

INSTITUTIONAL SHAREHOLDERS AND DIVIDENDS

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Abstract

The agency-cost-based hypothesis predicts that dividend payout is inversely related to the degree of institutional ownership. By contrast, under the tax-based hypothesis, dividend payout is predicted to be positively associated with institutional ownership. Using the Tobit analysis, we examine the relationship between institutional ownership and corporate dividend policy. Results show that dividend payout is positively related to institutional ownership, thus supporting the tax-based hypothesis. This result suggests a certain type of "dividend clientele," that is, institutions' preference for dividends.

INTRODUCTION

Corporate dividend policy should be designed to minimize the sum of capital, agency, and taxation costs (Easterbrook (1984)). One of the important factors influencing these costs is the fraction of ownership held by institutional investors. First, the institutional ownership for a firm has an implication for its agency cost. An increasing number of studies (e.g., Shleifer and Vishny (1986), Jarrell and Poulsen (1987), Brickley, Lease, and Smith (1988), Graves and Waddock (1990)) argue that institutional owners help resolve agency problems by monitoring management. Institutions are professional decision-makers who know how to assess the performance of the firm and to monitor the management. As a result, the degree of institutional ownership may have an effect on agency costs, and consequently on dividend policy.

At the same time, institutional ownership has an implication for the firm's taxation costs. As indicated by Miller and Scholes (1982) and Lakonishok and Vermaelen (1986), institutional investors have an incentive to receive dividends rather than capital gains under the U.S. tax system in which a significant portion of dividend income is exempt from taxation for institutions. Michaely (1991), Robin (1991), and Han (1994) well document institutional investors' preference of dividends over capital gains under the current tax regime established after the Tax Reform Act in 1986. Naturally, institutional shareholders, other things being the same, should want to see firms pay more dividends rather than retain more earnings. Thus, it is not unreasonable to predict that the degree of institutional ownership has an effect on corporate dividend policy.

Under the agency-cost-based hypothesis, dividend payout is predicted to be inversely related to institutional ownership. Dividend payment can have an effect of reducing agency cost by forcing the firm to be exposed to the discipline of the capital market. If institutional owners are effective in monitoring management, firms with a high degree of institutional ownership must be relatively less concerned about agency cost, and hence would pay less dividends. By contrast, the tax-based hypothesis predicts that dividend payout is positively related to institutional ownership because institutions prefer dividends over capital gains under the differential tax treatment. Thus, the relationship between institutional ownership and dividends is an interesting, open question.

This paper empirically examines the effect of institutional ownership on corporate dividend policy. It is important, however, to recognize that the above two hypotheses are not necessarily mutually exclusive. Observations might be caused by all two factors simultaneously. The objective is to provide some sense of the empirical importance of each explanation.

The remainder of this paper is structured as follows. Section II discusses the effects of institutional ownership on dividend policy. Section III describes the data and methodology. We correct the usual errors caused by a censored

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sample. For an unbiased and consistent estimator, we use the Tobit analysis based on a maximum likelihood estimation procedure. Empirical results are reported in Section IV. Section V concludes the paper.

INSTITUTIONAL OWNERSHIP AND DIVIDENDS

Until recently, most institutional owners did not become directly engaged in corporate management decisions; rather, they were content to follow the “Wall Street Rule” by selling their stock when dissatisfied with the firm’s performance. Now the enormous level of assets controlled by institutions makes efficient movement in and out of stock positions increasingly difficult.¹ As a result, they have a tendency to become involved in corporate control when results do not live up to expectations. This raises somewhat different prospects regarding the role of institutional shareholders. Aoki (1984) and Lowenstein (1988) argue that institutional shareholders are a powerful and positive force for pushing corporate managements to behave in the long-term interests of their firms and of the owners of those firms.

There are also other reasons why institutions can become powerful monitors of management. Institutions benefit from economies of scale in information-gathering and analysis. They employ teams of share analysts who are able to draw on sophisticated computer-aided information networks when evaluating the appropriateness of management’s decisions. McConnell and Servaes (1990) suggest that managers’ entrenchment would be more difficult with the existence of institutional shareholders. Therefore, in the presence of institutional owners, the firm is less likely to use dividends as a means of reducing agency costs.

Hypothesis 1A: The higher the degree of institutional ownership, the lower the dividend payout.

Under the tax-based hypothesis, however, the prediction is reversed. Other things being the same, institutional investors are likely to prefer dividends over capital gains because of tax exemption of a part of dividend income. Although the 1986 Tax Reform Act slightly raised the effective tax rate on dividends, institutional shareholders’ preference of dividends still remains. The tax exemption rate of dividends decreased from 85 percent in 1986 to 80 percent in 1987 and to 70 percent in 1988. Therefore, even after the tax reform, there should be a preference for dividend income among institutional shareholders. As a result, we can expect that firms with relatively high institutional ownership maintain relatively high dividend payout

Hypothesis 1B: The higher the degree of institutional ownership, the higher the dividend payout.

DATA AND METHODOLOGY

Data

For a firm to be included in the sample, it must be listed on the COMPUSTAT Annual File, on the Disclosure/Spectrum Ownership Database, and on the CRSP NYSE/AMEX file. For the sake of homogeneity in the sample, we include only those firms with SIC (standard industry classification) codes between 2000 and 3999. These SIC codes are available from the COMPUSTAT tape. Thus, regulated firms (e.g., utilities firms, financial firms) are excluded, and the sample consists of manufacturing firms. In addition, foreign subsidiaries with their headquarters abroad are excluded, because their institutional ownership is substantially different from that of their parents.⁷

The ownership data for the sample firms are obtained from the Disclosure/Spectrum Ownership Database provided by Disclosure Inc., Bethesda, Maryland. The database contains spectrum ownership information on over 5500 companies for the 1988-1992 period.² This information is derived from filings met with the SEC on a quarterly basis as ownership of stock changes. The data include specific institutions and individuals, their relationship to the company, their holdings, and their most recent trades. We collect institutional ownership and insider ownership in percentage. Institutional owners refer to all the institutions filing a 13-F form with the SEC. Inside owners consist of officers, directors, beneficial owners and principal stockholders owning ten percent or more of the company stock. Since the tape is updated 8 times a year, the data are more accurate and reliable than the Value Line or Standard and Poor’s Stock Reports ownership data.

The CRSP NYSE/AMEX File is used to obtain the share price of the firm. Our final sample consists of 303 firms with no missing data during the 1988-1992 period. This sample period is determined by the data availability from the Disclosure/Spectrum Ownership Database.

Methodology

Corporate dividend policy is measured by dividend yield. Since many firms incur negative or zero earnings during the sample period, dividend payout ratio is not a proper measure. Dividend per share is obtained from the COMPUSTAT tape, and the share price is collected from the CRSP tape. We do not include special dividends (see Easterbrook (1984, p. 657)). To investigate the relationship between institutional ownership and dividend policy without extraneous effects, we control for all other factors believed to influence dividend policy.

First of all, the effect of insider ownership must be controlled. According to Jensen and Meckling (1976), managers' natural tendency is to allocate the firm's resources in their own best interests, which may conflict with the interests of outside shareholders. As managers' equity ownership increases, however, their interests coincide more closely with those of outside shareholders. Thus, as the degree of insider ownership rises, the agency cost decreases. Consequently, with higher insider ownership, the firm is less likely to use dividends as a means of agency cost reduction.

Another factor which seems to influence a firm's dividend payout has much to do with its funds requirements. Rozeff (1982) argues that firms establish lower dividend payout ratios when they are experiencing or anticipate fast revenue growth, presumably because this growth entails a significant amount of capital expenditures. Higgins (1972) and Jensen, Solberg, and Zorn (1992) suggest that investment is negatively related to dividend payout. Frictions in capital markets lead to a competition between dividends and investment projects as potential uses of profits. Similarly, Higgins (1972) and McCabe (1979) suggest that debt has a negative influence on the amount of dividends paid. This is because firms with higher fixed charges pay lower dividends in order to avoid the costs of external finance. Following these studies, we adopt three proxies. As a proxy for revenue growth, we use the geometric average of revenue growth for the previous five year period. As a measure of investment, we employ the capital expenditure for plant and equipment as a percentage of assets. Finally, the ratio of total debt to assets is used as a measure of leverage.³ All these variables are available from the COMPUSTAT tape.

Business risk is also controlled. Rozeff (1982) argues that firms establish lower dividend payout when they possess high business risk. Firms with high business risk have a high probability of bankruptcy, so they set lower dividends to reduce the effect of risk. Also, if the risk is high, capital is relatively expensive so that firms are likely to rely more on internal financing, which leads to lower dividends. We use the standard deviation of the return on assets to measure business risk.

Profitability is another factor influencing dividend payout. Other things being the same, high profitability must lead to high dividends. Jensen, Solberg, and Zorn (1992) find a positive relationship between profitability and dividend payout. The ratio of operating income to assets is used as a proxy.

Finally, we control for the target dividend payout ratio. Lintner (1958) and Fama and Babiak (1968) suggest that most companies adjust their payout ratios towards ideal or target payout ratios. Following Crutchley and Hansen (1989), we use the 5 year average of dividend yields as a proxy.

Dividend yield is regressed on the degree of institutional ownership and the above control variables:

Equation 1

$$DY_{jt} = \alpha_0 + \alpha_1 INT_{jt} + \alpha_2 ISD_{jt} + \alpha_3 GRO_{jt} + \alpha_4 CXA_{jt} + \alpha_5 DTA_{jt} + \alpha_6 SDR_{jt} + \alpha_7 OIA_{jt} + \alpha_8 TDY_{jt} + e_{jt}$$

where:

- DY_{jt} = dividend yield for firm j , period t ;
- INT_{jt} = institutional ownership in percentage for firm j , period t ;
- ISD_{jt} = insider ownership in percentage for firm j , period t ;
- GRO_{jt} = firm j 's geometric average of revenue growth during the five year period prior t ;
- CXA_{jt} = firm j 's capital expenditures on plant and equipment as a percentage of assets for period t ;
- DTA_{jt} = the ratio of debt to assets for firm j , period t ;
- SDR_{jt} = firm j 's standard deviation of return on assets during the five year period prior t ;
- OIA_{jt} = operating income to assets for firm j , period t ;
- TDY_{jt} = target dividend yield for firm j , period t ; and
- e_{jt} = error term.

In estimating equation (1), caution is in order. By its nature, the sample is a censored one, which causes serious econometric problems. When the firm pays dividends, dividend yield is recorded as a positive number. But when the firm does not pay dividends, dividend yield is recorded as zero. Since dividends can never be negative, the sample is

censored at the left. In fact, the dependent variable is partly qualitative (pay or not pay) and partly quantitative (amount paid). Earlier studies ignored this problem. In this study, we adopt the Tobit analysis (Amemiya (1985)).

Considering the censored sample, equation (1) is stated as follows:

Equation 2

$$Y_{jt} = X_{jt}'\beta + e_{jt} \quad \text{if } Y_{jt} > 0 \\ = 0 \quad \text{otherwise,}$$

where:

$$X_{jt}' = [\text{constant } INT_{jt} \text{ } ISD_{jt} \text{ } GRO_{jt} \text{ } CXA_{jt} \text{ } DTA_{jt} \text{ } SDR_{jt} \text{ } OIA_{jt} \text{ } TDY_{jt}]; \text{ and} \\ \beta' = [\alpha_0 \alpha_1 \alpha_2 \alpha_3 \alpha_4 \alpha_5 \alpha_6 \alpha_7 \alpha_8].$$

Equation (2) can be rewritten as the following form:

Equation 3

$$E(Y_{jt}|X_{jt}, Y_{jt} > 0) = X_{jt}'\beta + E(e_{jt}|Y_{jt} > 0)$$

where $E(\cdot)$ is an expectation operator. If the conditional expectation of the error term is zero, a least squares method can be used. However, this is not the case:

Equation 4

$$E(e_{jt}|Y_{jt} > 0) = E(e_{jt}|e_{jt} > -X_{jt}'\beta) = \sigma\lambda_{jt},$$

where:

$$\lambda_{jt} = \frac{f(-X_{jt}'\beta/\sigma)}{1 - F(-X_{jt}'\beta/\sigma)},$$

σ = scale parameter;

$f(\cdot)$ = standard normal density function; and

$F(\cdot)$ = standard normal distribution function.

Thus, the regression function can be written as:

Equation 5

$$E(Y_{jt}|X_{jt}, Y_{jt} > 0) = X_{jt}'\beta + \sigma\lambda_{jt}$$

The difficulty with a least squares method is that it omits the second term of the right-hand side of equation (5). Therefore, the least squares estimator of β is biased and inconsistent. For an unbiased and consistent estimator, we use a maximum likelihood estimation procedure based on a Newton-Raphson algorithm.

RESULTS

Sample Description

Table 1 presents the five-year average institutional ownership, insider ownership, and dividend yield across industries, identified by two-digit SIC codes. Apparently, the average institutional ownership is substantially higher than the average insider ownership for all industries. While the average insider ownership is around 10 percent, the average institutional ownership is mostly in the range of 30 to 50 percent. It is interesting to note that, in case of the furniture and fixture industry and the paper industry, institutions own more than 50 percent of equity. The average dividend yields range from 0.58 to 4.26 percent. But there is no evidence that the dividend yield of one industry differs from that of another industry. The F test results show that neither dividend yields nor ownership structures are significantly different across industries.

TABLE 1
Ownership Structure and Dividend Yield across Industries (in percentage)

Industry (2-digit SIC)	Number of Firms	Institutional Ownership	Insider Ownership	Dividend Yield
Food (20)	11	45.04	8.44	2.21
Tobacco (21)	2	46.85	1.62	3.22
Textile Mill (22)	7	29.86	18.54	1.76
Apparel (23)	5	33.77	19.40	0.99
Lumber and Wood (24)	3	46.66	13.82	2.44
Furniture and Fixture (25)	2	52.53	13.54	2.38
Paper (26)	18	52.29	6.54	2.82
Printing and Publishing (27)	15	42.05	14.81	2.35
Chemicals (28)	43	49.84	11.23	4.09
Petroleum Refining (29)	20	41.66	13.42	3.46
Rubber and Plastics (30)	12	48.02	9.04	4.26
Leather (31)	2	30.30	7.58	0.58
Stone, Clay, Glass (32)	6	40.09	11.59	2.04
Primary Metal (33)	19	48.35	10.16	3.62
Fabric Metal (34)	22	41.01	7.76	2.74
Industrial Machinery (35)	40	41.90	9.47	3.04
Electric Equipment (36)	28	43.98	8.37	2.20
Transportation Equipment (37)	25	47.72	13.99	3.46
Measurement Instrument (38)	18	47.95	11.94	2.36
Miscellaneous (39)	5	36.46	19.50	2.82
F-test Statistic		1.16 (0.28)	0.73 (0.78)	0.58 (0.91)

Institutional owners refer to all the institutions filing a 13-F form with the SEC. Inside owners consist of officers, directors, beneficial owners and principal stockholders owning ten percent or more of the company stock.

Year-to-year sample statistics are reported in Table 2. The average dividend yield is in the range of 2.44 to 5.11 percent. It is relatively high in 1990 and 1991. This is not surprising, however, considering that the stock prices in general tumbled after the Iraqi invasion into Kuwait. The average institutional ownership increased from 42.79 percent in 1988 to 47.42 percent in 1992, which reflects the recent trend.⁴ The average level of insider ownership also increased from 10.31 percent in 1988 to 11.37 percent in 1992. The increases in insider ownership and in institutional ownership probably indicate that the proportion of ordinary investors decreased, that is, small investors gradually turned over their ownership to bigger hands. The growth rate of sales is around 7 percent during the sample period, reflecting the strong economy in the late 1980s. The expenditure for equipment and plant as a percentage of assets is between 6 and 7 percent, which is reasonable, considering the sales growth. These two variables, unlike ownership variables, are with no particular trend. The ratio of total debt to assets seems stable at around 25 percent, indicating that a quarter of the firms' assets are financed by debt. The standard deviation of return on assets also seems stable. However, the profitability measure, operating income over assets, appears deteriorating during the sample period from 10.63 percent in 1988 to 8.3 percent in 1992. This well represents the downgrading business performance during the Bush Administration. Finally, the target dividend yield is about 3 percent, which is within the range of the average dividend yield.

Results of Tobit Analysis

The first five columns of Table 3 report the results of the Tobit analysis of equation (1) for each year of the sample period. For convenience, equation (1) is reproduced below:

Equation 1

$$DY_{jt} = \alpha_0 + \alpha_1 INT_{jt} + \alpha_2 ISD_{jt} + \alpha_3 GRO_{jt} + \alpha_4 CXA_{jt} + \alpha_5 DTA_{jt} + \alpha_6 SDR_{jt} + \alpha_7 OIA_{jt} + \alpha_8 TDY_{jt} + e_{jt}$$

TABLE 2
Sample Statistics

	1988	1989	1990	1991	1992
Dividend Yield (%)	2.44	2.51	4.91	5.11	2.47
Institutional Ownership (%)	42.79	44.01	44.61	45.65	47.42
Insider Ownership (%)	10.31	10.19	11.25	11.58	11.37
Sales Growth Rate (%)	4.46	7.67	8.63	7.39	7.53
Capital Expenditures over Assets (%)	6.40	6.75	6.86	6.81	6.03
Debt over Assets (%)	24.02	25.72	27.64	26.98	26.18
Standard Deviation in ROA (%)	3.37	3.42	3.66	3.58	3.48
Operating Income over Assets (%)	10.63	11.40	10.93	9.82	8.30
Target Dividend Yield (%)	3.11	2.86	2.82	3.20	3.71

In calculating dividend yield, special dividends are not included. As a proxy for sales growth, the geometric average of revenue growth for the previous 5 year period is used. Capital expenditures are limited to expenditures on plant and equipment. Debt includes short-term and long-term debt. The standard deviation of the return on assets for the previous 5 year period measures business risk. Operating income over assets is used to measure profitability. Finally, the average of dividend yields for the previous 5 year period is a proxy for target dividend yield.

Most importantly, the estimate of α_1 is positive for each year. Although the estimate is only marginally significant for 1990, it is highly significant for the rest of the sample period. This result strongly suggests that dividend yield is positively related to the degree of institutional ownership. The positive relationship is consistent with the tax-based hypothesis, but not with the agency-cost-based hypothesis. Thus, the result supports the view that institutional investors prefer dividend income over capital gains. The estimate of α_2 does not support the agency-cost-based hypothesis, either. The estimate of α_2 is not significant at the conventional level of confidence, indicating that insider ownership has no significant impact on dividend policy.⁵ Thus, it appears that agency-cost is not a major determinant for corporate dividend policy for our sample firms.

The estimate of α_3 is negative in all cases, showing that firms set lower dividend payouts when their revenues grow faster. Fast growing firms typically need lots of cash flows for the purpose of working capital investment and/or capital expenditure. More importantly, for fast growing firms, shareholders are in general better off by investing in the firms than investing on their own. The estimate of α_4 is mostly insignificant, which suggests that firms' investment decision is not a major factor in their dividend decision. This is probably because our sample firms are mostly large firms due to the sample criteria. Large firms have a relatively easy access to capital markets, and hence funds availability is less a concern. Thus the result is consistent with Miller and Modigliani's (1961) assumption that dividend decision is independent of investment decision. The estimate of α_5 is negative and statistically significant for only two out of five years. Again, the weak evidence for a negative relationship between dividends and debt is probably due to the fact that for large firms like our sample firms, debt payment does not bind dividend payment. Thus, the significantly positive relationship for 1990 is not surprising because firms which borrow more are likely to have more cash flows and pay more dividends. The estimate of α_6 is all negative and mostly significant at the 5 percent level. This can be interpreted as the firm's attempt to reduce financial risk by retaining more earnings when it has high business risk. The estimate of α_7 is mostly positive, indicating that, other things being the same, unprofitable firms tend to set lower dividend payouts. Finally, the estimate of α_8 is insignificant except for 1988. In 1988, the estimate is positive, consistent with Lintner's argument (1956) that firms pursue target dividend payout.

The last column of Table 3 reports the results of the Tobit analysis for the entire sample period, 1988-1992. The parameter estimates are calculated using the five year average values for the variables in equation (1), and therefore some efficiency is lost in the averaging process. However, the results can offer a comprehensive view of the determinants of dividend policy over the sample period. Once again, the estimate of α_1 is significantly positive whereas the estimate of α_2 is not significantly different from zero, thus supporting the tax-based hypothesis, but not the agency-cost-based hypothesis. The rest of the parameter estimates are also consistent with the year-to-year results. One interesting finding is that the estimate of α_8 is positive and highly significant. The result shows that there may be periodic deviations in dividend payout over the short-term, but corporations set dividends in line with their target dividend payout over the long-term.

TABLE 3
Dividend Yields and Ownership Structure: Tobit Analysis
(chi-square values in the parentheses)

Independent Variables	1988	1989	1990	1991	1992	1988-1992
Institutional Ownership	0.0255** (14.881)	0.0264** (5.925)	0.1161 (1.690)	0.2675** (6.661)	0.0253** (12.102)	0.0231* (2.645)
Insider Ownership	0.0008 (0.011)	-0.0132 (1.109)	-0.0870 (0.941)	0.0405 (0.145)	0.0014 (0.031)	0.0010 (0.004)
Sales Growth Rate	-0.0231** (3.852)	-0.0495** (7.257)	-0.3574** (5.544)	-0.0310 (0.026)	-0.0298** (4.519)	-0.0579** (4.457)
Capital Expenditure to Assets	-0.0082 (0.074)	-0.0161 (0.132)	0.3340 (0.955)	-0.1208 (0.077)	0.0699** (3.862)	0.0018 (0.001)
Debt to Assets	-0.0166* (3.071)	-0.0010 (0.006)	0.7223** (68.300)	-0.3093** (6.388)	-0.0030 (0.117)	0.0225 (1.590)
Std. of Return on Assets	-0.2240** (24.459)	-0.2539** (14.771)	-1.6356** (14.412)	-0.4361 (0.561)	-0.1830** (13.831)	-0.2018** (7.040)
Operating Income to Assets	0.0091 (0.261)	0.0999** (12.770)	0.9116** (17.540)	0.0042 (0.000)	-0.0005 (0.001)	0.0509 (1.726)
Target Dividend Yield	0.0694** (7.302)	0.0257 (0.365)	-0.5227 (2.224)	-0.0125 (0.001)	-0.0081 (0.236)	0.3612** (224.646)

For the Tobit analysis, estimates are calculated by a maximum likelihood procedure based on a Newton-Raphson algorithm.

*Significant at the 10% level.

**Significant at the 5% level.

In Table 4, we also report the generalized least squares (GLS) estimates, not because they are reliable estimates, but because they provide some sense of comparison with the above Tobit analysis results. The GLS estimates are calculated using the inverse sample matrix (Amemiya (1985)). It is clear that the results using the Tobit analysis are statistically more significant than the GLS results. Particularly, the estimate of α_1 is positive and significant in 1989 and 1991 based on the Tobit analysis, but is insignificant based on the GLS results. In the case of 1990, it is positive under the Tobit analysis, but negative under the GLS method. These results show that the Tobit analysis improves over the least squares method.

As a diagnostic test of multicollinearity (Schmidt (1977)), we calculated Belsley, Kuh, and Welsch's (1980) 'condition numbers.' Condition numbers over 20 indicate a serious collinearity problem. The maximum condition number was 12.171, well below 20. Also, we checked for the potential firm size effect by including a firm size proxy (the natural logarithm of market value of equity) in equation (1). There was no significant change in the results.

CONCLUSION

Under the agency-cost-based hypothesis, dividends are predicted to be negatively associated with institutional ownership. By contrast, under the tax-based hypothesis, dividends should be positively related to institutional ownership. This paper empirically examines the relationship between institutional ownership and corporate dividend policy. In the empirical analysis, we correct the usual errors caused by a censored sample. With a censored sample, the least squares estimators are biased and inconsistent. For an unbiased and consistent estimator, we use the Tobit analysis based on a maximum likelihood estimation procedure.

Results show that dividends are positively related to institutional ownership, thus supporting the tax-based hypothesis that institutional shareholders prefer dividends over capital gains because of the differential tax treatment. Thus, the results suggest a certain type of “dividend clientele.”

TABLE 4
Dividend Yields and Ownership Structure: GLS
(t-values in the parentheses)

Independent Variables	1988	1989	1990	1991	1992
Institutional Ownership	0.0167** (3.036)	0.0123 (1.358)	-0.0152 (-0.196)	0.1358 (1.533)	0.0177** (3.013)
Insider Ownership	-0.0023 (-0.359)	-0.0132 (-1.261)	-0.0926 (-1.204)	0.0479 (0.534)	0.0010 (0.154)
Sales Growth Rate	-0.0122 (-1.487)	-0.0342** (-2.552)	-0.2694** (-2.210)	0.0010 (0.006)	-0.0275** (-2.436)
Capital Expenditure to Assets	-0.0120 (-0.478)	-0.0301 (-0.805)	0.1751 (0.576)	-0.2734 (-0.747)	0.0433 (1.484)
Debt to Assets	-0.0128 (-1.637)	0.0010 (0.087)	0.6863** (8.982)	-0.2176** (-2.133)	0.0024 (0.335)
Std. of Return on Assets	-0.1141** (-4.096)	-0.1118** (-2.421)	-0.8086** (-2.565)	0.4235 (1.026)	-0.0843** (-2.976)
Operating Income to Assets	-0.0010 (-0.069)	0.0686** (3.011)	0.6666** (3.503)	-0.2620 (-1.199)	-0.0050 (-0.339)
Target Dividend Yield	0.0646** (2.996)	0.0207 (0.588)	-0.5252* (-1.875)	0.2480 (0.982)	-0.0080 (-0.611)

The GLS estimates are calculated using the inverse sample matrix.

*Significant at the 10% level.

**Significant at the 5% level.

ENDNOTES

1. Many institutions cannot exit from a firm's stock without depressing the stock price and taking a substantial capital loss on the transaction. In fact, many large pension funds and the large corporations in which they hold shares are now virtually permanently wed (*Wall Street Journal*, November 2, 1987).
2. To be included in the database, a firm must provide direct goods or services and file with the SEC. The SEC guidelines require that a firm must be listed on national securities exchanges including the OTC, have at least 500 shareholders, and have at least \$5 million in assets. The database contains not only ownership data but also most of financial statement data.
3. We also used the ratio of long-term debt to assets as a measure of leverage. The results are virtually the same and are not reported here.
4. Much of the increase in institutional ownership has been fueled by the growth in pension funds, following the passage of the Employee Retirement Income Security Act of 1974. By the year 2000, pension funds alone are expected to hold 50% of all corporate equity in the United States (*Business Week*, May 18, 1987).
5. Morck, Shleifer, and Vishny (1988) and McConnell and Servaes (1990) document that corporate performance is nonlinearly related to insider ownership. We examined the potential nonlinear relationship between insider ownership and dividend policy. We found no evidence that insider ownership is nonlinearly related to dividend payout.

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