Accuracy of Analysts' IPO Earnings Forecasts

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The objective of this paper is to analyze the corporate earnings forecasts of Initial Public Offerings (IPOs) made by financial analysts covering the years 1999 to 2001. Financial analysts' earnings forecast data are divided into NYSE and NASDAQ markets for these three years. We analyze the mean absolute forecast error, normalized by dividing by the absolute value of realized earnings. The analysis employs descriptive statistics, ordinary least square regressions, and multiple regressions. The main statistically significant findings of the paper are: first, there were no differences in forecast errors among the three years. Second, trading location did make a difference in forecast error -- the forecast error for NYSE was lower than that of NASDAQ. Third, forecast errors were lowest when the number of analysts making a given forecast was greater than 21. And finally, forecast errors for the second quartile of companies, ranked by market value of equity, were larger than for any other quartile.

INTRODUCTION

Making investment decisions regarding IPOs are extremely challenging. In recent times, individual investors are actively trading in the stock market using proprietary and non-proprietary information about the firm. Corporate earnings forecasts are an important investment tool. Corporate earning forecasts come from two sources: financial analysts and the firm's management.[1] The management has the advantage of possessing more information, and hence, can provide a more accurate earning forecast. However, because of the existing relationship of the company with its key investor group, management may have a tendency to take an optimistic view and overestimate the firm's future earnings. In contrast, financial analysts are less informed about the company and often rely on management briefings. They have more experiences in the overall market and economics, and are expected to analyze companies with more objectivity. Hence, analysts should provide reliable and more accurate earnings forecasts.

The objective of this paper is to study the accuracy of the corporate earnings forecasts made by the financial analysts at the time of an IPO. At the time of an IPO, especially during the nineties, investors had very limited information about the past performance of the firm and had to rely on the accuracy of the earnings forecasts and the resulting valuation. During the past two decades, considerable research has been done on the accuracy of the earnings forecasts and their determinants. However, to the best of our knowledge, none of those studies have focused on the accuracy of the earnings forecasts following an IPO. This research is an attempt to bridge that knowledge gap.

The rest of this paper's organization is as follows. In Section II, the earnings forecasts research literature is reviewed. In Section III, we outline the hypotheses to be tested and their rationales. Section IV provides the data source and methodology. The results of this investigation are discussed in Section V, and Section VI concludes the paper.

LITERATURE REVIEW

There are vast amounts of past research available on the relative accuracy, bias and determinants of forecast accuracy. Here we will review only a few of those articles (omission of an article is not a reflection on its merit or its contribution to the literature). Jaggi (1980) examined the impact of company size on forecast accuracy using management's earnings from the *Wall Street Journal*, and analysts' earnings forecast from Value Line Investment Survey from 1971 to 1974. He argued that because a large firm has strong financial and human capital resources, its management's earnings forecast would be more accurate than analyst's. The sample data were classified into six categories based on size of the firm's total revenue to examine the factors that contribute to the accuracy of management's earnings forecast compared with those of analysts. The result of his research did not support his hypothesis that management's forecast is more accurate than analysts' forecast.

Bhushan (1989) assumed that it is more profitable to trade a large company's stock because large companies have better liquidity than small ones. Therefore, the availability of information is related to company size. His research supported his hypothesis that the larger the company size, the more information is available to financial analysts and the more accurate their earnings forecasts are.

Kross, Ro, and Schreoder (1990) proposed that a brokerage firm's characteristics influence analysts' earnings forecasting accuracy. In their analysis, sample analysts' earnings forecasts from 1980 to 1981 were obtained from the *Value Line Investment Survey*, and the market value of a brokerage firm is used as a proxy for the size of the firm. The results of this study on analysts' earnings forecasts did not find a positive relation between the company size and the analysts' forecast accuracy.

Bartley and Cameron (1991) examined the determinants associated with the relative accuracy of earnings by managers and by financial analysts. Sample data of management's earnings forecasts from the years 1975 to 1979 are extracted from the *Wall Street Journal Index*, and analysts' earnings were the mean earnings forecasts from the *Standard & Poor's* Earnings Forecaster. They found that management's forecast accuracy is superior to prior analysts' forecasts, and that there is no significant difference between managers' and analyst's posterior forecast.

Higgins (1998) examined the relationship between the level of management's earnings forecast disclosure and the relative precision of analysts' earnings forecast using selected samples from 11,000 companies of seven different countries covering the period from 1991 to 1995. To examine such a relationship the disclosure level of management's earnings forecasts was set as the independent variables in his analysis, and analysts' earnings forecasts were used as the dependent variable in the regression model. His findings were: the higher the country's requirements in disclosing company's earnings forecast, the more accurate were analysts' earnings forecast and the lower the optimistic error was. But with a less regulated policy on management's earnings forecast disclosure, analysts' earnings forecasts has a lower degree of accuracy and higher level of optimistic error.

Das, Levine and Sivaramakrishnan (1998) used a cross-sectional approach to study the optimistic behavior of financial analysis. Especially, they focused on the predictive accuracy of past information of analysts' earnings forecast associated with the magnitude of the bias in analysts' earnings forecasts. The sample selection covers the time period from 1989 to 1993 with 274 companies' earnings forecasts information. A regression method was used in this research. The term "optimistic behavior" is referred to as the optimistic earnings forecast made by financial analysts. The authors hypothesized the following scenario: there is higher demand for non-public information for firms whose earnings are more difficult to predict than for firms whose earnings can be accurately forecasted using public information. Their finding supports the hypothesis that analysts will make more optimistic forecasts for low predictability firms with an assumption that optimistic forecasts facilitates access to management's non-public information.

Orie, Kile and O'Kcelo (1999) examine the predictive value of management discussion and analysis (MD&A) information. More specifically, they test the association between properties of analysts' earnings forecasts and MD&A quality, where the SEC measures MD&A quality. It is found that high MD&A ratings are associated with less error and less dispersion in analysts' earnings forecasts after controlling for many other expected influences on analysts' forecasts. It is also found that the estimated regression coefficients are consistent with MD&A information having a substantial effect on earnings forecasts.

Clement (1999) studied the relationship between the analysts' quality and their forecast accuracy. Using the *I/B/E/S* data base, the author found that earnings forecast accuracy is positively related with analysts' experience and employer size, and inversely related with the number of firms and industries followed by the analyst. He conjectured that as an analyst's experience increases, his/her earnings forecast accuracy will increase, which implies that the analyst has a better understanding of the idiosyncrasies of a particular firm's reporting practices or he might establish a better relationship with insiders and therefore gain better access to the managers' private information. An analyst's portfolio complexity is also believed to have association with his earnings forecast accuracy. The authors hypothesize that forecast accuracy will decrease with the number of firms followed by an analyst. The effect of available resources impacts an analyst's earnings forecast in such a way that analysts employed by larger broker firm supply more accurate forecasts than analysts employed by smaller ones. The rationale behind this hypothesis is that an analyst hired by a large brokerage firm has better access to the private information of managers at the companies he follows. Large firms have more advanced networks that allow the firms to better disseminate their analysts' views into the capital markets there by improve the consensus forecasts among all analysts covering the firm.

TESTING OF HYPOTHESES

To examine what factors influence analysts' earnings forecasts for US firms issuing IPOs, several hypotheses are to be tested by using the standardized median forecast errors. The factors to be considered are: year, trading location, number of analysts providing the earnings guidance, capitalization of the firm and industry sector.

Forecast Errors and Trading Location

The New York Stock Exchange (NYSE), the largest equity marketplace in the world, is home to about 3000 companies worth nearly $16 trillion in global market capitalization. These companies include a cross-section of leading U.S. companies. They are well-established and have fairly stable performance. Thus, financial analysts should find their earnings relatively predictable. Therefore, the accuracy of analysts' corporate earnings forecasts for the companies listed on the NYSE should be superior to other type of markets, such as NASDAQ.

In contrast, NASDAQ is the world's largest electronic stock market; it transmits real-time quote and trade data for more than 1.3 million users in 83 countries. There are nearly 4,100 NASDAQ-listed securities, representing the world's leading companies. However, trading on the NASDAQ is less regulated than on the NYSE, and the NASDAQ is dominated by large institutional investors. It is also characterized by more speculative activity. Thus, one might conjecture that this market is both more volatile and less predictable than the NYSE. However, there was considerable over optimism about the NASDAQ traded IPOs. Thus, the following null hypothesis can be postulated:

H1: The accuracy of analysts' earnings forecasts for the NYSE companies is the same as the accuracy of the NASDAQ traded companies.

The rationale being that a well-informed analyst should be able forecast earnings with the same degree of accuracy no matter where the stock is trading.

Forecast Errors and Year

If the predictability of earnings is stable, then there should be no difference in forecast accuracy across the three years. But the economy is neither static nor equally predictable over time. In particular, 1999 was called "the year of the IPOs" However, in 2000 and 2001 the economy started to slide into recession, and stock prices declined significantly. Consequently, the issuance of IPO slowed after March 2000 recovering to some extent only in the last couple of years. Thus, the following null hypothesis can be postulated:

H2: There is no difference among the forecast errors in 1999, 2000, and 2001.

Forecast Errors and the Number of Analysts

According to the forecast combination literature, the number of analysts forecasting a stock's earnings should play a significant role in the accuracy of earnings forecast. Assuming some diversity of opinion, as the number of analysts' increases, so also does the accuracy of earnings forecasts. Hence, the following null hypothesis can be postulated:

H3: There is no relationship between the forecast errors and the number of analysts forecasting the stock's earnings.

Forecast Errors and the Size of a Company

This study assumes that there is a direct relationship between the analysts' forecast errors and the size of a company. Larger firms, as suggested by Bhushan (1989), and Hung and Cheng (2001), are followed by more analysts with higher motivation and more financial incentive. Based on this rationale, the following hypothesis is introduced for testing:

H4: The forecast errors are s unrelated to the market capitalization of the firm's equity.

DATA SOURCE AND METHODOLOGY

This paper studies the accuracy of the IPO earnings forecasts conducted by financial analysts in the United States. The resources of earnings forecast data are mainly drawn from the I/B/E/S data base maintained by Thomson Financial. This was supplemented from Web-sites such as MS Money Central, Yahoo Finance, SEC Web page, First Call.com, and *Zack's Investment*. The list of the IPOs was taken from Thomson Financial data base. Financial data about these companies were collected from the *Compustat* data base. The years covered by our study were 1999-2001 – the crucial years of IPO growth and decline.

As for methodology, we have used the summary statistics of standardized median forecast errors, ordinary least squares, and multiple regression, in order to analyze and compare the accuracy of financial analysts' earnings forecasts.

Standardized Median Forecast Errors

Let EF_{ijt} be the earnings forecast for the firm i by the analyst j at time t and the median earnings forecast be MEF_{it}, for the firm i at the time t, The standardized median forecast errors, SFE_{it} are computed as the following:

$$\mathbf{SFE_{it}} = \frac{\mathbf{AE_{it} - MEF_{it}}}{\mathbf{ABS(AE_{it})}} \tag{1}$$

where AE_{it} is the actual earnings for the firm i at the time t and $ABS(AE_{it})$ is its absolute value. The resulting data is a cross-sectional time series.

Regression Models

The regression models proposed here examine the dependence of standardized forecast errors on a number of firm and trading characteristics. The independent variables tested in this study are: trading location, year, number of analysts, firm size, and industry sector. First, we test these dependent variables one at a time then jointly. These resulting equations are:

$$\mathbf{SFE} = \alpha + \sum_{\mathbf{k=0}}^{1} \beta_{\mathbf{TR}} \mathbf{TRADE_k} + \varepsilon \tag{2}$$

where dummy variable $TRADE_k$= 0 and 1 for NASDAQ and NYSE respectively. This equation will test hypothesis 1 proposed in the earlier section.

The second hypothesis is tested using the equation:

$$\mathbf{SFE} = \alpha + \sum_{\mathbf{k}=0}^{2} \beta_{\mathbf{Y,k}}\,\mathbf{YEAR_k} + \varepsilon \tag{3}$$

where dummy variable $YEAR_k$=0 for 1999. $YEAR_k$=1 (k=1, 2) for 2000 and 2001 respectively.

The third hypothesis is tested using the equation:

$$\mathbf{SFE} = \alpha + \sum_{\mathbf{k}=0}^{4} \beta_{\mathbf{NA,k}}\,\mathbf{ANALYST_k} + \varepsilon \tag{4}$$

where dummy variable $ANALYST_k$=0 for 5 or fewer analysts covering the stock. $ANALYST_k$=1 (k=1,2…4) for 6 to 10 analysts, 11 to 15 analysts, 16 to 20 analysts and more than 20 analysts respectively.

$$\mathbf{SFE} = \alpha + \sum_{\mathbf{k}=0}^{3} \beta_{\mathbf{SZ,k}}\,\mathbf{SIZE_k} + \varepsilon \tag{5}$$

where dummy variable $SIZE_k$ (k=0,12,3) represent market capitalization based quartiles. Firms were ranked on the basis of their market capitalization and divided into quartiles. $SIZE_k$=0 for the largest quartile with market capitalization greater than $3,090 million and $SIZE_k$=1(k=1,2,3) for other quartiles with market capitalization between $3,090 and $1,080 million, between $1,080 and $427 million, and less that $427 million, respectively.

The fifth hypothesis is tested using the equation:

$$\mathbf{SFE} = \alpha + \sum_{\mathbf{k}=0}^{9} \beta_{\mathbf{ST,k}}\,\mathbf{SECTOR_k} + \varepsilon \tag{6}$$

where $SECTOR_k$ represents the firms sector classification. All non surviving firms were classified as $SECTOR_k$=0. Surviving firms were sorted into nine sectors: consumer non-cyclical, service, financial, energy and utilities, transportation, consumer cyclical, healthcare, basic material and capital goods, and technology with the dummy variable $SECTOR_k$=1 (k=1,2…9) respectively.

The following multiple regression used to determine the isolated effect of each determinant of forecast accuracy, after controlling for the effects of all other determinants:

$$\begin{aligned}\mathbf{SFE} = \alpha &+ \sum_{\mathbf{k}=0}^{1} \beta_{\mathbf{Tr,k}}\,\mathbf{TRADE_k} + \sum_{\mathbf{k}=0}^{2} \beta_{\mathbf{Y,k}}\,\mathbf{YEAR_k} + \sum_{\mathbf{k}=0}^{4} \beta_{\mathbf{NA,k}}\,\mathbf{ANALYST_k} \\ &+ \sum_{\mathbf{k}=0}^{3} \beta_{\mathbf{SZ,k}}\,\mathbf{SIZE_k} + \varepsilon\end{aligned} \tag{7}$$

where $\beta_{Tr,}$ β_Y, β_{NA}, and β_{SZ} are the beta coefficients associated with trading location, year, number of analysts and firm size, respectively.

EMPIRICAL FINDINGS

In Table 1, we have given the summary statistics of the average of standardized earnings forecast error and the average of the coefficient of variation by the years 1999-2001 and by both the New York Stock Exchange and the NASDAQ stock exchange. The standardized median forecast error is the median forecast error over analysts' forecast of a given company at a given target date, divided by the realized earnings. Surprisingly, in Panel A of Table 1 all the averages of the standardized median forecast error are positive, indicating underforecasts for all three years and both exchanges. Except for 1999, the NYSE had lower forecast errors than the NASDAQ. This difference was most pronounced in 2000, when the underforecast was about 1.6 % of realized earnings for the NYSE but about 6.6% for the NASDAQ. Over both exchanges, the forecast error was much larger in 2000 than in 1999 or 2001.[2]

In Panel B of Table 1, we have given the average coefficient of variation by year and stock exchange. The coefficient of variation is defined as the standard deviation of the standardized forecasts of expected earnings for a given company at a given date divided by the median over forecasts. The pattern of CVs is analogous to that of forecast errors: except for 1999, NASDAQ has larger CVs than the NYSE—roughly twice as large in 2000 and 2001. The CV was also largest for 1999.

In Table 2, we have tested the null hypothesis that there is no relationship between standard forecast error and the trading location, using ordinary least-squares. The standardized forecast error (FE) is the actual earnings less median forecast earnings divided by the actual earnings. Here the t--statistics for both the variables are significant at the 0.01 percent level, and P-values are approximately zero. The β-coefficient indicates that the standardized forecast error of the NASDAQ traded stocks are significantly positive, showing a tendency to underforcast. The NYSE trade stocks' earnings are also underforcast, but significantly less (0.555-0.512=0.043 standardized percentage points). Here the null hypothesis is rejected, since the forecast error for the NYSE, while still positive, is lower than that of the NASDAQ.

Table 3 shows the relationship between the forecast error and the years covered by our study (1999-2001). Here the intercept represents the value of the average standardized forecast error in 1999. Here we have the (perhaps) surprising result that the null hypothesis is not rejected at the conventional significance level (e.g., $p < 0.05$) for any year. Hence, there were no differences between the forecast errors in 1999, 2000, and 2001.

Table 4 shows the relationship between the forecast error and the number of analysts forecasting a stock's earnings. We find that the null hypothesis is rejected, for there is a statistically significant relationship at the 0.009 percent level between median forecast error and the number of analysts (for 5 or fewer analysts) and for 21 or more analysts at the 0.044 level. Interestingly, 5 or fewer analysts produced an underforecast, while 21 or more produced an overforecast. The forecast error shown in Table 4 also bears that out where the error was much lower when the number of analysts was between 11 and 15 and between 16 and 20. However, these results are not statistically significant.

In Table 5, we have shown the relationship between the market capitalization of a company's equity and the forecast error. We find that there is a statistically positive relationship between market capitalization and forecast error for the second quartile of firms (p= 0.000). This implies an underforecast of about 84.4%. Thus the null hypothesis, that there is no relationship between the market capitalization of a company's equity and the forecast error is rejected. Table 6 reports the relationship between non surviving firms, industry classification and the forecast errors. There is significant under forecasting for the non surviving firms. There is statistically under or over forecasting for all the sectors except consumer cyclical. There are over forecasting for healthcare and consumer cyclical (not significant), and under forecasting for the remaining sectors.

In Table 7, we have calculated the multiple regression equation, with forecasting error as the dependent variable and some of the variables tested in previous equations as the independent variables. Here we find that the β-coefficients of this table confirm most of the results obtained in prior simple regression equations. For the trading location, the forecast error for the NYSE is lower than the NASDAQ, thus confirming the result in the simple regression. As for the years, there is no statistically significant difference in forecast error by year, thus contradicting the result obtained in Table 2. The number of analysts is also significant when they are between 11 and 15 analysts. Finally, the forecast error for the second quartile is significantly higher than for the other quartiles of market capitalization, as was found in Table 5.

CONCLUSION

We have found that the forecast error is lower for the NYSE traded stock as compared to the NASDAQ traded stocks. But there was a significant difference in the forecast error in 1999, 2000, and 2001, contradicting the result obtained in the multiple regression equations. As the result in the simple regression is statistically more robust than the multiple regression results, we tend to support the view that trading location does make a difference in analysts' forecasting. This conclusion was also reached by Fan-Ning and Srivastava (2003) in their study of forecast errors by analysts.

As for the forecast error and the number of analysts, we find that the number between 11 and 15 to be ideal as the forecast error in this group was the lowest. This was also buttressed by the multiple regression results. Similarly, regarding forecast error and the size of the company as measured by market capitalization, we find that firms belonging to the second quartile (between $1,080-$3,090), had the strongest association with the forecast error. This was also supported by the results obtained by the multiple regression models.

ENDNOTES

[1] A significant number of firm's managers are reluctant to provide earnings guidance, especially at the time of an IPO. Recently, Google's management did not provide the earnings forecast at the time of its IPO.

[2] Note that the number of observations in 2000 is more than seven times the number in either 1999 or 2001. Also, the number of observations for the NYSE is always greater than for the NASDAQ. However, if we take equal-weighted averages of the forecast errors across the two exchanges for each year, the forecast errors for 1999, 2000, and 2001 are 0.168, 0.339, and 0.033, respectively. Hence, our qualitative conclusions are unaffected.

REFERENCES

Bartley, Jon W. and Cameron, Alex B. (1991). Long-run earnings forecasts by managers and financial analysts. Journal of Business Finance & Accounting, Vol. 18, 28-33.

Bhushan, Ravi (1989). Firm characteristics and analyst following. Journal of Accounting & Economics, Vol. 11, 255-274.

Clement, Michael B. (1999). Analyst forecast accuracy: do ability, resources, and portfolio complexity matter? Journal of Accounting & Economics,Vol. 27, 285-303.

Das, S., Levine, Carolyn B., and Sivaramakrishnan, K.; "Earnings predictability and bias in analysts' earnings forecasts," The Accounting Review; April, 1998, p. 277-294

Fan-Ning, Jean and Srivastava Suresh (2003).Analysts' Corporate Earnings Forecast Accuracy: A Study of Year 2001. Presented at the Western Decision Science annual meeting.

Hung, Ken & Cheng, Weiming (2001). Comparison of management and analyst' corporate earnings forecast: Taiwanese equity market experience. working paper, Department of Business Management, National Donghwa University.

Higgins, Huong Nago (1998). Analyst forecasting performance in seven countries. Association for Investment Management and Research, 58-62.

Jaggi, B. (1980). Further evidence on the accuracy of management forecasts vis-à-vis analyst' forecasts. The Accounting Review, 96-101.

Kross, W., Ro, B. and Schreoder, D. (1990). Earnings expectations: the analysts information advantage. The Accounting Review, 461-476.

Orie, E. Barron, Charles, O. Kile, and Terrence, B. O'Kcelo (1999). MD&A quality as measured by the SEC and analysts' earnings forecasts. Contemporary Accounting Research; 75-109.

TABLE 1
SUMMARY STATISTICS OF THE STANDARDIZED EARNINGS FORECAST ERRORS

A. Average of Standardized Median Forecast Errors

	NYSE		NASDAQ		Combined	
Year	Median Forecast Error	Sample Size	Median Forecast Error	Sample Size	Median Forecast Error	Sample Size
1999	0.225	146	0.111	58	0.193	204
2000	0.016	888	0.661	697	0.300	1,585
2001	0.015	110	0.050	95	0.030	205
Total		1,144		850		1,994

B. Average Coefficient of Variation

	NYSE		NASDAQ		Combined	
Year	Coefficient of Variation	Sample Size	Coefficient of Variation	Sample Size	Coefficient of Variation	Sample Size
1999	0.246	146	0.146	58	0.217	204
2000	0.074	888	0.173	697	0.117	1,585
2001	0.066	110	0.168	95	0.113	205
Total		1,144		850		1,994

The standardized median forecast errors, SFE_{it} are computed as the following:

$SFE_{it} = \frac{AE_{it} - MEF_{it}}{ABS(AE_{it})}$ where AE_{it} and MEF_{it} are the actual earnings and the median forecast errors for the firm i at the time t. Coefficient of forecast is ration of the standard deviation and absolute median forecasts.

TABLE 2
STANDARDIZED FORECAST ERRORS AND TRADING LOCATION

$$\mathbf{SFE} = \alpha + \sum_{\mathbf{k}=0}^{1} \beta_{\mathbf{TR}} \, \mathbf{TRADE_k} + \varepsilon$$

Trading Location	β Coefficient	t-Stat	P-value
NASDAQ	0.555	4.177*	0.000
NYSE	-0.512	-2.921*	0.004

Dummy variable $TRADE_k$= 0 and 1 for NASDAQ and NYSE respectively
* Significant at the 0.01 percent level.

TABLE 3
STANDARDIZED FORECAST ERRORS AND THE YEARS

$$\mathbf{SFE} = \alpha + \sum_{\mathbf{k}=0}^{2} \beta_{\mathbf{Y,k}} \, \mathbf{YEAR_k} + \varepsilon$$

Year	β Coefficient	t-Stat	P-value
1999	0.193	0.709	0.479
2000	0.107	0.371	0.789
2001	-0.161	-0.420	0.610

Dummy variable $YEAR_k$=0 for 1999. $YEAR_k$=1 (k=1, 2) for 2000 and 2001 respectively.

TABLE 4
FORECAST ERRORS AND THE NUMBER OF ANALYSTS

$$\mathbf{SFE} = \alpha + \sum_{\mathbf{k}=0}^{4} \beta_{\mathbf{NA,k}} \, \mathbf{ANALYST_k} + \varepsilon$$

k	Number of Analysts	β Coefficient	t-Stat	P-value	Implied Forecast Error
0	5 or less	0.361	2.624*	0.009	-0.405
1	6 to 10	0.076	0.368	0.713	-0.096
2	11 to 15	-0.253	-0.919	0.358	0.093
3	16 to 20	-0.457	-1.473	0.141	-0.457
4	21 or more	-0.766	-2.018**	0.044	-0.766

* and ** indicates significant at the 0.01 and 0.05 level respectively. Dummy variable $ANALYST_k$=0 for 5 or fewer analysts. $ANALYST_k$=1 (k=1,2…4) for 6-10 analysts, 11-15 analysts, 16-20 analysts and more than 20 analysts respectively.

TABLE 5
FORECAST ERRORS AND THE FIRM'S MARKET CAPITALIZATIONS

$$\mathbf{SFE} = \alpha + \sum_{\mathbf{k}=0}^{3} \beta_{\mathbf{SZ,k}} \mathbf{SIZE_k} + \varepsilon$$

k	Capitalization in millions	β Coefficient	t-Stat	Implied Forecast Error
0	> $3,090	0.006	0.024	-0.058
1	$1,080-$3,090	0.908	3.711*	0.844
2	$427-$1,080	0.389	1.589	0.325
3	<$427	-0.064	-0.372	-0.064

* indicates significant at the 0.01 level. $SIZE_k$=0 for the largest quartile and $SIZE_k$=1(k=1,2,3) for other quartiles.

TABLE 6
NON-SURVIVING FIRMS, INDUSRTY CLASSIFICATION AND THE FORECAST ERRORS

$$\mathbf{SFE} = \alpha + \sum_{\mathbf{k}=0}^{9} \beta_{\mathbf{ST,k}} \mathbf{SECTOR_k} + \varepsilon$$

k	Classification of firms	β Coefficient	t-Stat
0	Non surviving	0.461	23.617*
1	Consumer non-cyclical	0.539	9.340*
2	Service	0.173	6.714*
3	Financial	0.398	9.385*
4	Energy & Utilities	0.539	4.573*
5	Transportation	0.539	13.845*
6	Consumer cyclical	-0.035	-0.795
7	Healthcare	-0.330	-11.666*
8	Basic material & capital goods	0.135	11.994*
9	Technology	0.067	11.154*

* indicates significant at the 0.01 level. Dummy variable $SECTOR_k$=0 for the non surviving firms and $SECTOR_k$=1(k=1,2,…9) for other classifications.

TABLE 7
FORECAST ERRORS AND SOME OF THE OTHER PRIOR VARIABLES

$$\mathbf{SFE} = \alpha + \sum_{k=0}^{1} \beta_{Tr,k}\, \mathbf{TRADE_k} + \sum_{k=0}^{2} \beta_{Y,k}\, \mathbf{YEAR_k} + \sum_{k=0}^{4} \beta_{NA,k}\, \mathbf{ANALYST_k} + \sum_{k=0}^{3} \beta_{SZ,k}\, \mathbf{SIZE_k} + \varepsilon$$

	β Coefficient	t-Stat	P-value
Intercept	0.666	1.979**	0.048
NYSE traded	-0.595	-3.210*	0.001
Year 2000	0.013	0.043	0.965
Year 2001	-0.348	-0.907	0.364
21 analysts or more	0.017	0.038	0.969
16 to 20 analysts	-0.296	-0.823	0.411
11 to 15 analysts	-0.643	-0.206	0.039
6 to 10 analysts	-0.071	-0.328	0.743
> $3,090	0.108	0.343	0.743
$1,080-$3,090	0.937	3.562*	0.000
$427-$1,080	-0.208	-0.849	0.396

* and ** indicates significant at the 0.01 and 0.05 level respectively. All dummy variables are zero for index k=0 and one for other values of index k.