Dividend Policies in Practice: Is There an Industry Effect?

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This paper presents evidence concerning industry influences on the dividend decision after controlling for other firm-specific determinants known from prior research to affect payouts. Two sharply contrasting economic periods are examined: 1974 to 1980 and 1981 to 1987. Industry affiliation is found to possess significant explanatory power when modeling payout behavior at the individual firm level. The specific industries found to be significant are relatively few in number, however, and they do not exhibit persistence in their effect over time, for the most part. Consequently, only modest support is found for the industry-related dividend leadership effect posited by Lintner (1956).

INTRODUCTION

While financial theory is unequivocal on the irrelevance of dividend policy in perfect capital markets, there is widespread recognition that payout policy in practice is controversial and not well understood. In the presence of taxes and transaction costs, the payment of a dividend by the firm is regarded as something of a puzzle. Nonetheless, most firms pay dividends. Brealey and Myers (1991, p. 918) list dividend policy as one of their "10 unresolved problems in finance." Brigham and Gapenski (1991, p. 549) describe it as "one of the most judgmental decisions that a manager must make," and Van Horne (1989, p. 344) claims that the "lack of firm footing for predicting the long-run effect of a specific dividend policy on valuation makes the dividend decision more difficult in many ways than either the investment or financing decisions."

Despite an inability by researchers to cast dividend policy in terms of a neat theoretical model, evidence from various sources suggests empirical regularities in dividend payouts. For example, Lintner's (1956) classic work finds that growth prospects of the industry and the firm, earnings of the firm, and cyclical variation of investment opportunities are important factors affecting firms' dividend policies. Myers' (1984) pecking order description of the capital structure decision implies a link between the firm's dividend payout and its investment requirements and earnings variability; support for these relationships has been found in the dividend payout behavior of U.S. firms (Jensen, Solberg, and Zorn, 1992; McCabe, 1979; Rozeff, 1982).

Although variation in dividend payouts among firms appears to be affected by firm-specific variables such as investment requirements and earnings variability, Lintner (1953)

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hypothesizes that dividend policy also is influenced by an industry effect. This effect could be interpreted as common correlations with determinants of dividend payout by firms in the same industry, but Lintner suggests an effect of dividend leadership analogous to price leadership or wage leadership. Such an industry effect, if it exists, presumably stands apart from other firm-specific variables that affect payout decisions of the member firms within an industry and causes industries to have varying dividend policies.

Some evidence suggests that there is significant variation in dividend payout ratios among industries (Baker, 1988; Michel 1979). It is not clear from these studies, however, whether an industry effect persists after other determinants of dividend payout have been controlled. If, as seems likely, firm-specific determinants cluster similarly within groups of like firms, then such commonalities could serve to drive much of the industry separation detected in prior research.

This paper presents tests for industry influences on the dividend decision after controlling for firm-specific factors known to affect payouts. Rozeff's (1982) cross-sectional model of dividend payout first is extended to the 1980s, a period characterized by significantly different economic conditions from those prevailing in the 1970s when the model originally was tested. The model performs well in the subsequent period; the estimated regression equations for the two periods are statistically indistinguishable. Then dummy variables are added to the model to test for separate industry effects for 42 *Value Line* industries. Significant dummy variable coefficients are detected in both periods, but the specific industries found to be significant are relatively few in number and they do not tend to be consistent between the two periods.

Taken as a whole, the current results suggest that although dividend policy is a controversial area in applied finance, there are empirical regularities in dividend payout practices that persist over time. The regularities appear to be driven primarily by firm-specific attributes, however, rather than by industry membership differences. The evidence for Lintner's industry-related dividend leadership hypothesis thus is not compelling.

BACKGROUND

Lintner's seminal work on dividend payout practices (1956) finds that managers believe that stockholders prefer stable dividends and that the market puts a premium on such stability. He hypothesizes that differences among firms in target payout ratios reflect judgments based on factors such as prospects for growth of the industry and the individual firm, cyclical movements of investment opportunities, and earnings prospects for the firm. Myers' (1984) description of managers' pecking order preferences for internal financing includes a link between dividend payout and factors such as investment opportunities and fluctuations in firm profitability. Empirical support for such a link is found in studies of the dividend payout practices of U.S. firms by McCabe (1979) for the late 1960s and early 1970s and by Rozeff (1982) for the late 1970s.

Lintner also suggests that dividend policies have industry effects. While an industry effect may reflect correlation of factors such as investment opportunities, earnings stability, and internal funds availability among firms within the same industry (Lintner, 1956), Lintner seems to have had more in mind. He refers (p. 104, fn. 3) to dividend leadership as analogous to price leadership and wage leadership, thereby suggesting a competitive dimension of the dividend decision apart from other firm-specific variables. In an earlier

paper (1953, p. 252, fn. 60), Lintner cites the oil industry as an example of dividend leadership at work. He states that "Companies probably most generally follow the 'lead' of other companies in the same industry, but on occasion may be concerned with maintaining some sort of conformance to other companies whose securities are, investment-wise, close substitutes for the company's own securities, even though the other companies are in entirely different industries."

In their recent study of aggregate dividend behavior of U.S. firms, Marsh and Merton (1987, p. 4) also suggest that firms observe industry practice in the selection of their target payout ratios, although they do not test explicitly for its effect. In one of the few direct tests of the industry effect hypothesis, Michel (1979) finds statistically significant differences in dividend payout ratios among 13 different industries during the late 1960s to the mid-1970s. (The significantly different industries are not identified individually.) Michel tests only for firm size (in regard to firm-specific variables that may affect dividend payouts) and finds no significant effect. He suggests, however, (1979, p. 24) that investment opportunities within industries may account partially for the industry effect. Baker (1988) updates the Michel study using data from 1977 to 1981. He too finds support for industry effects on dividend payout ratios, but, like Michel, he does not control for other variables.

McCabe's cross-section analysis of dividend payouts (dividends relative to sales as opposed to dividends relative to earnings) of U.S. firms from 1966 through 1973 includes variables intended to capture effects of investment opportunities, availability of funds, and the firm's operating and financial leverage as reflected in beta. He also includes dummy variables for two digit SIC industries. He does not report the regression coefficients or the significance of the industry dummies, however, so one cannot discern whether his sample of 112 firms shows support for an industry effect.

Rozeff (1979) analyzes dividend payout ratios for a cross-section of 1,000 unregulated U.S. firms from 1974 to 1980 with regard to firm-specific determinants. Casting the payout decision as a tradeoff between transaction costs and agency costs, his model includes variables intended to capture the effects of investment opportunities and earnings variability on dividend payout. In addition, it includes variables that serve as proxies for agency cost effects on dividend decisions. All of the variables are highly significant with the expected signs, and the model accounts for nearly half of the variation in dividend payout ratios for his sample.

Rozeff's analysis, which relies solely on firm-specific variables, does not account explicitly for potential industry differences. Thus, in the context of Rozeff's model, industries may provide measures of omitted variables influencing dividend policy that are not captured adequately by firm-specific variables.

To summarize, empirical evidence from cross-sections of U.S. firms indicates that firm-specific factors such as investment opportunities and earnings variability affect dividend payout practices, as suggested by Lintner and others. There is also evidence of significant industry effects in payout practices. Because the studies on industry effects do not control for the firm-specific variables that have been found to be significant, however, it is not clear whether the detected industry effects have a causal interpretation or whether they instead proxy for the effects of variables that happen to cluster within industries.

EMPIRICAL METHOD AND RESULTS

Given its high percentage of explained cross-section variation, Rozeff's (1979) model is used to control for firm-specific differences known from prior research to affect dividend payout. The model and variable definitions are as follows (hypothesized signs are shown in the equation):

$$(1)\ PAY = b_0 - b_1INS - b_2GROW1 - b_3GROW2 - b_4BETA + b_5STOCK$$

where:

PAY ≡ Average payout ratio over seven year period;

INS ≡ Percentage of common stock held by insiders at end of seven year period;

GROW1 ≡ Previous five year average growth rate of revenues;

GROW2 ≡ Forecasted future five year average growth rate of revenues;

BETA ≡ Estimated beta coefficient;

STOCK ≡ Natural logarithm of number of common stockholders at end of seven year period.

The initial objective of this research is to replicate Rozeff's findings using his reported data selection and filter procedures. Accordingly, the above variable information is extracted from the *Value Line Investment Survey*, editions 1-13, beginning July 3, 1981. A replication period sample of 968 firms for the 1974 to 1980 period is generated which approximates his reported sample size of 1,000 firms. The dataset also is extended to capture the subsequent seven year period, 1981 to 1987, using *Value Line* editions 1-13, beginning June 24, 1988. Following the same procedures a usable extension period sample of 739 firms is obtained. The smaller extension period sample size is attributable primarily to an increase in reported losses during the recessionary period of the early 1980s (payouts in such years not being meaningfully defined). Comparative descriptive statistics (means and correlations) for these and Rozeff's data are presented in Table 1.

The correlations generated from the replication sample are close in size and pattern to the original study. Moreover, from 1981 to 1987 the correlations are remarkably close to those of the replication sample in the earlier time period. This provides an initial indication of intertemporal stability in the relationships reported in Rozeff (1982). Although the means of the variable are similar except for large declines in the growth rates, a multivariate test for separation between the variable vectors attributable to period differences yields a Hotelling T^2 statistic of 39.74 ($p < .0001$), suggesting overall separation. Univariate t-tests indicate that pairwise mean differences are statistically significant at the .0001 level for each of the variables except INS. Thus, the seven years subsequent to

Table 1—Comparative Summary Statistics

Variable	Means	Pearson Correlation Coefficients INS	GROW1	GROW2	BETA	STOCK
Panel A						
Rozeff Results (1974-1980), n=1000						
PAY	30.48	-.257	-.466	-.456	-.529	.333
INS 18.07		.163	.126	-.011	-.495	
GROW1	13.62			.566	.305	-.185
GROW2	12.57	301	-.164			
BETA	1.07		-.027			
STOCK	9.13					
Panel B						
Replication Results (1974-1980), n=968						
PAY	29.43	-.259	-.339	-.261	-.482	.376
INS 17.36		164	.105	-.042	-.519	
GROW1	13.25			.361	.243	-.157
GROW2	12.19	.214	-.115			
BETA	1.04		-.011			
STOCK	9.01					
Panel C						
Extension Results (1981-1987), n=739						
PAY	26.32	.228	-.384	-.253	-.380	.378
INS 16.95		.135	.087	-.141	-.384	
GROW1	10.02			.370	.241	-.154
GROW2	10.14	.194	-.104			
BETA	1.12		.020			
STOCK	8.63					

Panel A is reproduced from Rozeff (1982). Panels B and C data were obtained from *Value Line Investment Survey*, editions 1-13 beginning, respectively, July 3, 1981 and June 24, 1988. Variable definitions are as follows:

PAY ≡ Average payout ratio over seven year period;
INS ≡ Percentage of common stock held by insiders (at end of period);
GROW1 ≡ Actual five year average growth rate of revenues;
GROW2 ≡ Forecasted five year average growth rate of revenues;
BETA ≡ Estimated beta coefficient; and
STOCK ≡ Natural logarithm of number of common stockholders (at end of period)

Rozeff's 1974 to 1980 study period are characterized by lower payouts, higher systematic risk, fewer shareholders, and lower indicated growth (actual and forecasted).[1]

Table 2 presents the current replication and extension results and the original Rozeff study results. Comparing the replication analysis (panel B) to his results (panel A) indicates a high degree of correspondence between the two equations. While the replication R^2 is slightly smaller (.41 compared to .48), the coefficients are consistent in sign and have

[1] The indicated drop in the two growth variables during the 1980s may seem anomalous. Because both growth variables are stated in nominal rather than real dollars, however, the sharp decline in the average rate of inflation between the two periods must be recognized when interpreting these variables. The average rate of increase in the CPI between 1974 and 1980 was 8.9 percent, while the rate between 1981 and 1987 was 3.8 percent. In real terms, then, the growth rates for the extension period are higher than those for the replication period. This higher real growth, other things equal, is consistent with reduced payouts in the extension period to reduce transaction costs.

Table 2—Comparative Regression Results (t-statistics shown in parentheses) Dependent Variable: PAY

INTERCEPT	INS	GROW1	GROW2	BETA	STOCK	R^2	F-statistic
Panel A Rozeff Results (1974-1980), *n*=1000							
47.81 (12.83)	-0.090 (-4.10)	-0.321 (-6.38)	-0.526 (-6.43)	-26.543 (-17.05)	2.584 (7.73)	.48	185.47*
Panel B Replication Results (1974-1980), n=968							
31.49 (8.15)	-0.078 (-3.24)	-0.248 (-5.37)	-0.163 (-2.69)	-26.161 (-16.66)	3.528 (9.99)	.41	133.96*
Panel C Extension Results (1981-1987), n=739							
29.22 (5.86)	-0.126 (-3.92)	-0.313 (-6.59)	-0.217 (-2.07)	-27.211 (-10.94)	4.051 (9.26)	.37	85.69*

F-statistic for test of structural change between replication period and extension period ... 1.71
Critical $F_{(6,1695)}$, 5 percent level ... 2.10

See Table 1 for definitions

t-statistics that are equivalent in magnitude. Consequently, the current research corroborates Rozeff's modeled relationships.

The regression results for the extension period are presented in panel C of the table. Note that although the explanatory power of the equation drops slightly from that for the replication period (.37 from .41), the respective coefficient estimates are not appreciably different from the replication sample. The statistical correspondence between the two regression equations is ascertained by an F-test for structural change (e.g., Johnston, 1984, pp. 218-219). The test compares the residual sum of squares from a single equation fitted to both time periods and the total residual sum of squares for equations obtained separately from the two periods. Based on this test (reported in the lower portion of the table), the hypothesis that the intercept and corresponding slopes are equal cannot be rejected.

A finding of structural equivalence for the two equations is interesting for two reasons. First, significant changes in economic conditions occurred between the two underlying data periods. The 1980s were characterized by lower inflation, stronger economic growth, and lower taxes than the replication period. Intertemporal stability in Rozeff's model over periods of fundamental macroeconomic shifts adds to the model's credibility and predictive value. Second, the structural stability of the model helps in interpreting the industry effects.

The potential for industry effects beyond the above firm-specific influences is addressed by adding industry dummy variables to the basic model. While a finding of significant industry effects would be consistent with Lintner's dividend leadership hypothesis, such a test is not definitive because it cannot distinguish Lintner's hypothesis and the alternative explanation of a misspecified firm-specific model (e.g., low payouts

among auto firms may reflect high capital requirements not captured well by Rozeff's growth variables). Failing to detect a significant industry effect, however, would serve to rule out Lintner's industry-related dividend leadership hypothesis.

To ensure sufficient industry representation for the two subperiods, a further constraint is imposed on the data by requiring at least five firms in each industry for both periods. This results in a representation of 42 nonregulated domestic industries, comprising 708 and 675 firms for the replication and extension subperiods, respectively. Table 3 lists the coefficient estimates and statistical significance results for the dummy variable models. For purposes of interpreting dummy variable signs, the omitted category included in the intercept is the paper and forest products industry.

Adding the industry variables results in a substantial increase in the model's explained variation, with adjusted R^2s of .45 for both subperiods as compared with .41 and .37 for the respective periods' reduced models in Table 2. A general F-test (not presented) indicates that the industry classifications as a whole add significant explanatory power to the models. Perusal of the comparative t-statistics for Rozeff's five independent variables suggests that they do not appear to lose explanatory power in the presence of the industry effects. Consequently, industry affiliation complements rather than substitutes for Rozeff's agency/transaction cost proxies.

The tabulated results indicate that industry membership is statistically significant (alpha = .05) for seven *Value Line* industries in the replication period and for 15 *Value Line* industries in the extension period. Interestingly, however, there is little detectable overlap. Only three significant industries are common to both subperiods, with the remaining 16 significant industries being period specific. This instability in industry effect contrasts with the stability of the firm-specific variables and suggests that industry dividend effects are not predictable.

Whereas the above regression results capture significance with respect to all other industry effects (i.e., with reference to a base industry and significance results given that all other industries are in the model), it is of interest whether—and in what direction—a particular industry effect exists irrespective of other industry effects. An alternative description of the industry effects is depicted in Table 4. In this table are the mean residual prediction errors for each industry obtained by reestimating Rozeff's five variable model separately for each subperiod. The t-statistics shown in the table test the null hypothesis that the mean residual is not significantly different from zero.

Only five industries exhibit significant nonzero residuals in both periods, all of which are consistent in their sign. Rozeff's model significantly overpredicts payout in the fast food and computer and peripheral industries, but significantly underpredicts payout in the chemical (specialty), toiletries/cosmetics, and newspaper industries. The industry identification does not help one detect a significant deviation in dividend payout from that predicted by the basic model for most industries.

Consistency in the magnitude of industry residuals over the two periods is examined without regard to a significant difference from zero in either period. A lack of independence in the mean industry residuals over time would suggest that there are persistent influences at the industry level that are not captured by Rozeff's factors. Spearman and Kendall correlation coefficients of the industry residuals in the two time periods measure,

Table 3—Dummy Variable Regression Results for Industry Effects
Dependent Variable: PAY

	Subperiod			
	Replication (n=708)		Extension (n=675)	
	Coefficient	t	Coefficient	t
Intercept	30.12	5.63*	34.48	5.52*
INS	-0.07	2.66*	-0.12	-3.91*
GROW1	-0.18	-3.48*	-0.28	-5.89*
GROW2	-0.31	-3.12*	-0.24	2.28*
BETA	-22.73	10.97*	23.37	-8.20*
STOCK	3.41	7.97*	3.81	8.19*
INDUSTRY				
Paper & Forest Products	n/a	n/a	n/a	n/a
Auto Parts (Replacement)	4.14	1.24	1.07	0.21
House Appliance	7.79	2.01*	1.87	0.32
Precision Instruments	-2.90	0.93	-12.97	-3.37*
Health Care—Hospital Supplies	-3.19	1.03	12.18	3.25*
Trucking & Transport Leasing	-1.61	0.50	-5.06	1.05
Fast Food Service	-9.95	3.08*	-17.84	4.28*
Tobacco	3.26	0.76	-4.22	0.71
Industrial Services	5.01	1.56	-5.56	-1.41
Broadcasting	-4.84	1.19	11.77	2.33*
Chemical (Specialty)	4.82	1.67	4.31	1.21
Aerospace	1.53	0.53	-8.37	-2.32*
Metal Fabrication	-2.34	-0.70	-1.15	-0.22
Steel General	0.57	0.14	-12.49	-2.13*
Drug Store	4.66	1.28	10.36	1.87
Auto Parts (Original Equipment)	0.87	0.22	1.46	0.29
Toiletries/Cosmetics	13.62	3.77*	1.24	0.26
Building	-0.75	0.30	-6.57	1.87
Auto & Truck	-8.85	-1.92	-23.08	4.18*
Packaging & Containers	1.06	0.35	-6.75	-1.43
Household Products	8.25	2.03*	-1.83	-0.35
Electrical Equipment	-1.58	-0.58	-2.45	-0.61
Electronics	-1.62	0.61	-9.12	-2.60*
Computer & Peripheral	-6.73	2.14*	-11.78	-3.78*
Office Equipment & Supplies	-4.77	1.36	-5.86	-1.45
Medical Services	2.01	-0.52	-11.58	2.40*
Metal & Mining (General)	0.61	-0.18	12.50	2.12*
Chemical (Basic)	2.04	0.59	-3.25	-0.59
Drug (Ethical)	4.37	1.25	-3.55	-0.87
Machinery	1.41	0.54	-0.46	-0.12
Machine Tool	0.93	0.28	-8.64	-1.48
Machinery (Construction & Mining)	4.97	1.56	-5.48	-0.86
Multiform	-3.04	-1.13	10.56	-3.02*
Food Processing	-1.12	0.45	-6.25	1.76
Grocery Store	-5.25	1.48	11.31	-2.79*
Food Wholesalers	-5.03	-1.23	-7.10	1.40
Mfgd. Housing/Recreational Vehicle	0.57	0.13	-8.02	1.53
Recreation	-6.75	-1.99*	-10.48	2.43*
Hotel/Gaming	-4.73	-1.15	-20.41	-4.35*
Publishing	-3.10	1.03	-4.63	1.06
Newspaper	9.74	2.12*	-3.77	0.71
Chemical (Diversified)	-2.16	-0.62	0.33	-0.07
Adjusted R^2	.45		.45	

* Denotes significant at two tailed .05 level

Table 4—Mean Regression Residuals by Industry

Industry	Subperiod: Replication Mean Residual	t	Subperiod: Extension Mean Residual	t
Paper & Forest Products	0.64	0.30	7.10	2.52*
Auto Parts (Replacement)	4.04	1.45	7.90	1.75
House Appliance	7.86	2.27*	8.31	1.50
Precision Instruments	-1.65	-0.66	-6.11	2.07*
Health Care—Hospital Supplies	-2.65	-1.08	-4.67	1.69
Trucking & Transport Leasing	-0.88	-0.33	2.01	0.46
Fast Food Service	-8.97	-3.47*	-10.88	3.22*
Tobacco	2.68	0.68	1.97	0.35
Industrial Services	5.11	1.98*	1.47	0.49
Broadcasting	-4.14	-1.13	-3.99	0.89
Chemical (Specialty)	4.68	2.21*	10.76	4.44*
Aerospace	-0.20	-0.10	-1.56	0.60
Metal Fabrication	-2.53	-0.91	5.24	1.16
Steel General	0.03	0.01	-6.64	1.20
Drug Store	-4.64	-1.48	-3.43	0.67
Auto Parts (Original Equipment)	1.03	0.29	8.58	1.91
Toiletries/Cosmetics	13.78	4.41*	8.04	1.97*
Building	-0.12	-0.08	0.44	0.18
Auto & Truck	-7.76	-1.84	-16.09	-3.18*
Packaging & Containers	0.98	0.42	-0.37	0.09
Household Products	7.79	2.12*	4.65	0.97
Electrical Equipment	-1.04	-0.54	3.96	1.24
Electronics	-0.74	-0.42	-2.02	0.83
Computer & Peripheral	-5.13	-2.04*	-0.28	2.33*
Office Equipment & Supplies	-4.01	-1.34	0.81	0.25
Medical Services	-0.66	-0.20	-4.13	0.97
Metal & Mining (General)	-0.10	-0.04	-5.40	0.98
Chemical (Basic)	2.77	0.96	9.81	1.92
Drug (Ethical)	4.96	1.65	3.66	1.18
Machinery	1.58	0.92	0.42	2.14*
Machine Tool	1.24	0.46	-2.42	0.44
Machinery (Construction & Mining)	5.35	2.06*	0.05	0.00
Multiform	-2.28	-1.23	-4.27	1.79
Food Processing	-1.30	-0.88	0.02	0.14
Grocery Store	-5.75	-1.93	-4.85	1.52
Food Wholesalers	-5.61	-1.52	-0.55	0.12
Mfgd. Housing/Recreational Vehicle	1.36	0.33	-0.48	0.10
Recreation	-6.15	-2.13*	-0.24	0.92
Hotel/Gaming	-3.46	-0.96	-13.35	3.28*
Publishing	3.13	1.34	2.06	0.56
Newspaper	9.12	2.15*	10.80	2.27*
Chemical (Diversified)	-1.46	-0.48	6.22	1.53

* Denotes significant at two tailed .05 level

Tabulated residuals and corresponding t statistics were obtained by estimating Rozeff's (1982) five variable model independently for each subperiod. The t-tests are for the null hypothesis of no difference from zero.

respectively, .68 and .48 ($p < .001$). The high correlations indicate that regardless of the degree to which overall industry effects exist (whether small or large), industries with higher (lower) deviations from the model's predictions in one time period tend to have

higher (lower) deviations in the subsequent time period. This suggests that industry affiliation exerts some systematic influence on dividend policy that is not captured by Rozeff's (1982) model.

SUMMARY AND DISCUSSION

This paper reports tests for industry effects after controlling for other firm-specific factors known from prior research to affect dividend payout. Lintner (1956) suggests such a relation in his early work by positing an industry-related dividend leadership hypothesis.

Several findings can be summarized from the current tests. First, the two seven year subperiods examined (1974 to 1980; 1981 to 1987) represent sharply contrasting macroeconomic environments and thus increase the power of distinguishing the industry effect hypothesis and other fundamental relationships that simply may tend to correlate with industry. Second, despite the differing economic settings, intertemporal stability with respect to Rozeff's five variable model is indicated (i.e., the linear coefficients appear to be constants with respect to time). Third, Rozeff's five variables do not simply correlate with other industry commonalities that drive the explanatory power of his model; industry affiliation complements rather than substitutes for Rozeff's agency/transactions cost variables. Fourth, even though industry affiliation taken as a whole adds significantly to the explanatory power of Rozeff's model, the specific industry effects found to be significantly different from zero are relatively few in number, and, for the most part, they do not display persistence over time. Five industries (of 42) are found to be significant and persistent in their effect. Another ten industries exhibit significance but not persistence, and the remaining 27 industry effects are negligible.

Interestingly, the cross-sectional pattern of industry residuals tends to persist over time, even though many of the residuals are not significantly different from zero. This suggests that Rozeff's model does not capture fully the systematic influences on the payout decision. Owing to the lack of breadth and stability in the specific industry influences, however, the finding would seem to be more consistent with a proxy misspecification in the firm-specific model than with Lintner's industry-related dividend leadership hypothesis. For example, the growth variables in the model are for revenues rather than for capital expenditures, which may mismeasure the anticipated investment requirements within industries systematically. Further research is needed to explore this issue more fully.

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