ANALYST FORECASTS IN NEW ZEALAND

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Abstract

This study explores analyst annual earnings forecasts in New Zealand. The results show that forecasts of New Zealand firms do not suffer from the pessimistic biases found in studies of forecasts for United States firms. Similar to United States studies, however, loss firm forecasts are significantly less accurate and more optimistic. These results suggest that New Zealand firms do not tend to manage earnings to beat expectations, but poorly performing firms might attempt to deceive investors by decreasing the quality of their information environment. Furthermore, optimism does appear to be impounded in stock prices, as firms with optimistic forecasts underperform firms with pessimistic forecasts by about 30%.

Key words: analysts, forecasts, New Zealand, behavioral finance.
Jel Classification: G14, G15, G24.

1. Introduction

Analysts' earnings forecast properties in the United States are extensively analyzed in many studies. These studies examine a wide range of issues including trends in forecast error, trends in forecast optimism, differences in the forecasts of profit and loss firms, and the relationship between forecasts and stock returns. For example, analyst forecasts became more accurate and more pessimistic in the 1990s (e.g., Brown, 2001; Matsumoto, 2002). In addition, loss firm forecasts were found to be considerably less accurate than profit firm forecasts (e.g., Butler and Saraoglu, 1999). Diether, Malloy, and Scherbina (2002) find that firms with higher dispersion in their forecasts have lower stock returns.

The purpose of this study is to evaluate analyst earnings forecasts of New Zealand firms to find if these forecasts have similarities to forecasts of United States firms. Although several international studies examine forecast properties in the context of country-level corporate governance structures, (e.g., Chang, Palepu, and Khanna, 2000; Hope, 2003), relatively few look within a country at firm-level determinants. New Zealand is a particularly interesting country to study because its financial markets are well-developed for a relatively small country, and its legal and accounting regulatory governance structures are of a quality similar to those in the United States. This study specifically analyzes three important issues: 1) trends in forecast error and optimism, 2) differences between profit and loss firm forecasts, and 3) the extent to which forecast optimism is impounded into stock prices.

The first issue, trends in forecast properties, is particularly important because in the United States the finding of a shift from optimistic forecasts to pessimistic forecasts is troubling to both academics and practitioners. Both groups claim that firms play an "earnings game", managing earnings toward certain target numbers to reap various benefits: increased stock prices, favorable publicity, and management bonuses. The earnings game is often considered dangerous. When played, long-term prospects are sacrificed by concern with short-term profits. Corporate decisions are altered, accounting rules are stretched, and investors lose faith in both financial statements and stock prices (Collingwood, 2001). Several academic studies directly examine earnings games. For example, Degeorge, Patel, and Zeckhauser (1999) find that firms manage earnings to report profits, show increasing earnings, and beat the analyst forecasts. Matsumoto (2002) extends this argument, believing that firms guide analysts toward certain targets and then beat the target, thus explaining the increase in forecast pessimism.

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The second issue, loss versus profit firm forecasts, is related to determinants of forecast properties. In the United States, forecasts are related to size and book-to-market ratio, among other items. However, even after controlling for certain firm-level characteristics, profitability is, by far, the strongest single predictor of forecast properties: loss firms have significantly greater dispersion, error, and optimism (e.g., Butler and Saraoglu, 1999; Brown, 2001; Ciccone, 2001). This finding raises concern if managers of loss firms are manipulating the information environment in an effort to fool analysts and investors. In such a scenario, not only are investors fooled and market efficiency hindered, but managerial insiders may profit directly through well-timed insider trades.

The last issue, the extent to which optimism is impounded into stock prices, evaluates whether behavioral dimensions play a role in financial markets. Ciccone (2003) and Doukas, Kim, and Pantzalis (2005) find optimism to be a component of stock returns in the United States. As the stock return data currently available to us for New Zealand are not considered complete enough, the results presented herein on this topic represent a first-pass exploration. We expect to have updated results from a more complete data set in the near future.

This paper proceeds as follows. Section 2 discusses the data and empirical methods used. Section 3 presents and analyzes the results. Section 4 concludes.

2. Data and Empirical Methods

The forecast data are obtained from the International Brokers Estimate System (IBES) international summary files. Annual data during the month of the fiscal year end are used for all forecast computations. Forecast error is computed as the absolute value of the difference between actual earnings and mean forecasted earnings, divided by absolute actual earnings. To alleviate small denominator issues, if the denominator is less than 0.05 NZD, it is set to 0.05. A forecast is considered optimistic if the mean forecast is greater than the actual earnings and pessimistic otherwise. Profitability is based on IBES earnings, which may be different from earnings under GAAP. A loss is defined as when earnings are below zero. A profit is defined as when earnings are greater than or equal to zero. Although the forecast error and optimism are determined by using mean forecasts, the results are qualitatively similar if median forecasts are used instead.

Datex and Datastream databases were used to obtain the various control variables and stock return data. Size is computed as prices times shares outstanding. Book-to-market is computed as book value divided by size. These are computed at the beginning of the fiscal year. Annual stock returns are computed from fiscal period beginning to fiscal period end.

The sample period extends from 1988 through 2002. The final sample contains 946 firm-year observations, an average of 63 observations per year. However, not all observations have a complete set of return data or control variables available. Caution must be used when interpreting the stock return results as the sample size is not large. See the individual tables for the number of observations used.

3. Results

Table 1 presents forecast error, the proportion of firms with optimistic forecasts, and the proportion of firms with losses for each sample year. Unlike United States studies, which show a strong decreasing trend in error, forecast error significantly increases in the “Late” sample period. Despite the increase, overall there is little discernible trend. Mean forecast error in 2001 is greater than mean forecast error in 1988.

Table 1

Trends in Forecast Error, Forecast Optimism, and Losses

Year	Error	Optimism	Loss
1988	0.3592	0.5652	0.0370
1989	0.3617	0.7778	0.0833
1990	0.3336	0.5094	0.0377
1991	0.1643	0.3958	0.0833
1992	0.2128	0.4211	0.0351
1993	0.1686	0.4848	0.1061
1994	0.2302	0.5455	0.0519
1995	0.1988	0.4419	0.0349
1996	0.1674	0.4557	0.0253
1997	0.1926	0.4507	0.0141
1998	0.2913	0.4865	0.0946
1999	0.6319	0.5072	0.0870
2000	0.2275	0.5000	0.0735
2001	0.4326	0.5672	0.1194
2002	0.3084	0.4082	0.0612
Full (1988-2002)	0.2799	0.4937	0.0645
Early (1988-1995)	0.2414	0.5032	0.0618
Late (1996-2002)	0.3179	0.4843	0.0671
Difference (Late-Early)	0.0765**	-0.0189	0.0053
Number of observations	946	946	946

This table reports mean forecast error and the proportion of firms with optimistic forecasts and losses by year during the 1988 through 2002 sample period. Forecast error is defined as the absolute value of the actual earnings less the mean forecast divided by absolute actual earnings. Forecast optimism occurs when the mean forecast is greater than the corresponding actual earnings. A loss occurs when Street earnings from IBES are less than zero. The early sample period is defined as 1988 through 1995; the late sample period is defined as 1996 through 2002. The ***, **, or * indicate the difference is statistically significant with 99%, 95%, or 90% confidence, respectively.

The trend in optimism also stands in contrast to United States studies. There is no trend in optimism in New Zealand. Not only are the “Early” and “Late” sample periods insignificantly different, but as in error, the optimism in 2001 is nearly the same as the optimism in 1988.

The proportion of loss firms is shown for comparative purposes. United States studies find a close relationship among forecast error, optimism, and losses. The proportion of loss firms fluctuates widely from year to year, but no discernible trend exists.

Table 2

Trends in Forecast Error, Forecast Optimism, and Losses

	Profit Firms		Loss Firms	
Year	Error	Optimism	Error	Optimism
1988	0.1641	0.5238	2.4078	1.0000
1989	0.3438	0.7576	0.5583	1.0000
1990	0.2794	0.4902	1.7180	1.0000
1991	0.0661	0.3636	1.2453	0.7500
1992	0.1962	0.4000	0.6700	1.0000
1993	0.0932	0.4576	0.8039	0.7143
1994	0.1328	0.5616	2.0095	0.2500
1995	0.1545	0.4458	1.4367	0.3333
1996	0.1555	0.4416	0.6225	1.0000
1997	0.1936	0.4571	0.1240	0.0000
1998	0.1784	0.4478	1.3719	0.8571
1999	0.4741	0.4603	2.2890	1.0000
2000	0.1863	0.4603	0.7456	1.0000
2001	0.3413	0.5424	1.1063	0.7500
2002	0.2237	0.3696	1.6077	1.0000
Full (1988-2002)	0.2076	0.4723	1.3298	0.8033
Early (1988-1995)	0.1686	0.4886	1.3451	0.7241
Late (1996-2002)	0.2461	0.4562	1.3159	0.8750
Difference (Late-Early)	0.0775***	-0.0324	-0.0292	0.1509*
Number of Observations	885	885	61	61

This table reports mean forecast error and the proportion of firms with optimistic forecasts by profit and loss subsamples during the 1988 through 2002 sample period. Forecast error is defined as the absolute value of the actual earnings less the mean forecast divided by absolute actual earnings. Forecast optimism occurs when the mean forecast is greater than the corresponding actual earnings. A loss occurs when Street earnings from IBES are less than zero. A profit occurs when Street earnings from IBES are greater than or equal to zero. The early sample period is defined as 1988 through 1995; the late sample period is defined as 1996 through 2002. The ***, **, or * indicate the difference is statistically significant with 99%, 95%, or 90% confidence, respectively.

Table 2 presents forecast error and optimism after separating firms into profit and loss subsamples. Consistent with United States forecast studies, loss firms have considerably higher forecast error and optimism. For example, over the entire sample, loss firm forecast error is higher by 1.1222 (difference not tabulated) or six times that of the profit firms. The difference is statistically significant with 99% confidence. Approximately 80% of loss firms have optimistic forecasts compared with a little less than 50% for profit firms. Profit firm forecasts are virtually unbiased over the sample period, which contrasts with the strong pessimistic bias of profit firms found in United States studies. As in Table 1, the forecast error and optimism do not show clearly discernible trends.

Table 3

Statistics by Forecast and Earnings Characteristics

	Forecast Error			
	Low	Medium	High	Difference (L – H)
Forecast Error	0.0135	0.0815	0.7464	-0.7329***
Forecast Optimism	0.3730	0.4840	0.6254	-0.2524***
Size	902.01	673.59	749.20	152.81
Book-to-Market	0.4426	0.3156	0.4366	0.0060
Proportion of Loss Firms	0.0188	0.0192	0.1556	-0.1368***
Contemporaneous Annual Return	0.2337	0.3749	0.1738	0.0599
Subsequent Annual Return				
	Forecast Optimism			
	Pessimistic		Optimistic	Difference (O – P)
Forecast Error	0.1314		0.4323	-0.3009***
Size	798.14		759.82	38.32
Book-to-Market	0.3259		0.4735	-0.1476*
Proportion of Loss Firms	0.0251		0.1049	-0.0798***
Contemporaneous Annual Return	0.4115		0.1064	0.3051***
Subsequent Annual Return				
	Profitability			
	Profit		Loss	Difference (P – L)
Forecast Error	0.2076		1.3298	-1.1222***
Forecast Optimism	0.4723		0.8033	-0.3310***
Size	789.84		570.78	219.06
Book-to-Market	0.3029		0.6767	-0.3738***
Contemporaneous Annual Return	0.3104		-0.2541	0.5645***
Subsequent Annual Return				

This table reports mean statistics after separating firms into subsamples based on forecast error, forecast optimism, and profitability. Forecast error is defined as the absolute value of the actual earnings less the mean forecast divided by absolute actual earnings. Forecast optimism occurs when the mean forecast is greater than the corresponding actual earnings. A loss occurs when Street earnings from IBES are less than zero. Size is defined as prices times shares. Book-to-market is defined as the book value of equity divided by size. Contemporaneous annual stock returns are computed from the beginning to the end of the fiscal year of the forecast period. Subsequent annual returns are computed from the beginning to the end of the fiscal year subsequent to the forecast period. The ***, **, or * indicate the difference is statistically significant with 99%, 95%, or 90% confidence, respectively.

Table 3 shows various statistics after sorting firms into subsamples based on forecast error (three portfolios), optimism, and profitability. The table confirms the previous results. Firms with higher forecast error have greater amounts of forecast optimism and losses. The size control variable does not appear to affect forecast error, optimism, or profitability. Firms with optimistic forecasts do tend to have higher book-to-market suggesting an association between optimism and value firms. This relationship might be obscured by profitability, as loss firms also tend to be value firms.

The results so far suggest the same close relationship between forecast error, optimism, and losses in New Zealand as in the United States. However, as other variables such as book-to-

market may distort this relationship, a regression framework is employed. Table 4 presents the results of a regression analysis using forecast error and optimism as dependent variables. The models control for the influence of size, book-to-market, and contemporaneous stock returns. Forecast error, a loss dummy variable, and an optimism dummy variable are also included where applicable. Three time periods are examined: the full sample period (1988-2002), an early subperiod (1988-1995), and a late subperiod (1996-2002).

Table 4

Regressions using Forecast Error and Forecast Optimism as Dependent Variables

	Coefficient (t-statistic)			Coefficient (chi-square statistic)		
	Error Full	Error Early	Error Late	Optimism Full	Optimism Early	Optimism Late
Intercept	0.16	0.17	0.13	-0.55	-1.38	-0.02
	(2.52)**	(2.59)***	(1.17)	(2.50)	(6.83)***	(0.00)
Log (Size)	-0.01	-0.03	-0.01	0.03	0.18	-0.07
	(-1.22)	(-2.02)**	(-0.59)	(0.19)	(3.46)*	(0.76)
Book-to-Market	0.00	-0.01	0.06	0.07	0.08	0.12
	(-0.19)	(-1.40)	(1.16)	(0.79)	(0.77)	(0.28)
Loss	0.64	0.80	0.49	-0.00	-0.78	0.38
	(3.72)***	(1.79)*	(2.66)***	(0.00)	(0.58)	(0.30)
Contemporaneous Return	0.01	-0.00	0.01	-0.33	-0.22	-0.33
	(1.35)	(-0.07)	(1.21)	(4.98)**	(0.56)	(3.32)*
Error				1.95	3.78	1.56
				(19.44)***	(7.88)***	(10.34)***
Optimism	0.22	0.22	0.21			
	(4.97)***	(3.45)***	(3.56)***			
Number of observations	513	209	304	513	209	304
F-Statistic	15.71***	8.28***	8.32***			
R^2 (adjusted)	0.13	0.15	0.11			
Likelihood Ratio				53.47***	26.50***	34.13***
Pseudo R^2 (max)				0.13	0.16	0.14

This table presents the results of OLS regression models explaining forecast error and logistical regression models explaining forecast optimism. Variable definitions are as in Table 3. The loss dummy variable is equal to 1 when earnings are below zero and equal to 0 otherwise. The optimism dummy variable is equal to 1 if the mean forecast is greater than actual earnings and equal to 0 otherwise. Three subperiods are tested. Full is the entire 1988 through 2002 sample period. Early is from 1988 through 1995. Late is from 1996 through 2002. White's (1980) correction is used to compute t-statistics for the OLS regressions. The ***, **, or * indicate the coefficient is statistically significant with 99%, 95%, or 90% confidence, respectively.

Forecast error is significantly related to two variables during each test period: loss and optimism. Firms with losses and optimistic forecasts have larger forecast errors. Perhaps surprisingly, size is not significant in the full and late sample periods, while book-to-market is never significant.

Forecast optimism is significantly related to forecast error as firms with greater error have greater amounts of optimism. Including forecast error in the regression eliminates the significance of losses. When error is excluded, loss is a significant variable in all test periods (not tabulated). Optimism is also related to contemporaneous stock returns in the full sample period and in the late sample period. Firms with lower returns have greater amounts of forecast optimism.

The last set of analyses examines the relation of stock returns and optimism. The analysis starts on Table 3, which includes contemporaneous stock returns with the test variables. Contemporaneous returns are computed from the beginning of fiscal year of the forecast period to the end of that fiscal year. Thus, the returns do not represent excess returns from a viable trading strategy, but do indicate the extent to which optimism is impounded in stock prices.

Firms with optimistic forecasts underperform versus firms with pessimistic forecasts by about 30% suggesting the possibility that investors do impound the optimistic expectations into the stock prices. As investors are disappointed, the stock returns are lower. However, this observation might be related to losses. Firms with losses underperform firms with profits by over 50%.

To control for the influence of other variables, a regression model is specified using contemporaneous stock returns as the dependent variable and size, book-to-market, loss and optimism dummy variables, and forecast error as independent variables. These results are presented in Table 5.

Table 5

Regressions using Contemporaneous Stock Returns as Dependent Variables

	Contemporaneous Return Full	Contemporaneous Return Early	Contemporaneous Return Late
Intercept	0.18	0.22	0.39
	(1.16)	(1.80)	(1.25)
Log (Size)	0.04	-0.00	0.04
	(1.54)	(-0.02)	(0.86)
Book-to-Market	-0.00	0.00	-0.13
	(0.00)	(0.07)	(-1.32)
Loss	-0.53	-0.40	-0.44
	(-4.98)***	(-2.38)**	(-2.36)**
Forecast Error	0.09	-0.00	0.13
	(1.77)*	(-0.07)	(1.87)*
Optimism	-0.29	-0.08	-0.41
	(-2.65)***	(-1.16)	(-2.29)**
Number of observations	513	209	304
F-Statistic	2.33**	1.25	1.72
R^2 (adjusted)	0.02	0.01	0.01

This table presents the results of OLS regression models explaining contemporaneous stock returns. Variable definitions are as in Table 3. The loss dummy variable is equal to 1 when earnings are below zero and equal to 0 otherwise. The optimism dummy variable is equal to 1 if the mean forecast is greater than actual earnings and equal to 0 otherwise. Three subperiods are tested. Full is the entire 1988 through 2002 sample period. Early is from 1988 through 1995. Late is from 1996 through 2002. White's (1980) correction is used to compute t-statistics. The ***, **, or * indicate the coefficient is statistically significant with 99%, 95%, or 90% confidence, respectively.

After controlling for the variables described above, firms with optimistic forecasts exhibit lower stock returns in the full and late sample periods. The most important control variable is loss. Firms with losses have significantly lower returns in each test period. Size and book-to-market are not related to stock returns. These results suggest the possibility of behavioral patterns in New Zealand stock returns.

4. Conclusions

The results of this study suggest that New Zealand analyst earnings forecasts are different in important ways versus United States forecasts. Firms in New Zealand do not appear to be playing the "earnings games" that firms in the United States play. New Zealand forecasts are virtually unbiased on average, and they showed no sign of becoming pessimistically biased during the sample period. However, loss firm forecasts are significantly less accurate and more optimistic. This result is consistent with studies of United States forecasts and might be explained by managerial deception as poorly performing firms attempt to manipulate their information environment.

Although the stock return results should be interpreted with caution, optimism does appear to play a role in New Zealand stock returns. Firms with optimistic forecasts have considerably lower stock returns than firms with pessimistic expectations. This introduces a couple possibilities. Investors may simply be too optimistic about certain firms thus bidding prices up too high. More cynically, certain firms might be misleading investors. In either case, as the firm disappoints, the stock returns are lower to reduce to price to a more reasonable level.

Future research can examine the issue in greater detail.

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