

## **Security Analysis, Agency Costs, and Company Characteristics**

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*We appraise the monitoring activity of security analysis from the perspective of the manager-shareholder conflict. Using a data set of more than 7,000 company-year observations for manufacturing companies tracked by security analysts over the 1988-94 period, we found that security analysis acts as a monitor to reduce the agency costs associated with the separation of ownership and control. We also found, however, that security analysts are more effective in reducing managerial non-value-maximizing behavior for single-segment than for multisegment companies. In addition, the shareholder gains from the monitoring activity of security analysis are larger for single-segment than for multisegment companies.*

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Despite numerous studies on the information content and valuation effects of analysts' forecasts, little is known about the effect of security analysis on the agency costs of companies with different characteristics. Does security analysis act as a monitoring mechanism to reduce the agency costs associated with the separation of ownership and control of the company, and if so, to what extent is its effectiveness related to the characteristics of the company? These two questions remain largely unanswered.

Corporate managers have many personal objectives that are not always consistent with the maximization of shareholder value. And although many papers have examined the effectiveness of various internal and external disciplinary mechanisms in terms of restricting managers' non-value-maximizing conduct, security analysis as an agency-cost monitoring device has been largely unexplored. This omission is surprising in light of investors' wide use of analyst earnings forecasts in investment decisions and the great influence forecasts

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(rather than historical measures of growth) have on stock prices. Several researchers have examined the determinants of security analysis (Bhushan 1989; Moyer, Chatfield, and Sisneros 1989; Brennan and Hughes 1991) and the valuation effects of security analysis (Chung and Jo 1996). But although these studies provided interesting insights into the effects of security analysts, they did not directly examine the effects of security analysis on the conflict between managers and shareholders. In addition, the relative effectiveness of security analysis for companies with different industrial structures has been overlooked.

Jensen and Meckling (1976) argued that the monitoring activity of security analysis helps reduce the agency costs associated with the separation of ownership and control by restricting the non-value-maximizing behavior of managers. Thus, agency costs should decline as a result of the monitoring activity of security analysts. We set out to address this issue.

Our research was designed to test, first, whether security analysis serves as an external monitoring device in terms of reducing agency costs (i.e., restricting managers' non-value-maximizing behavior) as do such internal and external monitoring mechanisms as independent boards of directors, bond ratings, investment banks, and takeovers. Second, because non-value-maximizing conduct by managers is more likely to occur in multisegment (diversified) than single-segment (focused) companies, we also investigated whether the monitoring effectiveness of security analysis is related to the diversification of the company among industries.<sup>1</sup> Our investigation of this dimension was also motivated by the

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<sup>1</sup> Nanda and Narayanan (1997) and Harris, Kriebel, and Raviv (1982), among others, argued that informational asymmetries are more pronounced in diversified than in focused companies. Agency costs associated with overinvestment activity may also arise from managerial compensation that is tied to company size (Jensen and Murphy 1990) or from the managers' desires to become indispensable to the company (Shleifer and Vishny 1989), to increase their power and prestige (Jensen 1986; Stulz 1990), or to reduce the risk to their personal wealth (Amihud and Lev 1981).

growing interest of the academic and business communities in the causes of the value loss associated with diversification into different lines of business (e.g., Berger and Ofek 1995; Lang and Stulz 1994; Comment and Jarrell 1995; Servaes 1996). The general belief is that diversification fails to increase shareholder value because it creates overinvestment and agency costs (Jensen 1986; Stulz 1990; Denis, Denis, and Sarin 1997, among others) and because of inefficiencies in the company's internal capital market (Lamont 1997; Shin and Stulz 1998; Rajan, Servaes, and Zingales 2000).<sup>2</sup>

We hypothesized that the monitoring effectiveness of security analysis will be lower for diversified than for focused companies because multisegment companies are more complex organizations, subject to greater agency costs, and harder for analysts to assess and monitor. For a number of reasons, analysts can produce more accurate information and monitoring for focused than for diversified companies.<sup>3</sup> A trend in the issuance of "tracking stock" may be traced to the difficulty analysts have in analyzing diversified companies. Tracking stock is a class of stock whose value tracks the performance of a company's particular business segment or division. Several diversified corporations have issued tracking stock in response to the information acquisition burden, higher cost, and limitations faced by analysts in evaluating the cash flows of multisegment companies.<sup>4</sup> This aspect of our research put the manager-shareholder conflict to

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<sup>2</sup> Recent industrial diversification literature (e.g., Denis, Denis, and Sarin; Berger and Ofek) documented a diversification discount.

<sup>3</sup> Increased public awareness of the company due to its coverage by analysts can also result in increased volume of trading and in higher market valuation (Merton 1987; Brennan and Hughes 1991).

<sup>4</sup> Tracking stock is also referred to as "alphabet stock," "letter stock," or "targeted stock." Among the several companies that have adopted or proposed a tracking stock structure are CBS Corporation, General Motors Corporation, USX Corporation, Kmart Corporation, and U.S. West. Logue, Seward, and Walsh (1996) and Gilson, Healy, Noe, and Palepu (1998) found that analyst coverage and quality of analyst coverage (as measured by analyst forecast errors)

a new test.

## **Sample**

For this study, we used a data set of 7,485 manufacturing company-year observations over the 1988–94 period to examine the monitoring effectiveness of security analysts. The sample was constructed on the basis of the following criteria:

- Companies were required to be classified in sectors with primary four-digit SIC codes of less than 4,000;
- they had to be covered in the I/B/E/S summary database of 1995;
- they had to have financial data available in the 1994 Standard & Poor's Compustat Primary, Secondary, Tertiary, Full Coverage, and Research databases;
- they also had to have available data from the Disclosure Database CD-Rom on the ownership of the company's common equity;
- they had to have business segment data available in the 1994 Standard & Poor's Compustat Business Segment Database.

We used analyst coverage data (i.e., the number of analysts following each company) available in July of each year for the one-quarter-, one-year-, and two-year-ahead forecasting horizons.<sup>5</sup>

These selection criteria produced 6,367 company-quarter observations for the one-quarter-ahead forecasting horizon, 7,485 company-year observations for the one-year-ahead forecasting horizon, and 6,771 company-year observations for

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increase following the issuance of tracking stock. Billett and Mauer (1998) found that the introduction of tracking stock conveys information about the company's internal capital market and its new corporate structure.

<sup>5</sup> See also Chung and Jo.

the two-year-ahead forecasting horizon.<sup>6</sup>

The descriptive statistics for the financial and ownership characteristics of the sample are in Table 1. Table 1 also shows the means, medians (in brackets), and standard deviations (in parentheses) for the focused and diversified samples. The last column provides the *t*-statistics and Wilcoxon rank sum *z*-statistics for the mean and median difference tests between the single-segment and multisegment samples. Consistent with the diversification literature, multisegment companies had, on average, significantly lower Tobin's *q* values (row *Q*), research and development expenditures to sales (row *RD*), and sales growth rates (row *GS*).<sup>7</sup> Single-segment companies had lower long-term debt ratios (row *LTD*) and total assets (row *SIZE*), and they were less likely to be listed on the NYSE. The statistics in the last column reveal significant differences in terms of ownership structure between diversified and focused companies. Single-segment companies exhibited, on average, higher insider ownership (row *INSIDE*) and lower institutional ownership (row *INSTIT*) than multisegment companies.

The difference tests indicate that the number of analysts following (row *NAF*) diversified companies was, on average, significantly higher than the number following focused companies. Thus, if the number of analysts is proxying for the total expenditures on information acquisition about a company (Bhushan), this result suggests that more resources are spent for acquisition of private

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<sup>6</sup> We used the Compustat convention for assigning fiscal years.

<sup>7</sup> For instance, Lang and Stulz reported mean (median) *q* values of 1.53 (1.01) for 580 single-segment companies and 0.66 (0.58) for 184 multisegment companies. It should be noted that the differences between the values found by Lang and Stulz and our corresponding *q* values could be the result of the larger sample size (i.e., 4,399 single-segment and 3,086 multisegment companies) and the different time span we used. Another reason could be that the Lang and Stulz sample was loaded with larger companies, but the validity of this difference cannot be confirmed because the authors did not provide information on company size.

information for multisegment than for single-segment companies.<sup>8</sup> The result also implies that the demand for forecast services is greater for diversified than for focused companies, which suggests that the total expenditures associated with acquisition of information for multisegment companies is considerably larger than the expenditures for single-segment companies. This result is inconsistent with Bhushan's contention that multisegment companies will be followed by fewer analysts because of the increased costs associated with obtaining and analyzing data for them.<sup>9</sup> Our evidence suggests that the higher cost of information acquisition associated with multisegment companies is apparently outweighed by the strong demand for information on the companies generated by analysts. The fact that more information is generated by security analysts for diversified companies, coupled with the documented evidence that these companies trade at a discount from single-segment companies, raises concerns about the relative efficiency of monitoring role of security analysis.

## **Methodology**

One of the most basic predictions of the monitoring theory of security analysis is that companies that are followed by relatively more analysts are subject to relatively lower agency costs. Empirically, the theory predicts a negative relationship between agency costs and the number of analysts following (that is, analysts that provided earnings forecasts) each company in our sample.

We examined the relationship between alternative measures of agency

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<sup>8</sup> We do not deal here explicitly with issues of "free riding," "resale of analyst services," or "salary differences among analysts."

<sup>9</sup> Bhushan's results drew on data obtained from *Nelson's Directory of Wall Street Research*, which is a subset of the sample used in this study. The mean (median) of Bhushan's number of analysts following his total sample of companies and was 13.94 (10.00), which contrasts to the 9.63 (6.00) we found and suggests that the two studies relied on entirely different samples of companies.

costs and analyst coverage by estimating Tobit regressions.<sup>10</sup> To determine whether the monitoring effects of security analysis differ between single- and multisegment companies, we introduced an interaction term between a single-segment dummy,  $DUM$  [e.g., 1 for a single-segment company, 0 otherwise] and security analysts,  $NAF \times DUM$ . The coefficient of the interactive term provided a direct estimate of the differential impact security analysis has on the agency cost measures for diversified and for focused companies. The regression analysis was repeated for all three forecasting horizons. We used the following regression model to test the relationship between agency cost and analyst coverage:

$$AGENCY = \alpha_0 + \alpha_1 NAF + \alpha_2 NAF \times DUM + \alpha_3 INSIDE + \alpha_4 INSIDE^2 + \alpha_5 INSTIT + \alpha_6 LTD + \alpha_7 LTD^2 + \alpha_8 SIZE, \quad (1)$$

where  $AGENCY$  is the interaction of the company's growth opportunities with its free cash flows. The growth opportunities were measured by three alternative dummy variables. The first indicator variable took the value of 1 if the company's Tobin's  $q$  was less than 1 (i.e., a poorly managed company) and the value of 0 otherwise. The second indicator variable took the value of 1 if the company's five-year growth of sales was less than the sample median and the value of 0 otherwise. The third indicator variable took the value of 1 if the company's five-year growth of sales was less than the median for its industry, based on the two-digit primary SIC code classification, and the value of 0 otherwise. Following Lehn and Poulsen (1989), free cash flows were measured as operating income before depreciation minus the sum of taxes plus interest expense and dividends paid standardized by total assets.

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<sup>10</sup> The Tobit regression procedure was appropriate because we censored our agency cost measures at zero.

We considered poorly managed companies more likely to be susceptible to higher agency costs than well-managed companies and, consequently, more likely to waste free cash flows in projects with negative net present value whereas well-managed companies would be involved in value-maximizing activities for which free cash flows were not wasted. Therefore, given the company's level of corporate free cash flows, a company with low (high) growth opportunities was expected to be subject to high (low) agency costs. Specifically, a high value for the interactive *AGENCY* variable should be indicative of a company with high agency costs arising from the existence of high free cash flows that are at the discretion of its managers and are being poorly managed.

If the monitoring activity of security analysts reduces managerial misconduct, we expected to find a negative relationship between agency costs and the number of security analysts following a company. If security analysis, however, is less effective in limiting managerial non-value-maximizing behavior for diversified than focused companies, we predicted that the coefficient ( $\alpha_2$ ) of the interactive term would be negative and statistically significant.

We also used a set of control variables that characterized the company's ownership structure, leverage, and size. We theorized that the greater the dispersion in the company's ownership, the greater the non-value-maximizing conduct by managers and, therefore, the greater the agency costs. We used the *INSIDE* variable to capture the aligned interests of insiders and shareholders. We expected that the larger the ownership stakes by insiders were, the lower the agency costs would be. The squared term, *INSIDE*<sup>2</sup>, was used to account for possible nonlinear insider-ownership effects (i.e., non-value-maximizing behavior by entrenched managers) on agency costs.

We theorized that agency conflicts between managers and shareholders are likely to be mitigated through the monitoring activities of institutional investors.



Thus, the *INSTIT* measure was expected to indicate the extent of outside monitoring of managerial behavior. Institutional shareholders may be ineffective monitors, however, because they have little time and/or few resources to devote to active monitoring for any but underperforming companies in which they have large equity stakes (Berle 1959; Pound 1988).

The *LTD* variable (book value of long-term debt divided by book value of total assets) was used to control for the monitoring role of debt on managers' discretion over free cash flows. We anticipated that the agency cost measures would be inversely related to the fraction of debt in the company's capital structure. As with outside shareholders, the monitoring provided by debtholders, however, may not be effective until debt reaches a critical threshold. We accounted for this possibility by including the squared *LTD* variable in the analysis.

Finally, because agency conflicts are more pronounced in large than in small organizations, we expected a positive relationship between *SIZE* and agency costs.

## **Empirical Results**

We discuss first the monitoring effects of security analysis in reducing agency costs and the difference in the effects for focused versus diversified companies. Then, we turn to our findings concerning whether monitoring by security analysts affects firm value.

**Monitoring Effects of Security Analysis.** Our findings on the relationship between agency costs (*AGENCY*) and analyst coverage (*NAF*) for three forecasting horizons are in Table 2. Consistent with the conjecture of Jensen and Meckling that security analysis can reduce agency costs, the coefficient of the *NAF* variable

is, in general, negative and significant at the 5 percent level or better. The results in the three panels are similar enough to indicate that they were insensitive to the measure of agency cost used. These results suggest that a connection does indeed exist between how closely a publicly traded corporation is followed by security analysts and how closely the management of that corporation focuses on creating shareholder value. Security analysis evidently acts not only as an information intermediary but also as a mechanism for monitoring agency costs that restricts managerial misconduct.

Interestingly, however, the coefficients of the interactive variable  $NAF \times DUM$  are negative and significant at the 1 percent level, which indicates that the monitoring role of security analysis is more pronounced for focused than for diversified companies. These results imply that security analysts exert substantially greater influence on reducing agency costs for single-segment companies than for multisegment companies. This result suggests an agency-based explanation for the consensus among academic researchers and practitioners that diversified companies trade at a discount to comparable stand-alone companies. Our evidence could imply, however, that the monitoring activity of security analysis fails to alleviate inefficiencies in internal capital markets or curtail overinvestment on the part of diversified companies.

The coefficients of the ownership variables are, in general, as we expected. The coefficient of the *INSIDE* variable supports the Jensen and Meckling convergence-of-interest hypothesis at low levels of managerial ownership, which contends that managers who are owners are not inclined to divert resources away from value maximization. Consistent with McConnell and Servaes (1990, 1995), the squared *INSIDE* and *LTD* variables show that inside owners and corporate lenders have curvilinear effects on agency costs. These results support the view that high levels of inside ownership (because of the nonconvergence of interests

between inside and outside owners of the company and because insider owners are driven by managerial equity ownership entrenchment) are associated with high agency costs whereas high levels of debt play an important role in reducing the non-value-maximizing conduct of managers. Institutional ownership, however, apparently has no monitoring effect on managerial behavior. The evidence suggests that institutional ownership does have a small but significant impact on the agency costs of the company, which implies that the monitoring activity of institutional investors is reduced mainly because of special lucrative relationships that seem to exist between managers and the institutional owners of a company.

**Firm Value and Security Analysis.** The evidence suggests that the monitoring effects of security analysis are considerably greater for focused than for diversified companies, but whether the effects are reflected in firm value is not known. To determine the valuation effects of security analysis, we examined the relationship between Tobin's  $q$  and the number of security analysts, together with a set of control variables to account for other effects.<sup>11</sup> To determine whether the valuation effects of security analysis differ between single- and multisegment companies, we introduced an intersection between security analysts and the single-segment dummy,  $NAF \times DUM$ .<sup>12</sup> We investigated this relationship by estimating the regression

$$Q_j = \alpha_0 + \alpha_1 NAF + \alpha_2 NAF \times DUM + \alpha_3 INSIDE + \alpha_4 INSIDE^2 + \alpha_5 INSTIT$$

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<sup>11</sup> Chung and Pruitt (1994) showed that our  $Q$  measure as defined in Table 1 is highly correlated with the Tobin's  $q$  measure of Lindenberg and Ross (1981). The  $Q$  values were estimated after the announcement of earnings forecasted by security analysts.

<sup>12</sup> Chung and Jo also examined the relationship between firm value and the  $NAF$  variable for the 1984–87 period. Without distinguishing between single-segment and multisegment companies, they reported a positive relationship between  $NAF$  and  $Q$ .

$$+ \alpha_6LTD + \alpha_7LTD^2 + \alpha_8RD + \alpha_9SIZE + \alpha_{10}SEGN, \quad (2)$$

where *SEGN* is the number of business segments reported by each company.

**Table 3** shows the regression results. As expected, the coefficient of the *NAF* variable is positive and significant at the 1 percent level in all regressions. These results suggest that, consistent with the conjecture of Jensen and Meckling and the evidence of Chung and Jo, security analysis has a positive impact on firm value by monitoring managerial non-value-maximizing behavior and reducing information asymmetries between insiders and outside investors. Furthermore, the coefficients of the interactive variable  $NAF \times DUM$  (0.0147 with a *t*-value of 3.60, 0.0067 with a *t*-value of 3.10, and 0.0057 with a *t*-value of 2.26 for the three forecasting horizons) indicate that the valuation effects of security analysis differ between diversified and focused companies. Consistent with our earlier findings, which showed that the monitoring and information dissemination of security analysis are more effective for focused than for diversified companies, these findings suggest that security analysis has larger valuation effects on focused than on diversified companies.

The signs of the other explanatory variables are as expected. The sign of the coefficient of the *INSIDE* variable is positive and significant at conventional levels. This positive relationship between *Q* and low levels of insider ownership shareholdings is consistent with the view that *some* insider ownership exerts a positive influence on firm value by increasing the alignment of interests between managers and shareholders. The *INSIDE* variable exhibits a quadratic relationship, however, with *Q*. Consistent with the evidence reported in Table 2, which indicated that the squared *INSIDE* variable has curvilinear effects on agency costs, the negative coefficients of the *INSIDE*<sup>2</sup> variable shown in Table 3 indicate that increasing insider equity ownership beyond a critical point is driven by

managerial ownership entrenchment. The sign of the coefficient of the institutional ownership variable is negative and significant at conventional levels of significance except for the two-year-ahead forecasting horizon. The indication is that firm value is a decreasing function of institutional ownership, which is consistent with the findings reported in Table 2, in the sense that institutional shareholders do not increase firm value by restricting agency costs associated with managerial misconduct. The result in Table 3 confirms that institutional ownership of the company sides with managers rather than monitoring managerial misconduct, probably because of special relationships between institutions and company managers (see Pound). The negative and significant coefficient of long-term debt is inconsistent with the view that debtholders monitor managers' non-value-maximizing conduct. The positive and significant coefficient of the squared term,  $LTD^2$ , suggests, however, that debt's monitoring role becomes effective above a critical threshold level. This finding is consistent with the evidence in Table 2. The negative coefficient of the *SIZE* variable implies that firm value is adversely affected by size. Consistent with the corporate diversification studies, our results show that an inverse, albeit insignificant, relationship exists between industrial diversity, *SEGN*, and firm value, *Q*.

We conclude that monitoring of multisegment companies by security analysts fails to add shareholder value mainly because of the difficulty of disciplining managerial non-value-maximizing behavior in these companies. Disentangling operating inefficiencies and asymmetries of information associated with diversified companies may be not only difficult but also costly. The limitations of security analysis in monitoring managerial misconduct in complex and diversified companies may be another reason diversified companies trade at a discount to comparable stand-alone companies.

## **Conclusions**

We had three objectives. The first was to examine directly whether security analysis acts as a monitoring mechanism in restricting agency-related costs arising from the separation of ownership and control in public corporations. The second was to investigate whether the effectiveness of the monitoring activity of security analysis is related to the industrial diversity of the company. The third was to analyze the valuation effects of security analysis for companies with different industrial structures.

We provided evidence in support of the view that security analysis acts as a monitoring mechanism in reducing the agency costs associated with the manager–shareholder conflict. We also found that, although more security analysts and resources are used for tracking multisegment companies, the monitoring activity of security analysis is considerably less effective in restricting managers’ non-value-maximizing behavior for multi- than for single-segment companies. Hence, our findings suggest that the usefulness of security analysis as a monitor diminishes with the industrial diversification of the company. Furthermore, although our empirical results show that firm value is a positive function of security analysis, security analysis exerts greater influence on the value of focused companies than on the value of diversified companies.

These results raise concerns about the quality of security analysts’ earnings forecasts for diversified companies, whereas they support the likelihood that the recent trend among diversified companies of introducing tracking stock will enhance financial analyst coverage and the quality of analyst coverage in terms of forecast errors. Overall, our findings support the notion that the monitoring limitations of security analysis may be another reason diversified companies trade at a discount to stand-alone companies.

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**Table 1. Sample Descriptive Statistics, 1987-94**

(means, medians in brackets, standard deviations in parentheses)

Variable	All Companies (N = 7,485)	Single Segment Companies (N = 4,399)	Multisegment Companies (N = 3,086)	t-(z-)Statistic for the Mean [Median] Difference Test (Single - Multiple)
<i>Q</i>	1.1294 [0.8595] (1.0663)	1.2260 [0.9031] (1.2119)	0.9917 [0.8190] (0.7953)	10.10*** [6.36***]
<i>LTD</i>	0.2079 [0.1603] (0.1945)	0.1797 [0.1103] (0.1944)	0.2481 [0.2239] (0.1874)	-15.32*** [-19.03***]
<i>SIZE</i>	2,316.81 (360.25) (6,752.97)	1,335.78 (218.28) (4,385.24)	4,000.34 [984.22] (8,853.80)	-16.60*** [-33.19***]
<i>RD</i>	0.0544 [0.0149] (0.2630)	0.0725 [0.0193] (0.3393)	0.0286 [0.0110] (0.0508)	8.46*** [9.83***]
<i>GS</i>	0.0896 [0.0689] (0.1337)	0.1059 [0.0828] (0.1432)	0.0664 [0.0521] (0.1150)	13.21*** [17.15***]
<i>NYSE</i>	0.5644 [1.0000] (0.4959)	0.4249 [0.0000] (0.4944)	0.7634 [1.0000] (0.4250)	-31.70*** [-29.08***]
<i>INSIDE</i>	13.06 [7.62] (18.71)	17.56 [11.43] (19.06)	11.50 [3.55] (17.59)	14.18*** [20.38***]
<i>INSTIT</i>	41.40 [41.79] (20.17)	39.78 [38.14] (20.07)	43.70 [46.40] (20.09)	-8.32 [-9.28***]
<i>NAF</i>	9.6331 [6.0000] (9.0504)	8.0975 [5.0000] (7.9503)	11.8221 [9.0000] (10.0221)	-17.20*** [-16.17***]

*Note:*  $Q$  is a proxy for Tobin's  $q$  measured as  $[\text{Market value of equity} + \text{Book value of long-term debt} + (\text{Short-term liabilities} - \text{Short-term assets})] / \text{Total assets}$ ;  $LTD$  is the ratio of the company's long-term debt to total assets;  $SIZE$  is book value of the company's total assets;  $RD$  is R&D expenditures standardized by sales (i.e., a measure of intangibles);  $GS$  is the five-year geometric growth rate of the company's sales;  $NYSE$  is a dummy variable of 1 indicating a company was listed on the NYSE, 0 otherwise;  $INSIDE$  is the percentage holdings of common shares by officers and directors (insiders);  $INSTIT$  is the percentage of common shares held by institutional investors;  $NAF$  is the number of analysts providing one-year-ahead earnings forecasts.

\*\*\*Significant at the 1 percent level.

**Table 2. Results of Tobit Regression of AGENCY Measures on NAF for Full Sample, 1987-94 Data**  
( $\chi^2$  values in parentheses)

Variable	One-Quarter-Ahead Forecasting Horizon	One-Year-Ahead Forecasting Horizon	Two-Year-Ahead Forecasting Horizon
<i>A. Q-based agency cost measure</i>			
Intercept	-0.0294*** (21.46)	-0.363*** (35.56)	-0.0356*** (29.33)
NAF	-0.0016*** (20.67)	-0.0011*** (29.14)	-0.0009*** (15.51)
NAF $\times$ DUM	-0.0011*** (12.41)	-0.0006*** (15.24)	-0.0008*** (17.93)
INSIDE	0.0001 (0.63)	0.0001 (0.71)	0.0001 (0.49)
INSIDE <sup>2</sup>	$-9.8 \times 10^{-7}$ (0.20)	$-6.6 \times 10^{-7}$ (0.11)	$-9.1 \times 10^{-7}$ (0.16)
INSTIT	0.0001** (4.34)	0.0002*** (9.52)	0.0002*** (6.92)
LTD	0.3229*** (388.4)	0.3066*** (436.94)	0.3135*** (393.61)
LTD <sup>2</sup>	-0.3820*** (245.0)	-0.3707*** (302.55)	-0.3697*** (257.90)
SIZE	-0.0001 (1.04)	0.0005 (0.32)	-0.0002 (0.05)
N	6,367	7,485	6,771
log-likelihood	2,750.17	3,457.11	3,016.07
<i>B. Agency cost measure based on median growth of sales</i>			
Intercept	-0.0582*** (48.48)	-0.0665*** (60.19)	-0.0658*** (51.60)
NAF	-0.0018*** (16.68)	-0.0007** (6.18)	-0.00003 (0.01)
NAF $\times$ DUM	-0.0029*** (51.55)	-0.0015*** (44.94)	-0.0017*** (41.21)
INSIDE	-0.0008*** (13.86)	-0.0008*** (14.80)	-0.0007*** (9.86)
INSIDE <sup>2</sup>	$6.7 \times 10^{-6}$ ** (5.23)	$7.6 \times 10^{-6}$ *** (7.16)	$7.1 \times 10^{-6}$ ** (5.06)
INSTIT	0.0001** (2.01)	0.0001* (3.72)	0.0001 (0.69)
LTD	0.0876*** (16.37)	0.1342*** (41.54)	0.1317*** (35.50)
LTD <sup>2</sup>	-0.1573*** (22.55)	-0.2059*** (44.02)	-0.1859*** (31.84)
SIZE	0.0107*** (70.75)	0.0096*** (49.25)	0.0082*** (33.55)

**Table 2. Results of Tobit Regression of AGENCY Measures on NAF for Full Sample, 1987-94 Data**  
( $\chi^2$  values in parentheses)

Variable	One-Quarter-Ahead Forecasting Horizon	One-Year-Ahead Forecasting Horizon	Two-Year-Ahead Forecasting Horizon
<i>N</i>	6,367	7,485	6,771
log-likelihood	997.00	1,083.27	985.71
<i>C. Agency cost measure based on industry-adjusted growth of sales</i>			
Intercept	-0.0532*** (39.13)	-0.0616*** (50.40)	-0.0574*** (38.07)
<i>NAF</i>	-0.0017*** (13.55)	-0.0007** (5.87)	0.0002 (0.40)
<i>NAF</i> $\times$ <i>DUM</i>	-0.0034*** (66.50)	-0.0017*** (56.50)	-0.0019*** (51.43)
<i>INSIDE</i>	-0.0007*** (10.66)	-0.0007*** (11.46)	-0.0007*** (8.50)
<i>INSIDE</i> <sup>2</sup>	$6.1 \times 10^{-6}$ ** (4.10)	$6.6 \times 10^{-6}$ ** (5.15)	$6.7 \times 10^{-6}$ ** (4.34)
<i>INSTIT</i>	0.0001* (3.24)	0.0002** (4.96)	0.0001 (0.75)
<i>LTD</i>	0.0772*** (12.15)	0.1225*** (33.42)	0.1206*** (28.66)
<i>LTD</i> <sup>2</sup>	-0.1484*** (19.13)	-0.1953*** (38.11)	-0.1736*** (26.69)
<i>SIZE</i>	0.0110*** (72.29)	0.0101*** (53.75)	0.0079*** (30.19)
<i>N</i>	6,367	7,485	6,771
Log-likelihood	868.07	959.47	850.97

\*Significant at the 10 percent level.

\*\*Significant at the 5 percent level.

\*\*\*Significant at the 1 percent level.

**Table 3. Analyst Following, Corporate Focus, and Company Value: Results of Regression of  $Q$  on NAF for Full Sample, 1987–94 Data**

(t-statistics in parentheses)

Variable	One-Quarter-Ahead Forecasting Horizon	One-Year-Ahead Forecasting Horizon	Two-Year-Ahead Forecasting Horizon
Intercept	1.8052*** (34.19)	1.7510*** (35.75)	1.7705*** (33.97)
<i>NAF</i>	0.0397*** (10.67)	0.0224*** (11.68)	0.0190*** (8.49)
<i>NAF</i> $\times$ <i>DUM</i>	0.0147*** (3.60)	0.0067*** (3.10)	0.0057** (2.26)
<i>INSIDE</i>	0.0024 (1.45)	0.0032** (2.03)	0.0030* (1.78)
<i>INSIDE</i> <sup>2</sup>	$-3.0 \times 10^{-5}$ (-1.27)	$-3.4 \times 10^{-5}$ (-1.54)	$-3.2 \times 10^{-5}$ (-1.32)
<i>INSTIT</i>	-0.0030*** (-4.42)	-0.0022*** (-3.55)	-0.0006 (-0.85)
<i>LTD</i>	-4.7849*** (-27.22)	-4.4633*** (-27.87)	-4.6045*** (-27.20)
<i>LTD</i> <sup>2</sup>	5.1136*** (18.40)	4.5637*** (18.67)	4.6980*** (18.11)
<i>RD</i>	0.1941*** (3.35)	0.2660*** (6.28)	0.2092*** (4.89)
<i>SIZE</i>	$-1.4 \times 10^{-5}$ *** (-6.59)	$-1.3 \times 10^{-5}$ *** (-6.69)	$-1.0 \times 10^{-5}$ *** (-4.69)
<i>SEGN</i>	-0.0093 (-0.78)	-0.0116 (-1.02)	-0.0165 (-1.40)
<i>N</i>	6,367	7,485	6,771
<i>F</i> -value	83.414	85.019	73.345
Adjusted <i>R</i> <sup>2</sup>	0.2864	0.2582	0.2488

Note: Regression was an ordinary least-squares regression.

\*Significant at the 10 percent level.

\*\*Significant at the 5 percent level.

\*\*\*Significant at the 1 percent level.

**Security Analysis, Agency Costs, and Company Characteristics***John A. Doukas, Chansog Kim, and Christos Pantzalis**Author Digest*

In spite of the general belief that the activities of security analysts affect firm value, little is known about whether analysts act as a monitoring mechanism in reducing the agency costs of manager–shareholder conflict. If security analysis exerts positive influence on firm value by restricting managers’ non-value-maximizing activities, it should decrease agency costs. Thus, we carried out a direct testing of the relationship between security analysis and agency costs.

Little is known also about whether the effectiveness of security analyst monitoring is related to the structure (diversification) of the company. This issue is important because recent studies have documented that diversified companies destroy shareholder value. Although a diversification discount is generally accepted, the mechanism through which diversification destroys firm value is not understood. Possible causes are that diversification encourages overinvestment, that it invites agency costs, and that diversified companies suffer from internal capital market inefficiencies associated with the misallocation of resources. We studied whether security analysis as an external monitor of managerial conduct, in the sense of reducing agency costs arising from informational asymmetries, works as well, less well, or better for nondiversified companies than for diversified companies.

We examined the monitoring effectiveness of security analysts with a data set of 7,485 manufacturing company-year observations over the 1988–94 period. Based on the number of analysts following a company for forecasting horizons of (fiscal) one quarter, one year, and two years, our results consistently show that security analysis reduces agency costs (i.e., managers’ non-value-maximizing behavior) while it increases firm value. We also found that the effectiveness of analysts’ monitoring activity declines with industrial diversification, despite the fact that the number of analysts following diversified companies is substantially greater than the number following nondiversified companies. In addition, we show that the shareholder gains from the monitoring activity of security analysis are larger for nondiversified than for diversified companies.