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Factors Associated with the Disclosure of Managers' Forecasts

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SYNOPSIS: This study examines the motivation of managers to release forecasts of future earnings. Four potential motivating factors were compared for a sample of firms that reported forecasts and another sample of firms that did not release this information. The four factors are: (1) reporting good news, (2) correcting or confirming analysts' forecasts, (3) new capital offerings, and (4) ownership structure.

A manager's forecast released when analysts have underestimated earnings implies good news. The relative importance of the correction or confirmation of analysts' forecasts was tested by examining the absolute errors of analysts' forecasts. Larger absolute errors of analysts' forecasts for reporting firms than for other firms imply that managers' forecasts could be correcting forecasts. Otherwise, they are confirming forecasts.

The literature also suggests that some managers release forecasts prior to issuing new capital. This hypothesis was tested by examining the occurrences of new capital offerings for the reporting and comparison firms.

Differences in ownership structure represent a fourth factor potentially associated with the release of forecasts. Prior literature suggests that the release of forecasts when outside holdings are relatively high can help reduce agency costs. The association of ownership structure with the release of forecasts was tested by examining the percentage of inside ownership for the reporting and comparison firms.

Multivariate tests show that ownership structure, absolute errors of

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analysts' forecasts, and new capital offerings are significant. Absolute errors of analysts' forecasts are smaller for the forecast reporting firms than for the comparison firms, suggesting that managers' forecasts are, on average, confirmatory. The results also reveal that new capital is more likely to be issued subsequent to the date of the forecast (or equivalent date) by the reporting firms than by the comparison firms. However, the evidence is not consistent with the assumption that managers release good-news forecasts.

Additional joint tests were conducted using data for the years before and after the forecast release. These tests show that absolute analysts' forecast errors and capital offerings are not significant factors for the years before or after the forecast release, suggesting that these factors reflect the motivation of managers to release earnings forecasts.

Key Words: *Earnings, Forecast, Inside Ownership, Capital Offering.*

Data Availability: *Related projects are presently in process. The data will be made available for general research purposes upon completion of these projects and can be obtained from the authors at that time.*

THE public reporting of earnings forecasts by managers is presently voluntary and only a minority of businesses provide public forecasts.[1] Because these earnings forecasts are followed by investors, regulatory agencies have shown interest in finding out why some firms report forecasts publicly while others do not. The Securities and Exchange Commission (SEC), for example, is concerned with forecast disclosure and in 1979 instituted a safe harbor rule governing the legal liability associated with inaccurate forecasts (SEC 1979).

A number of theories and survey findings may explain the managers' decision to disclose forecasts. These include the release of forecasts to communicate good news (Ross 1979; Verrecchia 1983), to correct or confirm analysts' forecasts (Lees 1981), to facilitate new capital offerings (Lees 1981), and to signal the manager's planning ability (Trueman 1986). Empirical tests to date, however, have been limited to the relationship between forecast reporting and good news. Only one study (Ajinkya and Gift 1984) has investigated the role of managers' forecasts in correcting or confirming analysts' forecasts. The other theories have not been tested.

In this paper we examine some possible determinants of the motivation of managers to release forecasts of future earnings. The study introduces ownership structure and capital offerings, two possible determinants not previously tested, and reports on joint tests of the ability of these and other variables to explain the reporting decision. Tests for a sample of firms that reported forecasts and for a sample of comparison firms that did not report forecasts show that ownership structure and the issuance of new capital are more closely associated with the decision to report forecasts than are the other variables examined in the study. The results also suggest that managers' forecasts tend to confirm rather than correct forecasts by financial analysts.

[1] Patell's (1976) search in *The Wall Street Journal* revealed fewer than 100 qualifying large firm disclosures per year.

The next section presents background and develops the research hypotheses. Following this are descriptions of the samples of firms and the independent variables. The paper then presents the study results and conclusions.

I. Hypotheses

Good News

Ross (1979) suggests that if favorable disclosures increase the value of the firm, then outsiders will interpret no news as bad news. As a result, all managers without bad news have an incentive for disclosure, and only firms with the worst news will fail to disclose the information. Verrecchia (1983) follows this reasoning with a model showing conditions under which information will be disclosed given that nondisclosure can be interpreted either as (1) bad news, or (2) good news with high anticipated disclosure costs.

The disclosure of good news may also satisfy personal objectives such as job retention. For example, Trachtenberg (1989) writes that Avon Products Inc. forecasted good news following a hostile takeover bid and that at least one analyst interpreted the good news forecast as a takeover defense (consistent with job retention). Empirical evidence of the role of good news in motivating forecast disclosure is mixed. Pastena and Ronen (1979) conclude that most forecasts in their sample contain good news, while more recent studies (Ajinkya and Gift 1984; Waymire 1984) did not observe an overall tendency to report good news.[2] To determine the possible motivating influence of good news, we tested the following hypothesis:

H_1: Firms that release forecasts tend to have good news relative to other firms.

Correction or Confirmation of Analysts' Forecasts

Lees (1981) notes that forecasts by managers can improve relations with financial analysts. In his view, disclosure facilitates the jobs of analysts by either correcting or confirming analysts' forecasts. Managers' forecasts that correct analysts' forecasts can minimize the danger of unrealistic analysts' forecasts, while confirming forecasts increase confidence in them. These views were tested by Ajinkya and Gift (1984). The present study examined analysts' forecasts to test the following hypothesis:

H_2: The absolute errors of analysts' forecasts differ for forecast reporting and nonreporting firms.

If managers' forecasts correct analysts' forecasts, managers are more likely to release forecasts when analysts' errors are material. In this event, larger absolute errors of analysts' forecasts will be observed for reporting firms than for other firms. Smaller absolute errors of analysts' forecasts for reporting firms imply that managers' forecasts tend to confirm analysts' forecasts.

[2] Studies including Ajinkya and Gift (1984) and Waymire (1984) show that the market classifies large numbers of forecasts as bad news. Managers, however, may still believe that forecasts will be interpreted favorably (or less unfavorably than if no news is disclosed). One reason is that firms release forecasts only occasionally, and as a result managers cannot develop extensive histories relating forecast releases for their firms to stock prices.

New Capital Offerings

Numerous studies document the decline in stock price associated with the issuance of new securities (e.g., Myers and Majluf 1984). Leland and Pyle (1977) attribute this price reduction to outsiders' reluctance to increase investments given that managers know more than outsiders and given the associated problems of adverse selection and moral hazard. Miller and Rock (1985) and Hughes (1986) note that direct disclosure can have value in the presence of disclosure laws and restrictions on insider trading. In a disclosure law environment, public releases of earnings forecasts have potential for alleviating the adverse selection and moral hazard difficulties. Additionally, managers responding to the survey by Lees (1981) indicated that forecasts enhance the ability to attract new capital and that this may be the most important benefit of forecast release. This leads to the third hypothesis:

H_3: Forecast reporting firms show a greater tendency than other firms to issue new capital.

Ownership Structure

Jensen and Meckling (1976) assert that as the manager's ownership share of the firm's equity falls, outside shareholders have increased incentives to expend resources to monitor the manager's behavior. Reasons include increased incentives for the owner-manager to consume perks and reduced incentives for the owner-manager to maximize job performance. Leftwich et al. (1981) apply this reasoning to voluntary interim reporting. In that study, the authors included a size variable (with insignificant results) to reflect the agency costs of outside ownership because they did not have data on the amount of outside capital. The present study tests the effect of inside ownership more directly with the following hypothesis:

H_4: Forecast reporting firms have a higher proportion of outside ownership than other firms.

Planning Ability

Trueman (1986) asserts that the good news theory is not sufficient to explain forecast reporting since earnings information will be reported anyway. In Trueman's view, the release of a forecast indicates that the manager has identified environmental changes and plans to adjust operations accordingly. This view implies that the manager should be equally motivated to release good news and bad news as long as the expected benefits exceed the costs of disclosure.

Direct tests of Trueman's theory would require identification of relevant changes in business circumstances and estimates of disclosure costs. The literature has not identified operational measures of these variables and, therefore, we cannot test the hypothesis here.

II. The Sample

The sample was selected from forecasts included in the Dow Jones News Retrieval Service from January 1980 through December 1985. This service contains articles from *The Wall Street Journal* and *Barron's* and announcements on the Broad Tape. The entire text of articles in the data service was searched for keywords including "forecast" and

Table 1
Summary of the Sample Selection Process for Firms Voluntarily Reporting Forecasts of Earnings (January 1980 through December 1985)

Total point or range forecasts on Dow Jones News Retrieval Service	322
Less: Repeat forecasts during the same year	10
Firms not listed or without complete data on COMPUSTAT	129
Firms without complete IBES data	26
Firms with forecasts in the same month as the fiscal year end	11
Total usable forecasts	146

"projection." Forecasts included in the sample meet all of the following criteria: (1) a point or range estimate of annual earnings or earnings per share before extraordinary items made by a company official; (2) release in the first 11 fiscal months; (3) no prior forecast release for the fiscal year indicated in the Dow Jones News Retrieval Service or *The Wall Street Journal Index*; (4) 1987 COMPUSTAT data available for the reporting firms; and (5) analysts' forecasts available on the 1987 Institutional Brokers Estimate System (IBES) data base. IBES contains weekly updates of composite analysts' forecast information and adjusts earnings per share forecasts for stock splits and stock dividends. The sample includes 146 qualifying forecasts as shown in table 1. Disclosures are approximately equally distributed over the fiscal year with 70 firms reporting forecasts in the first half, and 76 firms reporting in the second half.

A comparison group of similar-sized firms that did not report forecasts during the observation period was developed from the same four-digit industry code. The size match was necessary because previous studies, including Cox (1985), show that firms with forecasts reported in the press tend to be relatively large. Since we do not expect size to influence the disclosure decision, the matching procedure isolates the editorial policy consideration by compensating for the expected tendency of news services to publish information for larger firms. The matching entailed grouping the comparison firms by industry and selecting a comparison firm with asset size closest to that of the reporting firm.

Firms were eligible for the comparison group if no earnings forecasts of any type appeared in the Dow Jones News Retrieval Service or *The Wall Street Journal Index* for the period January 1980 through December 1985 and sufficient data were available on COMPUSTAT and IBES. When qualifying comparison firms could not be located within the four-digit industry, three-digit and two-digit industry codes were used. Panel A in table 2 shows that all except 16 of the 146 firms were matched on four-digit industry codes. Panel B shows that asset sizes vary substantially with 13 reporting firms having assets less than $100 million and 59 reporting firms having assets in excess of $1 billion.

Table 2

The Distribution of Industry and Asset Size
($n=146$ Forecast Reporting Firms and 146 Comparison Firms, 1980–1985)

Panel A. Industry Match:

	Number of Comparison Firms
By four-digit industry code	130
By three-digit industry code	6
By two-digit industry code	10
Total	146

Panel B. Asset Size:

	Number of Firms	
	Reporting Firms	*Comparison Firms*
Less than $100 million	13	19
$100 million to $1 billion	74	72
More than $1 billion	59	55
Total	146	146

III. Independent Variables

Analysts' Forecast Errors as Indications of Good News

Since managers' forecasts are not available for the comparison sample, we used the errors of analysts' forecasts as indications of good news. Assuming that managers have more recent information than do analysts (e.g., Hassell and Jennings 1986), managers' forecasts released when analysts have underestimated income represent good news. This can be shown using the McNichols (1989) decomposition of errors of analysts' forecasts into two components:

$$E_t - AF = (MF - AF) + (E_t - MF), \quad (1)$$

where MF is the manager's forecast; AF refers to the previously available analysts' forecasts; and E_t is the actual earnings.

Given McNichols' conclusion that managers' forecasts are relatively free of systematic bias, $E_t - AF$ should be an unbiased estimate of $MF - AF$. For managers' forecasts included in this sample, the observed product-moment correlation is $+0.82$, indicating that $E_t - AF$ should provide a good proxy for $MF - AF$.

The analysts' forecast errors were adjusted for earnings variability because previous research shows that: (1) the absolute errors of analysts' forecasts tend to be lower for forecast reporting firms than for nonreporting firms, and (2) earnings variability is

also lower for reporting firms (e.g., Imhoff 1978). If the earnings of reporting firms are relatively stable, the errors of analysts' forecasts for these firms will be low. To control for this effect, the error variable was calculated as in Waymire (1985) as follows:

$$\text{Analysts' forecast error} = (E_t - AF)/s_t, \quad (2)$$

where s_t is the standard deviation of primary earnings per share over the eight-year period prior to the earnings forecast.

For each reporting firm, the measure of the analysts' forecasts was the mean of the IBES analysts' forecasts for the month prior to the manager's forecast. The same fiscal month was then used for the comparison firm. All forecasts and earnings were adjusted for stock splits and stock dividends. In summary, the errors of analysts' forecasts adjusted for earnings variability were adopted as proxies for good news. A positive association between the release of forecasts and the underestimation of earnings by analysts indicates that managers tend to report good news.

Absolute Errors of Analysts' Forecasts

We calculated the absolute errors of analysts' forecasts to examine the confirmation or correction functions of managers' forecasts. The same adjustment for earnings variability was made as for the signed error measure. Large absolute errors of analysts' forecasts indicate material corrections consistent with the correction function. Small errors are consistent with the confirmation role of managers' forecasts.

New Capital Offerings

The question of whether or not firms issuing new capital are more inclined to release earnings forecasts was examined by comparing new capital offerings for the reporting and comparison firms. If new debt or new stock was offered within three months after the forecast reporting date, but before the annual earnings announcement, a value of one was assigned to the capital offering variable. Otherwise, a zero value was assigned. An indicator variable was used because of the large number of zero values. The three-month period is a compromise. Only a few firms issued new securities within one month of the forecast, but longer periods increase the likelihood of forecast obsolescence. Data were obtained from the *Directory of Corporate Financing.*

Ownership Structure

The hypothesis that ownership structure is related to the decision to report forecasts was tested by examining the percentage of voting stock owned by officers and directors. Most of the ownership information was obtained from *The Value Line Investment Survey, Standard & Poor's Corporation Records,* proxy statements, and Form 10-Ks.

IV. Univariate Results

Summary statistics for each variable are in table 3. Panel A data do not reveal significant differences between the errors of analysts' forecasts for the reporting and comparison samples (Wilcoxon test) and, thus, do not support the hypothesis that managers release primarily good news. In support of the confirmation role of managers' fore-

Table 3

Summary Statistics and Univariate Tests of the Relation Between Explanatory Variables and the Voluntary Reporting of Managers' Earnings Forecasts (n=146 Forecast Reporting Firms and 146 Comparison Firms, 1980–1985)

Panel A. The Continuous Variables:

		Quartile					
	Mean	*.25*	*.50*	*.75*	*Standard Deviation*	*z*	*Probabilty*
Analysts' Forecast Errors ($(E_t-AF)/s_t$):							
Reporting firms	−0.19	−0.66	−0.10	0.20	0.96	−0.26[a]	0.40
Comparison firms	−0.17	−0.61	−0.04	0.30	1.16		
Absolute Errors of Analysts' Forecasts ($\|E_t-AF\|/s_t$):							
Reporting firms	0.69	0.14	0.40	1.01	0.77	−2.31[b]	0.02
Comparison firms	0.92	0.17	0.49	1.34	1.04		
Percentage of Voting Stock Owned by Officers and Directors:							
Reporting firms	0.10	0.02	0.06	0.12	0.12	−4.61[a]	0.01
Comparison firms	0.18	0.03	0.12	0.26	0.18		

Panel B. Firms Offering New Capital within Three Months after the Forecast Date (or Equivalent Date):

	Number of Cases	*t-statistic*	*Probability*
Reporting firms	19	2.49	0.01[c]
Comparison firms	7		

[a] Wilcoxon matched-pairs signed-ranks test (one-tailed).
[b] Wilcoxon matched-pairs signed-ranks test (two-tailed).
[c] *T*-test for differences in proportions (one-tailed).

casts, the absolute errors of analysts' forecasts are smaller for the reporting firms than for the comparison firms with differences significant at the two percent level (Wilcoxon test). Panel A also shows that inside ownership is lower for the reporting firms than for the comparison firms with differences significant at the one percent level (Wilcoxon test). Panel B shows that the reporting firms have more capital offerings than the comparison firms. These differences are significant at the one percent level (t-test of proportions).

Correlations Between Variables

Pearson product-moment correlations between the continuous independent variables are shown in table 4. All correlation coefficients are small with no cross-correlations exceeding seven percent. Consequently, multicollinearity is not a concern in the multivariate tests.

V. The Multivariate Analysis

The joint ability of the independent variables to explain the reporting decision was examined using probit analysis (see Finney 1971). Previous studies in accounting have

Table 4

Pearson Product-Moment Correlations of Continuous Independent Variables (n=146 Forecast Reporting Firms and 146 Comparison Firms, 1980–1985)

	Analysts' Forecast Error	*Absolute Analysts' Error*	*Ownership Structure*
Analysts' forecast error	1.000	0.058 (0.32)[a]	−0.068 (0.25)
Absolute analysts' error		1.000	−0.044 (0.45)
Ownership structure			1.000

[a] Parentheses indicate two-tailed probability values.

used probit analysis because probit estimators are consistent and unbiased with dichotomous dependent variables as discussed in Hagerman and Zmijewski (1979).[3] Another advantage of probit is that it permits significance tests on individual parameters and on overall classifications. The model is:

$$F = a + b1*ERROR + b2*ABSERROR + b3*CAPOFF + b4*OWN + e, \quad (3)$$

where for each firm: $F=1$ for a reporting firm, and 0 for the comparison firm; $ERROR = (E_t - AF)/s_t$; $ABSERROR = |E_t - AF|/s_t$; $CAPOFF=1$ if the firm offered long-term debt or equity within three months after the manager's forecast and 0 otherwise; OWN = percentage of voting stock owned by managers and directors; and e = a random disturbance term.

To examine the statistical significance of the model, a log likelihood ratio statistic was computed (e.g., McKelvey and Zavoina 1975). This statistic has a chi-square distribution (with four degrees of freedom). Table 5 shows that the model is statistically significant at the one percent level with a chi-square statistic of 28.6.[4] The model correctly classifies 66.1 percent of the cases (73.3 percent of the reporting firms and 58.9 percent of the comparison firms). These results were then compared with the predictive ability of the most successful naive model that categorizes all observations as members of the larger group of firms (e.g., Pinches 1980). The test of proportions reveals that the percentage of cases correctly predicted by the probit model exceeds that achieved by the best naive model at the one percent level.

Asymptotic t-statistics were used to test the significance of the estimated coefficients. Ownership structure is the most important variable with a t-statistic of -3.874 significant at the one percent level. The capital offering variable follows with signifi-

[3] The model was also estimated with logit analysis, another commonly used technique for dichotomous dependent variables. The resulting significance levels for each coefficient and for the model are nearly identical to the probit model results reported here.

[4] Probit analysis assumes that the random disturbance terms are independent and identically distributed normal random variables. The Kolmogorov-Smirnov goodness-of-fit test ($z=0.968$, significance $=0.31$), indicates that the probit residuals do not deviate significantly from normality (see Hollander and Wolfe 1973, 219–28).

Table 5

Probit Analysis of Forecast Disclosure Model
(n=146 Forecast Reporting Firms and 146 Comparison Firms, 1980–1985)

Model: $F=a+b1*ERROR+b2*ABSERROR+b3*CAPOFF+b4*OWN+e$

Percentage of cases predicted correctly	66.1 overall 73.3 reporting firms 58.9 comparison firms
Chi-square statistic (4 df)	28.6 (0.01 significance)

Independent Variables	*Analysts' Forecast Error*	*Absolute Analysts' Error*	*Capital Offerings*	*Ownership Structure*
Maximum likelihood estimate	−0.14	−0.183	0.560	−0.021
Asymptotic t-statistic	−0.213	−2.125	1.911	−3.874
Significance level	0.459[a]	0.034[b]	0.028[a]	0.001[a]

Variable Definitions:
F=1 for a reporting firm and 0 for the comparison firm,
$ERROR$=errors of analysts' forecasts adjusted for earnings variability: $(E_t-AF)/s_t$,
$ABSERROR$=absolute errors of analysts' forecasts adjusted for earnings variability: $|E_t-AF|/s_t$,
$CAPOFF$=1 if the firm offered long-term debt or equity within three months after the manager's forecast and 0 otherwise, and
OWN=percentage of voting shares owned by officers and directors.

[a] One-tailed test.
[b] Two-tailed test.

cance at the 2.8 percent level and the absolute error of analysts' forecast variable is significant at the 3.4 percent level. Signed forecast errors are not significant at conventional levels. The directions of association are the same as for the univariate tests examined earlier.

Two additional probit analyses were conducted to examine the potential motivating influence of the capital offering and absolute analysts' error variables. The first used analysts' forecast errors and capital offerings for the year prior to the forecast release, and the second used data for the subsequent year. Ownership structure was held constant in these tests because short-run changes tend to be minimal.

The t-statistics for the independent variables range from −3.869 to 0.276 with significant coefficients for the years before and after forecast release only for ownership structure. These tests confirm that the greater frequency of capital offerings and the smaller absolute errors of analysts' forecasts are associated with the reporting firms only for the reporting years.

VI. Summary and Conclusions

The purpose of this study was to examine the ability of selected variables to explain the motivation of managers to release forecasts of future earnings. Based on a review of the literature, we developed variables and tested the association of forecast reporting with good news, the role of managers' forecasts in correcting or confirming analysts' forecasts, new capital offerings, and the percentage of inside ownership in the firm.

The tests compared a sample of firms reporting forecasts to the public to a sample of firms not releasing forecasts. The comparison firms are similar in size to the reporting firms and are in the same industries.

The multivariate analysis shows that ownership structure is the most important factor distinguishing the reporting and comparison firms. The measure of new capital offerings is the next most important factor and suggests that capital offerings motivate forecast release. A tendency to release forecasts when the absolute errors of analysts' forecasts (adjusted for earnings variability) are relatively small also contributes to the model. This finding indicates that firms are more likely to release forecasts that confirm analysts' forecasts than to release forecasts that make material corrections to them.

The signed analysts' error measure is not significant, indicating that a desire to report good news does not seem to motivate forecast release. This finding is consistent with much of the recent empirical literature (Ajinkya and Gift 1984; Waymire 1984).

The major restrictions on the sample are availability of a forecast, COMPUSTAT listing, and IBES data. The last two criteria, in particular, restrict the sample to larger, publicly traded firms.

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