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THE ROLE OF INSIDERS AND DIVIDEND POLICY: A COMPARISON OF REGULATED AND UNREGULATED FIRMS

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Abstract

This paper explicitly recognizes the potential differences in dividend policy between regulated and unregulated firms and focuses on agency-cost and monitoring explanations for the relevance of dividends. The purpose of this paper is to examine the role of insiders in determining dividend policy for unregulated firms, utilities, and financial-services firms. Since utilities, and to some extent, financial-services firms, have regulators who serve as the low-cost informants to market participants, insiders play a reduced role in determining dividend policy compared to unregulated firms. A regression model is developed that addresses whether the role of regulators and insiders are substitutes or complements for utilities and financial-services firms. The regression results reveal fundamental differences in the relationship between insider holdings and dividend policy for unregulated firms and utilities, but suggest that the regulatory environment enhances -- rather than mitigates -- the importance of the insiders" role for utilities. For financial-services firms, the results do not support the hypothesis that increased equity risk through fixed-rate deposit insurance enhances the role of insiders when determining dividend policy.

INTRODUCTION

A number of researchers have advanced theories and provided empirical evidence regarding determinants of a firm's dividend policy. The dividend policy issue, however, is yet unresolved.[1] Miller and Modigliani [8] view dividends as irrelevant, but dividend policy may be important for signaling or agency cost reasons.[2] Some researchers hypothesize that a firm uses dividend policy as a mechanism to signal outsiders regarding the stability and growth prospects of the firm. Miller and Rock [9], for example, develop a dividend information model in which dividend announcement effects emerge from the asymmetry of information between owners and managers.[3] Most prior work, however, implicitly recognizes differences in determinants of financial decisions between regulated and unregulated firms by excluding regulated firms from the analysis.[4]

In this paper, we explicitly recognize the potential differences in dividend policy between regulated and unregulated firms and focus on agency cost and monitoring explanations for the relevance of dividends. We expand prior work on the determinants of dividend policy by examining the differences in determinants of dividend policy for unregulated firms, utilities, and financial-service firms. Given recent findings, we hypothesize that the crucial role that insiders play in monitoring firm behavior is less important for utilities that have regulators to serve as low-cost informants to equity holders.[5]

We also postulate that the insiders' role is less important for financial-services firms that are subject to product and geographic restrictions, but not to price restrictions. On the other hand, fixed-rate deposit insurance makes the regulator's role one of minimizing losses to the deposit insurance fund. If the influence of deposit insurance overrides the other regulatory restrictions, then the increased risk to equity holders will make the role of insiders more important in reducing agency problems.

Our results confirm much of the prior findings regarding the significant influences of growth, systematic risk, and firm size on dividend payout. Our results also support earlier research regarding the higher dividend payouts for utilities over unregulated firms, ceteris paribus. On the other hand, we find that the regulatory environment

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enhances the importance of the insiders' role for utilities. For financial-services firms, we find no support for the hypothesis that increased equity risk through fixed-rate deposit insurance enhances the role of insiders when determining dividend policy.

The paper is organized as follows. The first section provides a brief review of the literature extant. The second section describes our sample of unregulated firms, utilities, and financial-service firms. The third section details the empirical methods. This section provides the hypothesized signs for the variables in our model, given the existing literature. The fourth section contains the empirical results. Summary and conclusions constitute the final section.

LITERATURE REVIEW

Rozeff [13] presents evidence that the dividend payout level for unregulated firms is negatively related to its level of insider holdings. One signaling interpretation of his result is that firms with higher levels of insider holdings have less need to signal firm value through dividends. Additionally, in the context of the investment and financing decision, Myers and Majluf [12] show that the level of insider holdings is itself a signal of firm value.

Other studies reveal that dividend policy is significantly intertwined with other corporate policy choices. For instance, Crutchley and Hansen [3] examine the relationship between ownership, dividend policy, and leverage and conclude that managers make financial policy tradeoffs to control agency costs in an efficient manner. Smith and Watts [15] investigate the relations among executive compensation, corporate financing, and dividend policies. They conclude that a firm's dividend policy is affected by its other corporate policy choices. In addition, Jensen, Solberg, and Zorn [6] link the interaction between financial policies (dividend payout and leverage) and insider ownership to informational asymmetries between insiders and external investors.

Moyer, Rao, and Tripathy [11] suggest that regulated electric utilities use dividends as a way of subjecting the regulatory body to market discipline, in keeping with the Smith [14] hypothesis. In a related piece, Moyer, Chatfield, and Sisneros [10] find security analysts monitoring activities of firms are lower when the firm is a public utility and when the level of insiders is relatively high. This study also shows that the analysts' activities are higher for financial firms, ceteris paribus, than for nonfinancial firms, indicating that the influences of fixed-rate deposit insurance overwhelm the influences of other regulatory restrictions.

Most recently, Hansen, Kumar, and Shome [5] find that payout ratios of electric utilities respond in much the same fashion as unregulated firms when the concentration of ownership changes. Their findings suggest that as the concentration of ownership increases, the level of monitoring increases and the need for a higher dividend payout decreases.

SAMPLE DESCRIPTION

Our sample consists of observations on 500 firms drawn randomly from editions 1-10 of *ValueLine Investment Survey* dated December 22, 1989, through March 16, 1990. Since Rozeff's sample was drawn from the same source in 1981, an important side-product of our study is to see whether significant changes occur in the parameter values over the last nine years. As shown in Exhibit 1, the total sample is split among 402 unregulated firms, 45 utilities, and 53 financial-services firms. The unregulated firms cover 21 different industries where the number of firms representing a particular industry ranges from 8 to 50. Of the 45 utilities, there are 29 electric utilities and 16 natural gas firms. Of the 53 financial-services firms, there are 38 commercial banks/BHCs and 15 insurance companies.

In keeping with the model developed by Rozeff [13], we used *Valueline* to gather information on the firm's average dividend payout ratio over a span of 7 years, the historic growth rate of the firm's revenues over the past 5 years, the predicted/forecasted revenue growth rate over the next five years, the firm's beta coefficient, the number of common stockholders of the firm (in thousands), and the percentage of common stock held by the officers, directors, and other top executives of the firm. For utilities and financial-services firms, the level of insider holdings was also checked against insider share holdings from the 1989 proxy statements.

EXHIBIT 1

Sample Breakdown By Industry
The number of firms in each industry is shown for unregulated firms, for financial-services firms, and for electric utilities and natural gas companies.

Unregulated Firms (N=402)

	N		N
Auto-Truck	12	Paper Products	15
Recreation and Hotels	16	Publishing	12
Medical Supplies and Appliances	10	Electronics and Computers	42
Shipping	13	Aerospace/Defense	11
Restaurant &Tobacco	8	Medical Services	13
Food & Beverages	34	Home and Office Supplies	12
Manufacturing/Steel	42	Textiles and Apparel	9
Petroleum, Chemicals & Drugs	50	Retail	32
Mining	10	Diversified	20
Securities Brokerage & Real Estate	8	Cable TV, Broadcasting &	12
Homebuilding	21	Telecommunications	

Regulated Firms

Finance Firms (N=53)	**N**	**Utilities (N=45)**	**N**
Banking	38	Electric Utility	29
Insurance	15	Natural Gas	16

Exhibit 2 presents descriptive statistics for unregulated firms, financial-services firms and utilities for the average payout ratios and the predictor variables in our model. On average, the payout ratios for unregulated firms are 28.4 percent,[6] while the ratios for finance firms and utilities are significantly larger at 35.5 percent and 66.1 percent, respectively. Historic growth in revenues, as measured over the past five years, averaged 10.4 percent for unregulated firms. Revenues for finance firms grew at a statistically similar 9.5 percent over that period, while utilities' revenue growth averaged only 0.3 percent growth. The *Valueline* growth expectation for the unregulated firms is 10.0 percent, on average, while the growth expectation for the finance firms is a significantly higher 12.9 percent. The growth expectation for utilities is 3.4 percent, on average, and significantly smaller than the average growth predicted for the unregulated sample. The unregulated firms exhibit an average systematic risk level (beta averages 1.09) that is significantly greater than the level of either the finance firms (beta averages 0.95) or the utilities (beta averages 0.77). In addition, both finance firms and utilities have more shareholders on average than do the unregulated firms in our sample. As for the level of insider holdings, the unregulated firms have significantly higher average levels of insider control (16.1 percent) than do either the finance firms (6.9 percent) or the utilities (1.6 percent).

EXHIBIT 2

Descriptive Statistics

Statistics for the dividend payout ratio, as well as for all explanatory variables, are shown below. The data are for unregulated firms (N=402), financial-services firms (N=53), and for electric utilities & natural gas firms (N=45).

Variable Description	Mean	Minimum	Median	Maximum
Dividend Payout Ratio % (*PR*)				
Unregulated Firms	28.4	0.0	29.0	195.0
Financial Services Firms	35.5[a]	17.8	33.5	68.6
Electric Utilities & Natural Gas	66.1[a]	0.0	71.9	92.0
Historic Growth % (*G1*)				
Unregulated Firms	10.4	-19.0	9.0	58.5
Financial Services Firms	9.5	-12.0	10.0	37.0
Electric Utilities & Natural Gas	0.3[b]	-8.5	-1.5	53.0
Expected Growth % (*G2*)				
Unregulated Firms	10.0	-11.0	9.5	35.0
Financial Services Firms	12.9[a]	2.0	11.5	32.5
Electric Utilities & Natural Gas	3.4[b]	-1.0	3.5	10.5
Systematic Risk (*BETA*)				
Unregulated Firms	1.09	0.55	1.10	1.80
Financial Services Firms	0.95[b]	0.70	0.95	1.20
Electric Utilities & Natural Gas	0.77[b]	0.55	0.75	1.25
Number of Shareholders in 1000s (*SH*)				
Unregulated Firms	7.54	0.38	6.17	1998.19
Financial Services Firms	13.33[a]	1.48	16.44	55.15
Electric Utilities & Natural Gas	38.86[a]	3.90	33.78	249.64
Insider Holdings % (*IH*)				
Unregulated Firms	16.1	0.0	9.4	83.5
Financial Services Firms	6.9[b]	0.1	3.9	43.0
Electric Utilities & Natural Gas	1.6[b]	0.0	0.3	23.0

a Higher than the mean for the unregulated firms at the 5 % significance level.
b Lower than the mean for the unregulated firms at the 5 % significance level.

EMPIRICAL METHODS

Our regression model is structured after Rozeff [13] with intercept and slope binaries for the utilities and financial-services firms. The Rozeff regression equation used to explain cross-sectional variation in a firm's dividend payout ratio is:

Equation 1

$$PR_i = \beta_0 + \beta_1(G1) + \beta_2(G2) + \beta_3(BETA) + \beta_4(LSH) + \beta_5(IH) + \varepsilon$$

PR is the firm's dividend payout ratio and is computed as the arithmetic average of each firm's payout ratio over the seven-year period from 1983 to 1989. Rozeff [13] used the seven-year period as "a long enough time

period to smooth the usual fluctuations of earnings that occur through time, but not so long as to produce serious measurement errors due to systematic changes in the payout ratio's mean value." *G1* is the growth rate of the firm's revenues over the last five years (1985-1989); *G2* is the predicted/forecasted growth rate from *ValueLine* over the next five year period from 1989-1993; *BETA* is the firm's beta coefficient from *Valueline*; *LSH* is the natural log of the number of common stockholders of the firm (in thousands); and *IH* is the percentage of common stock held by the officers, directors, and other top executives of the firm.

Although each of the variables *G1* and *G2* are proxies for the firm's growth, they measure different components of growth. *G1* is a historic measure of earnings or revenue growth, while *G2* represents *Valueline*'s forecast of sales revenue growth over the next five years. Firms with higher expected growth rates should have lower payouts. Thus, a negative relationship is anticipated between *PR* and *G1*, as well as between *PR* and *G2*.

The proxy for the firm's systematic risk (*BETA*) represents firm operating and financial risk. *BETA* should be negatively related to *PR*. In addition, Dyl and Hoffmeister [4] show that dividend policy can affect the total risk and systematic risk of a firm's common stock through its effect on the duration of the stock. They find that the higher the firm's payout ratio, the lower will be both the total and systematic risk of its common stock.

The log of the number of common shareholders (*LSH*) is our measure of firm size. It is generally recognized that larger firms have more generous payouts; thus, a positive relationship is anticipated between *PR* and *LSH*.

Insider holdings (*IH*) proxy the level of monitoring that takes place by inside stockholders. In asymmetric information models of dividend policy, higher dividends are useful in that they signal higher firm value. If insider holdings are already a signal of firm value, however, then those firms with high levels of insider holdings will have less need to signal through dividends. Thus, for unregulated firms, we expect to find a negative relation between *IH* and dividend payout. Rozeff [13] finds a negative relation between payout ratios and insider holdings for his unregulated sample.

In addition to the variables used by Rozeff for unregulated firms, we employ binary variables for utilities (*UTILITY*) and financial-services firms (*FINANCE*). Given the findings of Moyer, Rao, and Tripathy [11] in favor of the Smith [14] hypothesis, we anticipate that the payout ratio will be significantly higher for utilities than for unregulated firms, ceteris paribus. We have no reason to expect that the financial-services binary variable will be significantly different from zero.

We also employ slope binaries in conjunction with the level of insider holdings for both utilities (*UTILITY*IH*) and for financial-services firms (*FINANCE*IH*). For utilities, if insider holdings act as a substitute for regulatory monitoring, then the differences in dividend policy between unregulated firms and utilities should diminish as the level of insider holdings increases. That is, the slope binary, *UTILITY*IH*, should have a negative sign. If utility insider holdings act as a complement to regulatory monitoring, then the differences in dividend policy for unregulated firms and utilities should increase as the level of insider holdings rise. That is, the slope binary should have a negative sign. If, as found by Hansen et al [5], insider holdings influence dividend policy in a manner similar to that of unregulated firms, then the coefficient on this slope binary variable will not be different from zero.[7]

Since the financial-services firms are influenced by regulatory constraints on product and geographic markets, as well as by fixed-rate deposit insurance for the commercial banking firms in our sample, the sign on the interaction term, *FINANCE*IH*, is ambiguous.[8] On the one hand, Moyer, Chatfield, and Sisneros [10] find that the fixed-rate deposit insurance effect overwhelms the regulatory constraints on financial-services firms, thereby increasing the need for analyst monitoring of these firms. Using this argument for dividend policy, the interaction term, *FINANCE*IH*, should have a negative coefficient. That is, in the presence of deposit insurance, a change in the level of insider holdings would produce a more pronounced change in the dividend payout ratio for financial-services firms compared to unregulated firms. On the other hand, if financial-services regulations do not influence the dividend policy-insider holdings relation, then the coefficient on the interaction binary would be insignificant.

In summary, our model and the hypothesized coefficients are as follows:

Equation 2

$$PR_i = \beta_0 + \beta_1(\overset{-}{G1}) + \beta_2(\overset{-}{G2}) + \beta_3(\overset{-}{BETA}) + \beta_4(\overset{+}{LSH}) + \beta_5(\overset{-}{IH}) + \beta_6(\overset{0}{FINANCE}) + \beta_7(\overset{+}{UTILITY}) + \beta_8(\overset{?}{FINANCE} * IH) + \beta_9(\overset{?}{UTILITY} * IH) + \varepsilon$$

EMPIRICAL RESULTS

Results of ordinary least squares regressions of our explanatory variables on our proxy for a firm's dividend policy are reported in Exhibit 3. Results are presented for five separate regressions. Regression 3.1 is a recapitulation of the Rozeff [13] model. Regressions 3.2a and 3.2b expand the Rozeff model to include the intercept binary variables for financial-services firms and utilities. Regressions 3.3a and 3.3b expand the Rozeff model to include slope binaries which reflect the differential impact of insider holdings on financial-services firms and on utilities, as well as the intercept binaries from model 3.2. We present the complete models with both *G1* and *G2* as models 3.2a and 3.3a, respectively. Next we omit *G1* and re-estimate the regressions as models 3.2b and 3.3b, respectively.[9]

EXHIBIT 3

Ordinary Least Squares Regressions

Regressions of the dividend payout ratio on measures of historic growth (*G1*), projected growth (*G2*), firm systematic risk (*BETA*), the natural logarithm of the number of shareholders (*LSH*), and the fraction of shares held by insiders (*IH*). In addition, intercept and slope binaries for financial-services firms (*FINANCE* and *FINANCE*IH*) and utilities & natural gas companies (*UTILITY* and *UTILITY*IH*) are used in regressions 3.2 and 3.3. The sample contains 500 firms and t-statistics appear in parentheses beneath the coefficients.

Explanatory Variable	(3.1)	(3.2a)	(3.2b)	(3.3a)	(3.3b)
Intercept	0.6889* (14.997)	0.5950* (11.974)	0.6391* (12.550)	0.5808* (11.689)	0.6215* (12.203)
G1	-0.0047* (-5.867)	-0.0047* (-6.075)	—	-0.0047* (-5.972)	—
G2	-0.0032* (-2.122)	-0.0017 (-1.146)	-0.0038* (-2.457)	-0.0019 (-1.252)	-0.0040* (-2.603)
BETA	-0.3273* (-8.145)	-0.2563* (-5.968)	-0.3274* (-7.648)	-0.2413* (-5.603)	-0.3082* (-7.163)
LSH	0.0341* (5.291)	0.0278* (4.350)	0.0333* (5.081)	0.0271* (4.262)	0.0323* (4.950)
IH	-0.1480* (-2.631)	-0.1201* (-2.147)	-0.1607* (-2.795)	-0.1205* (-2.145)	-0.1556* (-2.693)
FINANCE		0.0072 (0.258)	0.0002 (0.010)	-0.0112 (-0.317)	-0.0082 (-0.225)
UTILITY		0.1704* (5.227)	0.1670* (4.946)	0.2040* (5.822)	0.2066* (5.698)
*FINANCE*IH*				0.3127 (1.030)	0.1896 (0.605)
*UTILITIES*IH*				-1.7159* (-2.588)	-1.9944* (-2.915)
Adjusted R2 (%)	39.44	42.45	38.26	43.13	39.12
F statistic	65.99*	53.59*	52.54*	43.05*	41.08*

* Indicates significance at the 5 % level.

Regression 3.1 of Exhibit 3 contains the basic variables employed by Rozeff for our sample of unregulated firms, utilities, and financial-services firms. The model is significant (F-statistic of 65.99) and explains 39 percent of the variation in firms' payout ratios. Rozeff's regression model, estimated from data found in the 1981 *Value Line Investment Survey*, explains a substantially higher percent of the variation in corporate payout, 48 percent. The difference in the explanatory power may either be related to the changes in the time period studied or to the fact that we include both unregulated and regulated firms in our sample, while Rozeff restricts his 1981 analysis to unregulated firms.[10]

Each of the explanatory variables in regression 3.1 possesses the anticipated sign and is significant at least at the 5 percent level.

Regression 3.2a contains the intercept binary variables, *FINANCE* and *UTILITY*. The coefficient on the utility binary is positive and significant, lending support to the Smith [14] hypothesis and corroborating Moyer, Rao, and Tripathy [11]. The coefficient on the binary variable for financial-services firms is insignificantly different from zero as anticipated. The regression model is significant (F-statistic of 53.59), accounting for approximately 42 percent of the variation in observed payout ratios. In addition, when the historic growth proxy, *G1*, is dropped and the regression is re-estimated as model 3.2b, the coefficient on *G2* remains significant and the significance of the coefficients on the utility and financial-services binaries remains the same.

Regression 3.3a contains the intercept binary variables of model 3.2a, as well as the slope binaries, *FINANCE*IH* and *UTILITY*IH*. Even after accounting for differences between unregulated firms and finance firms regarding insider holdings, the coefficient on *FINANCE* remains insignificant and the coefficient on *UTILITY* is still significantly positive and consistent with the Smith [14] hypothesis. With respect to the importance of insider holdings in determining dividend payout ratios, the coefficient on the finance slope binary, *FINANCE*IH*, is insignificantly different from zero. This insignificant interaction term implies that financial-services firms have payout ratios that react to changes in insider holdings in a fashion similar to unregulated firms. In contrast to the positive relationship implied by Moyer et al. [11] between the interaction term, *UTILITY*IH*, and the dividend payout ratio, we find a significantly negative relationship. The interpretation of the interaction term is that changes in insider holdings, ceteris paribus, produce larger changes in the dividend payout ratio for utilities than for unregulated firms. Thus, even for regulated utilities, we find that the level of insider holdings is an important determinant of payout policy. As an enhancement to the findings of Hansen et al. [5], these results suggest that the roles played by regulatory bodies for utilities and insiders are complementary instead of substitutes. For utilities, regulators may not be the low cost monitor for equity holders where dividend policy is concerned.

SUMMARY AND CONCLUSIONS

This paper examines the determinants of a firm's dividend policy and expands on prior work by investigating differences based on whether a firm is unregulated or subject to some form of regulation. One hypothesis developed here is that utility regulators serve as delegated monitors for shareholders and obviate the need for insider holdings to reduce agency costs and signal firm value. The other hypothesis is that financial-services firms have dividend payout ratios that respond more drastically to changes in insider holdings as a result of fixed-rate deposit insurance. In the former case, insider holdings and the regulated status of utilities would be substitutes; in the latter case, they would be complements. Based on Rozeff [13], a regression model is developed that relates the firm's average payout ratio to its past and expected future growth rate, its level of systematic risk, the number of shares outstanding (as a proxy for firm size), and its level of insider holdings. Results indicate that the payout ratio is negatively related to the firm's past and expected future growth rates in earnings, its level of systematic risk, and its insider holdings. Payout levels are positively related to the number of shareholders.

The regression model is expanded to include binary variables for whether or not the firm under consideration is a financial-services firm or a utility. Under the Smith [14] hypothesis, utilities will possess larger payouts than unregulated firms. For financial-services firms, no such difference is anticipated. The regression model also captures any differences in the behavior of these two regulated groups based on insider holdings. If fixed-rate deposit insurance increases equity risk, then financial firms will have dividend policies that respond more drastically to changes in insider holdings. If regulatory commissions act as low-cost monitors for utility shareholders, then changes in insider holdings will not produce significant changes in dividend policy for these firms.

Our results indicate that financial-services firms have dividend payout ratios that respond to changes in insider holdings in much the same fashion as unregulated firms. These firms all tend to increase (decrease) the payout ratio when the level of insider holdings decreases (increases). With respect to the agency role of insiders, neither regulatory constraints or fixed-rate deposit insurance produce significant changes in the dividend policies of financial-services firms. As such, it does not appear that the financial regulators role is one of agency cost reduction for equity holders. On the other hand, utilities have a significantly higher payout ratios than unregulated firms, ceteris paribus. In addition, the response of the utility payout ratio to changes in insider holdings suggests that insider holdings and the regulatory status of utilities serve a complementary function in determining payout ratios. That is, the evidence suggests that utilities alter dividend payouts in response to changes in insider holdings and for a given change in insider holdings this policy change is more pronounced than the change for unregulated firms. If utility regulators act as low-cost monitors for equity holders, then the opposite result would have held.

ENDNOTES

1. For example, Brealey and Myers [2] list the firm's dividend policy as one of the top ten unresolved issues in finance.

2. For an excellent discussion of the potential relevance of dividends in an agency cost or asymmetric information framework, see Ang [1].

3. John and Williams [7] construct an alternative dividend signaling model in which the source of the dividend information is liquidity driven.

4. See, for example, Jensen, Solberg, and Zorn [6] and Rozeff [13].

5. Existing literature suggests that the role of insiders and financial regulators would not be perfect substitutes since insiders are primarily interested in maximizing firm value while financial regulators are interested in safety and soundness. Utility regulators have a variety of interests, including rate minimization as well as safety concerns.

6. One firm in the Manufacturing/Steel industry, Monarch Machine, had an average payout ratio of 1.95. During our study period, Monarch maintained an $0.80 dividend even though its earnings declined from $5.32 in 1981 to $0.11 in 1983. Since 1983 earnings have not exceeded $0.80. For all years during our study period except 1986 and 1987, however, cash flow per share did exceed the $0.80 dividend.

7. This hypothesized sign does not run contrary to the findings of Hansen et al. [5]. That is, they find the relationship between ownership concentration and payout is negative and significant. The tests in our paper focus on the differences in the payout/ownership relation between unregulated firms and utilities.

8. The empirical results are qualitatively similar when the insurance firms are removed from the financial-services sample, indicating that the existence of deposit insurance does not drive the financial-services result.

9. Regression models 3.2 and 3.3 contain two versions to account for the potentially harmful correlation between *G1* and *G2*.

10. In fact, when only the unregulated firms are regressed against Rozeff's explanatory variables, all coefficients are significant with the anticipated sign, but the percent of explained variance is 32 percent.

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