares in a self-tender offer or sold their shares in the open market. In addition, the effect of capital gains on the choice of payout method is more prominent if the shareholders have a high tax rate on capital gains.

We further use the samples of self-tender offers and special dividends to study two corporate governance-related issues. First, several authors, including Bagnoli, Gordon, and Lipman (1989), Harris and Raviv (1988), Stulz (1988), and Bagwell (1991), argue that payouts can be used to deter takeovers. Most of these arguments pertain to self-tender offers, while only some of them pertain to special dividends. Hence, we hypothesize that self-tender offers are used more frequently than special dividends as a defensive mechanism. The empirical evidence, however, does not support this hypothesis. In fact, we find no evidence that one type is used more frequently than the other to deter takeovers.

The second related issue we study is whether the documented sensitivity of the disbursement choice to shareholders' tax positions depends on the type of shareholders. Jensen (1986) suggests that many managerial decisions, such as whether funds should be disbursed to shareholders, are plagued by a conflict of interest between managers and shareholders. In such cases, managers may choose the course of action that maximizes their own utility rather than the one that maximizes shareholders' wealth. However, in choosing the method of disbursement, the interests of managers and shareholders appear to be reasonably well aligned. The only reasons why managers may ignore the tax consequences of the disbursement are that they are uninformed about the tax statuses of the shareholders or that they prefer procedures that are the most familiar to them or require the least work to implement.

Institutional investors may be more capable and willing than other investors to inform managers about the tax implications of various disbursement alternatives as well as to force managers to choose the alternative that maximizes the after-tax value of the disbursement to shareholders. Hence, we would expect managers to be more sensitive to the shareholders' tax positions if the firm has a large fraction of institutional investors. The empirical evidence supports this notion. In particular, the tax variables better explain the disbursement choice for firms with high institutional holdings than for firms with low institutional holdings.

The remainder of the paper proceeds as follows. The next section develops hypotheses related to the tax implications of self-tender offers and special dividends. Section III describes the sample. Section IV presents the empirical results. Section V summarizes and concludes.

II. Development of Hypotheses

In the absence of taxes, transaction costs, and informational asymmetries between managers and shareholders, the effects of share repurchases and dividends are similar. The tax treatment differs, however, between share repurchases and dividends. While the entire dividend payment is taxable, only the gain over the original purchase price is taxable in a share repurchase.[3] Consider the following example. A company is considering a cash distribution in the amount of X through either a share repurchase or a dividend. The total taxes owed by investors if the distribution takes the form of a dividend are

$$X \times \tau_d, \tag{1}$$

where τ_d is the tax rate paid on dividends. Furthermore, the total taxes owed if the distribution takes the form of a share repurchase are

$$\frac{X}{P} \times \left(P - \overline{B}_R\right) \times \tau_g, \tag{2}$$

where τ_g is the tax rate paid on capital gains, P is the price paid for the repurchased shares, and $\overline{B}_R$ is the average basis price (i.e., original purchase price) of the repurchased shares.[4]

Equations (1) and (2) indicate that the tax benefits of a share repurchase relative to a dividend are lower if τ_d is low relative to τ_g. Thus, we arrive at the following hypothesis.

H1. A firm is more likely to disburse cash by means of a dividend rather than a share repurchase if its shareholders have low marginal tax rates on dividends relative to the marginal tax rate on capital gains.

Dividend yield might indicate the tax status of investors attracted to a particular firm (i.e., investors in high-yield firms might have lower marginal tax rates on dividends and higher marginal tax rates on capital gains than investors in low-yield firms). For example, Pettit (1977) shows that investors with higher marginal tax rates on dividends as compared to capital gains hold portfolios with lower dividend yields. Similarly, Strickland (1996) finds that institutional investors with a relative tax disadvantage on dividends tend to invest in stocks with lower dividend yields. We will, therefore, investigate the impact of dividend yield on the choice of payout mechanism. If H1 holds, we expect to observe a positive relationship between dividend yield and the probability of choosing a dividend. Further, we examine the impact of changes in the tax law as a result of the Tax Reform Act of 1986 (TRA86 hereafter). TRA86 raised the tax rate on capital gains, thereby making share repurchases less attractive relative to dividends as a means of dis-

[3]Occasionally, self-tender offers are treated as dividends for tax purposes. See Brennan and Thakor (1990).

[4]Since the stock price drops by roughly the value of the dividend following the ex-dividend day, dividends and share repurchases will also have some differential impacts on the accrued capital gains. However, these capital gains are not realized until the shares are sold, and the present value of the tax consequences of these differences in accrued capital gains is likely to be small.

bursing cash.[5] Consequently, we expect a drop in the use of share repurchases relative to the use of dividends following TRA86.

Equations (1) and (2) further illustrate that the tax benefits of a share repurchase relative to a dividend are lower if the repurchase price is high relative to the average basis price, leading to the second hypothesis.

H2. A firm is more likely to disburse cash by means of a dividend rather than a share repurchase if the stock has recently experienced large capital gains.

We will test whether recent capital gains indeed affect the choice of disbursement method. To do so, we develop in Section III a measure of capital gain that is designed to capture the average capital gain of outstanding shares since the last time they were traded.

An interaction between capital gains and tax rates may also exist. Assume for simplicity that a group of shareholders has a marginal tax rate on capital gains of zero. These shareholders would be indifferent about the magnitude of recent capital gains because they would not have to pay any taxes on the gains. In contrast, shareholders with a high marginal tax rate on capital gains would be very concerned about the magnitude of capital gains if such gains were to be realized for tax purposes. This interaction effect is reflected in the multiplication of the tax rate and the capital gains in equation (2). Although we do not formally label this hypothesis, we examine interaction effects between capital gains and tax rates on the choice of disbursement method. We expect that a firm is more likely to disburse cash by means of a dividend rather than a repurchase if the interaction variable (capital gains times a proxy for the tax rate on capital gains) takes on a high value.

We should note that non-tax arguments might also yield predictions similar to those generated by H1 and H2. For example, firms may repurchase shares when managers possess information indicating that the shares are undervalued. To the extent that such undervaluation is more common after a recent deterioration in the stock price, firms would tend to repurchase shares after a stock price decline, consistent with H2.[6] Further, a prediction from H1 is that firms that historically have paid high dividends will make incremental disbursements via dividends rather than repurchases. One could alternatively argue that this occurs because managers are uncomfortable breaking into new financial territory or because shareholders prefer the historical payout policy for reasons beyond taxes. For example, some shareholders may depend on the current income provided by dividends. We cannot reject all alternative interpretations of our empirical results. However, we attempt to thoroughly test the tax hypothesis by i) including several proxies for the marginal tax rates faced by investors (dividend yield and TRA86

[5] TRA86 raised the top tax rate on capital gains from 28% to the top corporate tax rate on income of 34%. In addition, investors could no longer exclude 60% of long-term capital gains (i.e., capital gains on investments held for more than six months) from taxable income.

[6] It is unclear whether undervaluation is more likely to occur following a stock price decrease. If so, stocks with a recent price decline should experience an abnormal rise in the future as the capital market corrects any undervaluation. Indeed, DeBondt and Thaler (1985) and Chopra, Lakonishok, and Ritter (1992) report that stock returns exhibit long-term reversals; however, Jegadeesh and Titman (1993) and Brennan, Chordia, and Subrahmanyam (1998) report that stock returns exhibit short-term momentum.

dummy), ii) including variables that may capture alternative interpretations (e.g., the ratio of market to book value of assets as a proxy for potential undervaluation of a firm's equity), and iii) testing interaction effects that are difficult to explain outside the tax framework.

III. Sample Description

A. Sample Construction

The samples constructed for this analysis consist of 213 self-tender offers and 433 special dividends that were announced between September 1981 and December 1994, and 987 open market repurchases and 5,590 regular dividend increases that were announced between January 1980 and December 1990. The self-tender offers were identified by searching the official announcements in the *Wall Street Journal* and the "reacquired shares" section in the *Wall Street Journal Index*, and by conducting key word searches of the *Dow Jones News Retrieval Service*. In addition, we include self-tender offers from the samples of Comment and Jarrell (1991) and Lee, Mikkelson, and Partch (1992).[7] We exclude offers that were i) only for special common or preferred stock, ii) open only to odd-lot holders, iii) or part of a merger, liquidation, or going private plan. Both fixed price and Dutch auction self-tender offers are included. The special dividends were identified by searching the CRSP tapes for special dividends. Like Brickley (1983) and Howe, He, and Kao (1992), we exclude special dividends if the firm paid other special dividends in the two-year period prior to the declaration date. We do this because these dividends resemble regular dividend increases. The open market repurchases are taken from the sample employed by Ikenberry, Lakonishok, and Vermaelen (1995).[8] We exclude repurchases in which the fraction of shares sought is less than 0.05%. The regular dividend increases were identified by searching the CRSP tapes for increases in consecutive quarterly dividends or initiations of quarterly dividends that equal or exceed 0.05% of the equity value. As in Denis, Denis, and Sarin (1994), we further require that no other type of distribution was made between the two quarterly dividends. This allows us to focus on pure regular dividend increases and avoid confounding effects of other types of distributions. Finally, for all groups, we exclude financial companies and we require that financial data be available on both the CRSP and Compustat tapes.

The number of shares sought and the tender price for self-tender offers are obtained from news announcements and the Offer to Purchase (which is issued by the company). Daily stock returns and financial data are taken from the CRSP and Compustat databases, respectively. Finally, the fractions of shares held by institutional investors are gathered from *Standard and Poor's Security Owner's Stock Guide*.

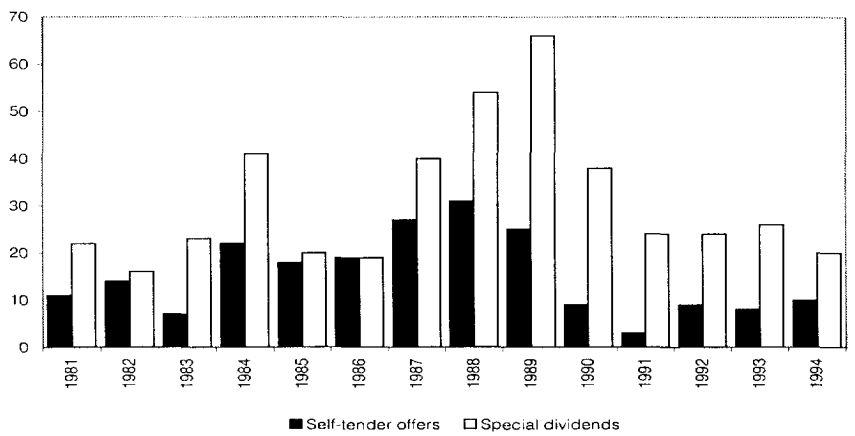
The distributions of the final samples over time are shown in Figures 2 and 3. Figure 2 indicates that both self-tender offers and special dividends reached their peaks in the late 1980s. Figure 3 indicates that the use of open market repurchases was at its lowest in the early 1980s, reached a peak in 1984, and was

[7] We thank Wayne Mikkelson for providing us with a list of observations included in their sample.
[8] We thank David Ikenberry for providing us with their sample.

fairly steady afterwards. In contrast, most of the regular dividend increases took place in the early 1980s, and the number has fluctuated thereafter. Both Figure 2 and Figure 3 suggest that there was a shift from share repurchases to dividends following 1986, although this shift is most apparent in Figure 2. The shift may be attributable to TRA86, which reduced the tax advantage of share repurchases relative to dividends. We will later formally test whether the increased utilization of dividends relative to share repurchases around TRA86 is statistically significant.

FIGURE 2

Frequency of Self-Tender Offers and Special Dividends



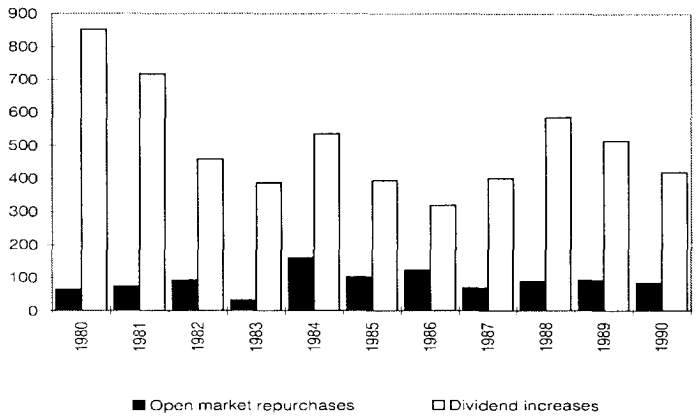
Frequency of announcements of self-tender offers and special dividends from Sept. 1981 to Dec. 1994.

B. Descriptive Statistics

The model of Hausch and Seward (1993) predicts that the choice of payout mechanism depends on a firm's tolerance for a risky payout. This tolerance is characterized by a firm's production function, which describes a firm's aggregate future cash flow. If production functions are similar for firms within the same industry, but different for firms in different industries, this prediction suggests that we should observe concentrations of share repurchases in some industries and dividends in other industries. Table 1 lists the number of sample firms in each of the 20 most common two-digit SIC codes according to the Compustat population. The four different samples exhibit no dramatic under- or over-representation within any particular industries when compared to industry proportions in the population. The only clear exceptions are the over-representations of utilities (SIC code 4900) among firms that increase regular dividends and primary metal firms (SIC code 3300) among firms that pay special dividends. While only 3.0%

FIGURE 3

Frequency of Open Market Repurchases and Regular Dividend Increases



Frequency of announcements of open market repurchases and regular dividend increases from Jan. 1980 to Dec. 1990.

of the firms in the population are utilities, 15.5% of the firms that increase regular dividends are utilities. Further, while only 1.6% of the firms in the population are primary metal firms, 6.2% of the firms that pay special dividends are primary metal firms. The table further shows that apart from utilities and primary metal firms, there is no strong evidence to indicate that share repurchases and dividend increases occur in distinct industries. To the extent that our industry classifications yield significant cross-sectional dispersion in the relevant production function characteristics described by Hausch and Seward (1993), there is scant evidence that such characteristics determine whether the firm will disburse cash and, if so, whether to do so via a share repurchase or a dividend.

Table 2 provides descriptive statistics for the samples of self-tender offers and special dividends. The mean and median market values of equity are significantly larger for the self-tender offer sample than for the special dividend sample. In fact, the median self-tender offer firm is almost four times larger than the median special dividend firm. Further, the mean market value of equity is significantly larger for the open market repurchase sample than for the dividend increase sample, while the median is similar for the two samples. To account for price appreciation over time, we also calculate an index-adjusted market value of equity, i.e., the market value of equity scaled by the level of the S&P500 Index. Further, we transform the index-adjusted market value of equity using the natural logarithm to temper the effect of extremely large firms. Not surprisingly, this transformed variable also reveals that firms that conduct self-tender offers are larger than those that pay special dividends, and that firms that repurchase shares in the open market are larger than those that increase regular dividends.

The total payout scaled by the market value of equity is significantly larger for self-tender offers than for special dividends. While the mean (median) payout

TABLE 1

Industry Classifications

SIC Code	Industry Name	Self-Tender Offers		Special Dividends		Open Market Repurchases		Dividend Increases		Population
		N	%	*N*	%	*N*	%	*N*	%	%
7300	Business services	6	2.8	18	4.2	51	5.2	168	3.0	9.4
3500	Industrial, commercial machinery, computer eq.	10	4.7	31	7.2	67	6.8	330	5.9	7.5
3600	Electrical equipment, excluding computers	8	3.8	21	4.8	76	7.7	248	4.4	7.1
3800	Measuring instruments, photo and watches	9	4.2	21	4.8	56	5.7	170	3.0	6.3
2800	Chemicals and allied products	18	8.5	28	6.5	87	8.8	488	8.7	5.7
1300	Oil and gas extraction	7	3.3	14	3.2	49	5.0	106	1.9	5.5
4800	Communications	5	2.3	14	3.2	27	2.7	133	2.4	3.6
5000	Durable goods—wholesale	5	2.3	9	2.1	24	2.4	113	2.0	3.5
4900	Electric, gas and sanitary services	4	1.9	10	2.3	27	2.7	869	15.5	3.0
2000	Food and kindred products	17	8.0	22	5.1	54	5.5	337	6.0	2.7
8000	Health services	7	3.3	8	1.8	3	0.3	26	0.5	2.5
3700	Transportation equipment	9	4.2	14	3.2	51	5.2	176	3.1	2.3
3400	Fabricated metal, excluding machinery and trans.	11	5.2	23	5.3	23	2.3	167	3.0	2.2
5900	Miscellaneous retail	4	1.9	5	1.2	13	1.3	75	1.3	2.2
5800	Eating and drinking places	1	0.5	5	1.2	20	2.0	46	0.8	2.1
8700	Engineering, accounting and mgmt. services	3	1.4	5	1.2	11	1.1	56	1.0	2.1
5100	Nondurable goods—wholesale	6	2.8	10	2.3	19	1.9	121	2.2	2.0
2700	Printing, publishing and allied products	5	2.3	7	1.6	19	1.9	231	4.1	1.7
1000	Metal mining	2	0.9	9	2.1	2	0.2	13	0.2	1.6
3300	Primary metal industries	2	0.9	27	6.2	21	2.1	128	2.3	1.6
	Other	74	34.7	132	30.5	287	29.1	1,589	28.4	25.5

Industry classifications for samples of special dividends, self-tender offers, open market repurchases, and regular dividend increases. The industry classifications are sorted by the population proportions. The population proportions are based on all firms in the Compustat database (excluding financial firms).

TABLE 2

Descriptive Statistics

Descriptive statistics for samples of special dividends, self-tender offers, open market repurchases, and regular dividend increases

	Self-Tender Offers (STOs)		Special Dividends (SDs)		*p*-Values for Differences between STOs and SDs		Open Market Repurchases (OMRs)		Dividend Increases (DIs)		*p*-Values for Differences between OMRs and DIs	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Market value of equity[a]	1,192	298	591	72	0.013	0.000	1,996	262	1,300	238	0.000	0.447
Ln Index-adjusted market value of equity[b]	1.134	0.727	0.542	0.240	0.000	0.000	1.293	0.848	1.178	0.844	0.002	0.890
Payout/Market value of equity[c]	0.243	0.200	0.073	0.012	0.000	0.000	0.069	0.051	0.003	0.001	0.000	0.000
Market/Book[d]	1.251	1.083	1.360	1.059	0.152	0.802	1.387	1.173	1.335	1.094	0.049	0.000
Dividend yield[e]	0.003	0.001	0.021	0.014	0.000	0.000	0.024	0.021	0.037	0.030	0.000	0.000
Capital gain[f]	0.050	0.054	0.130	0.083	0.001	0.055	−0.024	−0.038	0.095	0.063	0.000	0.000

[a]The market value of equity in millions of dollars five days prior to the announcement date.

[b]The natural logarithm of the market value of equity divided by the level of the S&P500 Index on the same day plus one.

[c]The value of the incremental disbursement scaled by the market value of equity.

[d]Estimated as [(Share price × Number of shares outstanding) + Long-term debt + Current liabilities + (Preferred dividend / Preferred stock yield)] / Book value of assets.

[e]The total split-adjusted dividend payments during the year prior to the announcement scaled by the market value of equity five days prior to the announcement.

[f] The average capital gain to shareholders who bought their shares during the year preceding the announcement, and it is estimated as $(\sum_{t=-250}^{0}(P_0 - P_t)/P_t)/n$, where P_t is the split-adjusted price per share on day t, day 0 is five days before the announcement day, and n is the number of days for which price data are available between days −250 and 0.

p-values for differences in medians are based on the Wilcoxon signed-ranks test.

as a fraction of equity is 24.3% (20.0%) for self-tender offers, it is 7.3% (1.2%) for special dividends. Similarly, open market repurchases represent larger payouts than do dividend increases. The mean (median) for open market repurchases is 6.9% (5.1%), and for dividend increases it is only 0.3% (0.1%). These results are consistent with the prediction of Brennan and Thakor (1990) that repurchases are utilized for large disbursements and dividends for small ones.

The mean (median) dividend yield is 2.1% (1.4%) for special dividend firms, 0.3% (0.1%) for self-tender offer firms, 2.4% (2.1%) for open market repurchase firms, and 3.7% (3.0%) for regular dividend increase firms. Two observations are worth noting here. First, firms that announce one-time cash disbursements (self-tender offers and special dividends) typically have lower dividend yields than the other sample firms. Second, firms that conduct self-tender offers have lower dividend yields than firms that pay special dividends, and firms that repurchase shares in the open market have lower dividend yields than firms that increase dividends. If investors in high dividend yield firms tend to have lower marginal tax rates on dividends and higher marginal tax rates on capital gains than investors in low dividend yield firms, these results are consistent with hypothesis H1. Specifically, managers are more likely to choose a dividend than a share repurchase if the firm's shareholders have a low marginal tax rate on dividends relative to their marginal tax rate on capital gains.

Ideally, to measure the capital gain experienced by shareholders, we would know the price that each shareholder paid for each of his or her shares. In the absence of these detailed data, we assume that the purchases of outstanding shares were made evenly over the year before the announcement. In particular, we measure capital gain as $(\sum_{t=-250}^{0}(P_0 - P_t)/P_t)/n$, where P_t is the split-adjusted price per share on day t, day 0 is five days before the announcement day, and n is the number of days for which price data are available between trading days -250 and 0. Special dividend firms experienced a mean (median) capital gain of 13.0% (8.3%) on their stock during the year preceding the announcement, which is significantly higher than the mean (median) of 5.0% (5.4%) experienced by self-tender offer firms. Moreover, firms that increase regular dividends experienced a mean (median) capital gain of 9.5% (6.3%) on their stock during the year preceding the announcement, which is significantly higher than the mean (median) of -2.4% (-3.8%) experienced by firms that announce open market repurchase programs. These results are consistent with hypothesis H2 that managers are more likely to choose a dividend than a stock repurchase if the firm's stock has experienced a large price increase.

IV. Empirical Results

A. The Choice between Self-Tender Offers and Special Dividends

Table 3 presents logistic regressions of the probability that a firm disburses cash by means of a self-tender offer rather than a special dividend. The results are consistent with the univariate statistics in Table 2. The significantly positive coefficient on the index-adjusted market value of equity indicates that larger firms are more likely to use self-tender offers. Furthermore, firms tend to use self-tender

offers to disburse large amounts of cash relative to the market value of equity, and special dividends to disburse small amounts of cash, consistent with the prediction of Brennan and Thakor (1990).

TABLE 3

Logistic Regressions of Self-Tender Offers vs. Special Dividends

Logistic regressions of the probability that a firm announces a self-tender offer rather than a special dividend

	Model			
	3a	3b	3c	3d
Intercept	−0.820	−0.741	−0.799	−0.379
	(0.000)	(0.001)	(0.001)	(0.220)
Ln Index-adjusted market value of equity[a]	0.908	0.985	1.017	1.044
	(0.000)	(0.000)	(0.000)	(0.000)
Payout/Market value of equity[b]	6.554	6.442	6.567	6.049
	(0.000)	(0.000)	(0.000)	(0.000)
Dividend yield[c]	−96.454	−94.592	−91.989	−94.493
	(0.000)	(0.000)	(0.000)	(0.000)
TRA86[d]	−1.168	−1.097	−1.091	−1.083
	(0.000)	(0.000)	(0.000)	(0.000)
Capital gain[e]		−1.875	−1.218	−1.266
		(0.000)	(0.027)	(0.025)
Capital gain × Dividend yield			−145.723	−159.193
			(0.010)	(0.004)
Market/Book[f]				−0.280
				(0.057)
Defensive[g]				0.624
				(0.268)
Pseudo R^2	0.399	0.419	0.426	0.434
Number of observations	646	646	646	646

[a] The natural logarithm of the market value of equity divided by the level of the S&P500 Index on the same day plus one.

[b] The value of the incremental disbursement scaled by the market value of equity.

[c] The total split-adjusted dividend payments during the year prior to the announcement scaled by the market value of equity five days prior to the announcement.

[d] An indicator variable that equals one if the announcement occurs after Jan. 1, 1987.

[e] The average capital gain to shareholders who bought their shares during the year preceding the announcement, and it is estimated as $(\sum_{t=-250}^{0}(P_0 - P_t)/P_t)/n$, where P_t is the split-adjusted price per share on day t, day 0 is five days before the announcement day, and n is the number of days for which price data are available between days −250 and 0.

[f] Estimated as [(Share price × Number of shares outstanding) + Long-term debt + Current liabilities + (Preferred dividend / Preferred stock yield)] / Book value of assets.

[g] An indicator variable that equals one if the event appears to be triggered by takeover activity.

p-values are given in parentheses.

Consistent with hypothesis H1, firms are more likely to use self-tender offers if their dividend yield is low, as indicated by the negative coefficient on dividend yield. Suppose that the dividend yield is a good indicator of the marginal tax rates that investors face on capital gains and dividends, as set forth by the dividend clientele hypothesis. In particular, suppose that investors in high dividend

yield firms have relatively low marginal tax rates on dividends and high tax rates on capital gains, while investors in low dividend yield firms have relatively high marginal tax rates on dividends and low tax rates on capital gains. These findings are then consistent with hypothesis H1 that managers are more likely to choose a special dividend if the firm's shareholders have a low marginal tax rate on dividends and a high marginal tax rate on capital gains. In addition, the table shows that firms are more likely to choose special dividends following TRA86, as indicated by the negative coefficient on the TRA86 indicator variable. This finding suggests that the increase in the capital gains tax resulting from TRA86 made firms more reluctant to choose a self-tender offer, thus providing further support for H1.

The coefficient on capital gains is also negative. Apparently, firms are more likely to use special dividends than self-tender offers if their shareholders have experienced a large capital gain on the firm's shares. This finding is consistent with H2. As stated earlier, this capital gains effect should be more important if the shareholders face a large tax rate on capital gains than if the shareholders face a low tax rate on capital gains. We test this by including an interaction variable between dividend yield and capital gain. In line with the dividend clientele hypothesis and earlier discussion, shareholders in firms with a high dividend yield are likely to have a higher marginal tax rate on capital gains than shareholders in firms with a low dividend yield. Thus, the capital gains effect should be more prominent for firms with a high dividend yield. Consistent with this line of reasoning, the coefficient on the interaction term is negative and statistically significant at the 0.01 level. We also included an interaction variable between capital gains and TRA86 in a separate model (not reported here). As expected, the coefficient on this interaction term was negative, but it was statistically insignificant.

Several authors, including Bhattacharya (1979), Ofer and Thakor (1987), Bernheim (1991), Hausch and Seward (1993), and Persons (1997), suggest that disbursements of cash may serve as a signal of the company's prospects and, therefore, its value. It is conceivable that firms with a low market/book ratio are more inclined to signal favorable information to the market than firms with a high ratio. Related to this view, firms may repurchase shares when the market undervalues the shares, as indicated by a low market/book ratio. To test the robustness of our model specification, we include the ratio of market value to book value of assets to capture any signaling effects in the last model of Table 3. The negative coefficient indeed indicates a greater likelihood of self-tender offers for firms with low market/book ratios. Most importantly for the purposes of this study, the inclusion of the market/book ratio has no material impact on the other coefficients.

The potential for share repurchases to be used as a defense against takeover attempts has been highlighted by several authors. First, Bagnoli, Gordon, and Lipman (1989) suggest that share repurchases may persuade shareholders not to tender in a takeover. Second, Harris and Raviv (1988) and Stulz (1988) argue that share repurchases alter voting rights within the firm, thereby making it more difficult to acquire the firm. Third, Bagwell (1991) asserts that repurchases remove shareholders with the lowest reservation prices, thereby making it more expensive to buy shares that are still available. In contrast, there are fewer compelling arguments that special dividends can effectively deter takeovers. One argument, which

also pertains to share repurchases, is that dividends mitigate agency problems between managers and shareholders (Easterbrook (1984) and Jensen (1986)), making a disciplinary takeover less appealing. Hence, we hypothesize that self-tender offers are used more frequently than special dividends as a takeover defense. To test this hypothesis, we include an indicator variable equal to one if the firm stated that the payout was designed to deter a takeover, or if the firm was actually or rumored to be a takeover target during the three months preceding the event according to the *Wall Street Journal Index*. The coefficient on the defensive indicator variable is positive but statistically insignificant. Thus, there is only weak evidence to indicate that firms are more likely to utilize self-tender offers than special dividends when faced with an outside threat. This rather surprising result questions the notion that self-tender offers are more effective than special dividends in deterring hostile takeovers.

In summary, the results in this section support hypotheses H1 and H2. In particular, firms with large recent capital gains and high dividend yields tend to choose special dividends over self-tender offers as a means to distribute cash to shareholders. Furthermore, the use of special dividends has increased relative to the use of self-tender offers following TRA86. Finally, the effect of capital gains on the choice of disbursement is increasing in dividend yield. These findings suggest that managers consider the tax status of the firm's shareholders when choosing between self-tender offers and special dividends. There is scant evidence, however, that self-tender offers are used more frequently than special dividends to deter takeovers.

B. The Choice between Share Repurchases and Regular Dividend Increases

Table 4 presents logistic regressions of the probability that a firm initiates an open market repurchase program instead of increasing regular dividends. The results are largely consistent with both the univariate statistics described earlier and the results for self-tender offers vs. special dividends in Table 3. Firms that announce open market repurchase programs are significantly larger than firms that increase regular dividends. Also, large payouts are more likely to take the form of an open market repurchase than a dividend (not considering the effect of dividend increases on future dividend payments).

Firms are more likely to repurchase shares if their dividend yield is low. Further, repurchases were more likely to take place prior to TRA86. To the extent that the dividend yield and the TRA86 indicator variable proxy for the marginal tax rates that investors face on dividends and capital gains, these results are consistent with hypothesis H1. Capital gain is also an important determinant of the choice between open market repurchases and dividend increases. As predicted by hypothesis H2, firms are more likely to repurchase shares than to increase dividends if their investors have experienced low capital gains. Further, the coefficient on the interaction variable between capital gain and dividend yield has the predicted sign, but it is statistically insignificant (p-value is between 0.15 and 0.20). Finally, the inclusion of the market to book ratio has a trivial effect on the results.

TABLE 4

Logistic Regressions of Open Market Repurchases vs. Regular Dividend Increases

Logistic regressions of the probability that a firm announces an open market share repurchase rather than an increase in regular dividends

	Model			
	4a	4b	4c	4d
Intercept	−3.532	−3.313	−3.287	−3.490
	(0.000)	(0.000)	(0.000)	(0.000)
Ln Index-adjusted market value of equity[a]	0.434	0.481	0.488	0.472
	(0.000)	(0.000)	(0.000)	(0.000)
Payout/Market value of equity[b]	109.323	104.414	104.066	106.454
	(0.000)	(0.000)	(0.000)	(0.000)
Dividend yield[c]	−9.181	−12.555	−13.661	−10.382
	(0.000)	(0.000)	(0.000)	(0.000)
TRA86[d]	−0.737	−0.835	−0.849	−0.827
	(0.000)	(0.000)	(0.000)	(0.000)
Capital gain[e]		−3.380	−3.085	−3.028
		(0.000)	(0.000)	(0.000)
Capital gain × Dividend yield			−15.114	−14.514
			(0.203)	(0.146)
Market/Book[f]				0.062
				(0.407)
Pseudo R^2	0.582	0.602	0.603	0.607
Number of observations	6,577	6,577	6,577	6,427

[a] The natural logarithm of the market value of equity divided by the level of the S&P500 Index on the same day plus one.

[b] The value of the incremental disbursement scaled by the market value of equity.

[c] The total split-adjusted dividend payments during the year prior to the announcement scaled by the market value of equity five days prior to the announcement.

[d] An indicator variable that equals one if the announcement occurs after Jan. 1, 1987.

[e] The average capital gain to shareholders who bought their shares during the year preceding the announcement, and it is estimated as $(\sum_{t=-250}^{0}(P_0 - P_t)/P_t)/n$, where P_t is the split-adjusted price per share on day t, day 0 is five days before the announcement day, and n is the number of days for which price data are available between days −250 and 0.

[f] Estimated as [(Share price × Number of shares outstanding) + Long-term debt + Current liabilities + (Preferred dividend / Preferred stock yield)] / Book value of assets.

p-values are given in parentheses.

Overall, the results presented in Table 4 bolster the empirical support for hypotheses H1 and H2. Consequently, whether managers are considering a one-time payout (self-tender offer or special dividend) or a payout that will take place over a longer period (open market repurchase program or a regular dividend increase), the tax situations of firms' shareholders affects managers' choices between a share repurchase and an incremental dividend.

C. The Choice of Payout and Institutional Holdings

Jensen (1986) suggests that managers, whose interests are not perfectly aligned with those of shareholders, may deviate from behavior that maximizes shareholder wealth. However, external pressure may mitigate this problem. Fama

(1980) states that "the primary disciplining of managers comes through managerial labor markets" (p. 295), while Jensen and Ruback (1983) argue that the market for corporate control disciplines managerial behavior. Empirical evidence indicates that managers are indeed disciplined by external pressure. For example, Denis, Denis, and Sarin (1997) find that value-enhancing refocusing activity by U.S. corporations in the 1980s was often triggered by corporate control threats and management turnover.

Several recent studies also examine whether shareholder activism affects governance structure, managerial performance, and firm value. Carleton, Nelson, and Weisbach (1998), using a sample of 45 firms targeted by TIAA-CREF from 1993 to 1996, report that shareholder activism is fairly successful in changing governance structure. The targeted firms do not, however, exhibit an increase in operating performance. Further, Wahal (1996) finds that pension fund activism does not result in long-term improvement in either stock price or operating performance for 146 firms targeted between 1987 and 1993. He concludes that "these results cast doubt on the efficacy of pension fund activism in improving firm performance" (p. 20). Similarly, in a study of 522 shareholder proposals between 1986 and 1990, Karpoff, Malatesta, and Walkling (1996) conclude that there is "no persuasive evidence that these proposals increase firm values, improve operating performance, or influence firm policies" (p. 393).

The earlier evidence indicates that managers consider the tax situation of the firm's shareholders when choosing the means of cash disbursement. Does this consideration arise as a consequence of direct pressure from shareholders? Are managers more likely to be sensitive to shareholders' tax situations in the presence of powerful shareholders? The *Wall Street Journal* citation in the Introduction suggests that powerful shareholders may, in fact, force managers to consider their tax situations. We examine this issue by exploring the impact of institutional shareholders on the disbursement choice. If institutional shareholders are more powerful than the average shareholder, and if the presence of powerful shareholders increases the probability that managers consider the tax situation of shareholders when determining the disbursement method, we would expect that the sensitivity of the disbursement choice to proxies for shareholders' tax situations is increasing in the fraction of shares held by institutions.

A caveat is in order here. Institutional investors are not a homogeneous group for tax purposes. For example, mutual funds and insurance companies are taxable, while college and pension funds are tax-exempt. The descriptive statistics in Strickland (1996) indicate that the holdings of taxable institutional investors dominate the holdings of tax-exempt institutional investors. In particular, Strickland reports that tax-exempt institutional investors, on average, hold 3.93% of the equity of firms in their portfolios, while the comparable figure for taxable institutional investors is 16.91%. There are also differences in how capital gains and dividends are taxed across taxable institutional investors. Consequently, various institutional investors may have different preferences for the disbursement form. Our goal is not to identify the tax status of each of the institutional holders, and our data source does not provide this detailed information. As discussed earlier, we think that the dividend yield is a good proxy for the tax positions of the investors. Indeed, Strickland (1996) finds that the dividend yield is related to

the tax status of institutional holders. Rather, our goal is to determine whether corporations are more sensitive to investors' tax situations when there are many institutional investors.

We partition the samples of self-tender offers and special dividends for which institutional holdings data are available into two groups: those observations with institutional holdings below the median and those observations with institutional holdings above the median. Next, we estimate the logistic regressions for the payout choice separately for the two groups. Table 5 presents the results of our analysis. The coefficient on dividend yield is roughly −200 for the high institutional holdings sample, compared to roughly −50 for the low institutional holdings sample, and the difference is statistically significant at the 0.01 level. This difference

TABLE 5

Logistic Regressions for Low and High Institutional Holdings

Logistic regressions of the probability that a firm announces a self-tender offer rather than a special dividend

	Low Institutional Holdings			High Institutional Holdings		
	5a	5b	5c	5d	5e	5f
Intercept	−2.146	−1.111	−1.119	−2.058	0.609	0.435
	(0.000)	(0.000)	(0.000)	(0.000)	(0.300)	(0.461)
Ln Index-adjusted market value of equity[a]	0.489	0.648	0.678	0.744	1.106	1.091
	(0.027)	(0.011)	(0.011)	(0.000)	(0.000)	(0.000)
Payout/Market value of equity[b]	6.758	7.214	7.175	5.896	5.341	5.547
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Dividend yield[c]		−48.421	−47.682		−217.651	−196.917
		(0.000)	(0.000)		(0.000)	(0.000)
TRA86[d]		−1.171	−1.179		−1.361	−1.313
		(0.001)	(0.001)		(0.015)	(0.018)
Capital gain[e]		−1.168	−0.941		−3.319	−1.966
		(0.080)	(0.206)		(0.001)	(0.114)
Capital gain × Dividend yield			−39.763			−323.141
			(0.524)			(0.052)
Pseudo R^2	0.206	0.313	0.314	0.214	0.604	0.612
Number of observations	290	290	290	289	289	289

Low (high) institutional holdings are observations with institutional holdings below (above) the median, where institutional holdings is the fraction of outstanding shares held by institutions prior to the announcement.

[a]The natural logarithm of the market value of equity divided by the level of the S&P500 Index on the same day plus one.

[b]The value of the self-tender offer or special dividend scaled by the market value of equity.

[c]The total split-adjusted dividend payments during the year prior to the announcement scaled by the market value of equity five days prior to the announcement.

[d]An indicator variable that equals one if the announcement occurs after Jan. 1, 1987.

[e]The average capital gain to shareholders who bought their shares during the year preceding the announcement, and it is estimated as $(\sum_{t=-250}^{0}(P_0 - P_t)/P_t)/n$, where P_t is the split-adjusted price per share on day t, day 0 is five days before the announcement day, and n is the number of days for which price data are available between days −250 and 0.

p-values are given in parentheses.

suggests that the dividend yield has a greater impact on the choice of disbursement method in the sample with high institutional holdings. The coefficients on the other tax variables are also more negative for the sample with high institutional holdings than for the sample with low institutional holdings. However, the difference is statistically significant at the 0.10 level only for the coefficient on capital gain, and only if the interaction term between capital gain and dividend yield is excluded. The results further indicate that the tax variables add considerably more explanatory power to the model for the sample of firms with high institutional holdings than for the sample of firms with low institutional holdings. The pseudo R^2 is roughly 21% for both samples if the tax variables are excluded from the model specification. While the pseudo R^2 increases by 10% to a total of 31% as the tax variables are included for the low institutional holdings sample, the pseudo R^2 increases by 30% to a total of 61% for the high institutional holdings sample.[9]

Overall, the results indicate that managers are more considerate of shareholders' tax situations if a larger fraction of the shares is held by institutional investors. The results further support the notion that institutional investors directly affect managerial decisions. Of course, this interpretation cannot be generalized to all kinds of managerial decisions. The particular decision studied here is one in which the outcome is firmly linked to the wealth of shareholders, but not necessarily to the utility of managers. In cases in which the interests of managers and investors are in starker conflict, institutional investors may have a more modest impact on the behavior and decision making of managers.

V. Conclusion

Firms can distribute excess cash to shareholders through dividend payments or by repurchasing their own shares. We distinguish between firms that undertake self-tender offers, initiate open market share repurchase programs, pay special dividends, or increase regular dividends by examining various characteristics, particularly those that might reflect the tax statuses of the firms' shareholders, in order to discern whether shareholders' tax situations influence the choice of payout mechanism. We find that small recent capital gains, low dividend yield, or payout preceding the Tax Reform Act of 1986 will more likely lead the managers of a firm to choose a self-tender offer over a special dividend, and a share repurchase program over a dividend increase. Our evidence is consistent with the notion that shareholder tax implications affect how firms distribute cash to shareholders.

In addition, we examine whether the presence of institutional investors increases the managers' sensitivity to the shareholders' tax positions. Indeed, we find that the tax variables have greater explanatory power for firms with high institutional holdings than for firms with low institutional holdings. This result

[9] An important reason for partitioning the sample into two groups based on institutional holdings was to examine the difference in explanatory power for the two groups as indicated by the pseudo R^2. However, we also estimated a model that included interaction variables between the tax variables and institutional holdings using the full sample. Consistent with the results reported here, the coefficients on all of the interaction variables are negative, and the coefficient on the interaction variable between dividend yield and institutional holdings is statistically significant at the 0.01 level.

suggests that managers are more likely to consider the tax effect of a cash disbursement if they feel pressured by institutional investors.

References

Bagnoli, M.; R. Gordon; and B. L. Lipman. "Stock Repurchase as a Takeover Defense." *Review of Financial Studies,* 2 (1989), 423–443.

Bagwell, L. S. "Share Repurchase and Takeover Deterrence." *Rand Journal of Economics,* 22 (1991), 72–88.

Bagwell, L. S., and J. B. Shoven. "Cash Distributions to Shareholders." *Journal of Economic Perspectives,* 3 (1989), 129–140.

Barclay, M. J., and C. W. Smith. "Corporate Payout Policy: Cash Dividends versus Open-Market Repurchases." *Journal of Financial Economics,* 22 (1988), 61–82.

Bernheim, B. D. "Tax Policy and the Dividend Puzzle." *Rand Journal of Economics,* 22 (1991), 455–476.

Bhattacharya, S. "Imperfect Information, Dividend Policy, and the 'Bird in the Hand' Fallacy." *Bell Journal of Economics,* 10 (1979), 259–270.

Bradley, M.; G. A. Jarrell; and E. H. Kim. "On the Existence of an Optimal Capital Structure: Theory and Evidence." *Journal of Finance,* 39 (1984), 857–878.

Brennan, M. J.; T. Chordia; and A. Subrahmanyam. "Alternative Factor Specifications, Security Characteristics, and the Cross-Section of Expected Stock Returns." *Journal of Financial Economics,* 49 (1998), 345–373.

Brennan, M. J., and A. V. Thakor. "Shareholder Preferences and Dividend Policy." *Journal of Finance,* 45 (1990), 993–1018.

Brickley, J. "Shareholder Wealth, Information Signalling and the Specially Designated Dividend." *Journal of Financial Economics,* 12 (1983), 187–209.

Carleton, W. T.; J. M. Nelson; and M. S. Weisbach. "The Influence of Institutions on Corporate Governance through Private Negotiations: Evidence from TIAA-CREF." *Journal of Finance,* 53 (1998), 1335–1362.

Chopra, N.; J. Lakonishok; and J. R. Ritter. "Measuring Abnormal Returns: Do Stocks Overreact?" *Journal of Financial Economics,* 31 (1992), 235–268.

Comment, R., and G. A. Jarrell. "The Relative Signalling Power of Dutch-Auction and Fixed-Price Self-Tender Offers and Open-Market Share Repurchases." *Journal of Finance,* 46 (1991), 1243–1271.

DeAngelo, H., and R. Masulis. "Optimal Capital Structure under Corporate and Personal Taxation." *Journal of Financial Economics,* 8 (1980), 3–29.

DeBondt, W. F. M., and R. M. Thaler. "Does the Stock Market Overreact?" *Journal of Finance,* 40 (1985), 793–805.

Denis, D. J.; D. K. Denis; and A. Sarin. "The Information Content of Dividend Changes: Cash Flow Signaling, Overinvestment, and Dividend Clienteles." *Journal of Financial and Quantitative Analysis,* 29 (1994), 567–587.

_____. "Agency Problems, Equity Ownership, and Corporate Diversification." *Journal of Finance,* 52 (1997), 135–160.

Easterbrook, F. H. "Two Agency-Cost Explanations of Dividends." *American Economic Review,* 74 (1984), 650–659.

Fama, E. F. "Agency Problems and the Theory of the Firm." *Journal of Political Economy,* 88 (1980), 288–307.

Feenberg, D. "Does the Investment Interest Limitation Explain the Existence of Dividends?" *Journal of Financial Economics,* 9 (1981), 265–269.

Gentry, W. M. "Taxes, Financial Decisions and Organizational Form: Evidence from Publicly Traded Partnerships." *Journal of Public Economics,* 53 (1994), 223–244.

Givoly, D.; C. Hahn; A. Ofer; and O. Sarig. "Taxes and Capital Structure: Evidence from Firms' Response to the Tax Reform Act of 1986." *Review of Financial Studies,* 5 (1992), 331–355.

Graham, J. R. "Debt and Marginal Tax Rate." *Journal of Financial Economics,* 41 (1996), 41–73.

Graham, J. R.; M. L. Lemmon; and J. S. Schallheim. "Debt, Leases, Taxes, and the Endogeneity of Corporate Tax Status." *Journal of Finance,* 53 (1998), 131–162.

Harris, M., and A. Raviv. "Corporate Control Contests and Capital Structure." *Journal of Financial Economics,* 20 (1988), 55–86.

Hausch, D. B., and J. K. Seward. "Signaling with Dividends and Share Repurchases: A Choice between Deterministic and Stochastic Cash Disbursements." *Review of Financial Studies,* 6 (1993), 121–154.

Howe, K. M.; J. He; and G. W. Kao. "One-Time Cash Flow Announcements and Free Cash-Flow Theory: Share Repurchases and Special Dividends." *Journal of Finance,* 47 (1992), 1963–1975.

Ikenberry, D.; J. Lakonishok; and T. Vermaelen. "Market Underreaction to Open Market Repurchases." *Journal of Financial Economics,* 39 (1995), 181–208.

Jegadeesh, N., and S. Titman. "Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency." *Journal of Finance,* 48 (1993), 65–91.

Jensen, M. C. "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers." *American Economic Review,* 76 (1986), 323–329.

Jensen, M. C., and R. Ruback. "The Market for Corporate Control: The Scientific Evidence." *Journal of Financial Economics,* 11 (1983), 5–50.

Karpoff, J. M.; P. H. Malatesta; and R. A. Walkling. "Corporate Governance and Shareholder Initiatives: Empirical Evidence." *Journal of Financial Economics,* 42 (1996), 365–395.

Lee, D. S.; W. H. Mikkelson; and M. M. Partch. "Managers' Trading around Stock Repurchases." *Journal of Finance,* 47 (1992), 1947–1961.

Lewellen, W.; K. Stanley; R. Lease; and G. Schlarbaum. "Some Direct Evidence on the Dividend Clientele Phenomenon." *Journal of Finance,* 33 (1978), 1385–1399.

MacKie-Mason, J. K. "Do Taxes Affect Corporate Financial Decisions?" *Journal of Finance,* 45 (1990), 1471–1493.

Miller, M. H. "Debt and Taxes." *Journal of Finance,* 32 (1977), 261–275.

Miller, M. H., and F. Modigliani. "Dividend Policy, Growth, and the Valuation of Shares." *Journal of Business,* 4 (1961), 411–433.

Miller, M. H., and M. S. Scholes. "Dividends and Taxes." *Journal of Financial Economics,* 6 (1978), 333–364.

Modigliani, F., and M. H. Miller. "Corporate Income Taxes and the Cost of Capital: A Correction." *American Economic Review,* 53 (1963), 433–443.

Ofer, A. R., and A. V. Thakor. "A Theory of Stock Price Responses to Alternative Corporate Cash Disbursement Methods: Stock Repurchases and Dividends." *Journal of Finance,* 42 (1987), 365–394.

Persons, J. C. "Heterogeneous Shareholders and Signaling with Share Repurchases." *Journal of Corporate Finance,* 3 (1997), 221–249.

Peterson, P. P.; D. R. Peterson; and J. S. Ang. "Direct Evidence on the Marginal Rate of Taxation on Dividend Income." *Journal of Financial Economics,* 14 (1985), 267–282.

Pettit, R. R. "Taxes, Transactions Costs and the Clientele Effects of Dividends." *Journal of Financial Economics,* 5 (1977), 419–436.

Stephens, C. P., and M. S. Weisbach. "Actual Share Reacquisitions in Open-Market Repurchase Programs." *Journal of Finance,* 53 (1998), 313–333.

Strickland, D. "Determinants of Institutional Ownership: Implications for Dividend Clienteles." Working Paper, Ohio State Univ. (1996).

Stulz, R. M. "Managerial Control of Voting Rights: Financing Policies and the Market for Corporate Control." *Journal of Financial Economics,* 20 (1988), 25–54.

Titman, S., and R. Wessels. "The Determinants of Capital Structure Choice." *Journal of Finance,* 43 (1988), 1–19.

Wahal, S. "Pension Fund Activism and Firm Performance." *Journal of Financial and Quantitative Analysis,* 31 (1996), 1–23.