Analysts' activities and the timing of returns: Implications for predicting returns

Andrew A. Anabila
University of Texas Pan American

ABSTRACT

This study examines the influence of analysts on the timing of returns associated with firms' earnings news, and the implications for returns prediction. This is important for determining the lapse between the time when pieces of earnings news are available, when such news are incorporated in prices, and the implications for a returns trading strategy based on earnings prediction. The results show that depending on the level of analysts' forecasting activities for a firm, there is a significant variation in the timing of the returns associated with the firm's total, industry-wide and firm-specific components of earnings news. For firms that are subject to high (low and none) analysts' forecasting activities, the returns in a given period tend to be more associated with the contemporaneous and future (lagged and contemporaneous) earnings news. A returns trading strategy based on earnings prediction, would want to impound earnings information from the analysts' forecasts of the firms with more analysts' forecasting activities into the earnings forecasts of firms with less forecasting activities.

Keywords: Analysts' forecasting activities, Earnings, Returns prediction.

Data Availability: Data used in this study are available from the public sources indicated.

INTRODUCTION

Piotroski and Roulstone (2004) show that the co-movement (defined as stock returns synchronicity) in the returns of firms within an industry is positively associated with the level of analysts' forecasting activities. This, they argue, is because analysts' forecasting activities incorporate earnings information into prices. This study examines the implications of those findings for a returns trading strategy that predicts earnings. Since the earnings of a firm are associated with those of its industry peers (Baber et al., 1999; Ramnath, 2002 and Anabila, 2003), differences in analysts' forecasting activities suggest that fund managers and arbitrageurs could transfer earnings news from forecasts for firms with more analysts' activities to those of firms with low activities.

First, this study modifies Ayers and Freeman (1997) to analyze the incremental impact of analysts' forecasting activities on the relation between stock returns and the components of earnings news (i.e. industry-wide and firm-specific components of the annual change in earnings). The objective here is to determine which, if any, stocks do not incorporate all available information on the earnings news at a given time. Such stocks are potential candidates for portfolio selection in the returns trading strategy.

The Ayers and Freeman (1997) approach enables this study to decompose firms' earnings into news components as potential inputs to the earnings prediction part of the returns trading strategy. The industry-wide earnings news can be obtained from information released on the industry by the firms, government agents, and analysts who follow the industry. The firm-specific earnings information is relatively idiosyncratic, with fewer and less public sources such as fundamental analysis of the firm's historical information, disclosures by management and other insiders, or analysts' forecasts.

Second, this study modifies the methodology in Ball and Brown (1968) to examine the impact of analysts' forecasting activities on the dynamics of the returns associated with earnings news. The objective is to determine the pattern, in time, of the availability of the industry-wide and firm-specific earnings information, when it is impounded in prices, and how this varies with the level of analysts' forecasting activities. This is important because fund managers and arbitrageurs would be looking to exploit mispricing due to timing differences between the availability of news and its pricing.

The significance of identifying the components of earnings news for pricing, the sources of information on the news, and the timing of the pricing of such news, are crucial. For example, Thomas and Zhang (2008), show strong evidence of returns overreaction by later announcers to earnings news from earlier announcing industry peers. Therefore, it is not sufficient that information is available, the timing of its incorporation is crucial for avoiding "duplication" and price overreaction.

The sample comprises of USA firm year observations with December fiscal years from 1980 through 2010, at the intersection of Compustat and CRSP. Following Piotroski and Roulstone (2004), the level of analysts' forecasting activities is the average number of forecasts issued during the year, in *I/B/E/S* (*FirstCall* in this study) summary file.

The results in this study show that the level of analysts' forecasting activities has a significant positive impact on the timing (how early), direction, and strength of the returns associated with the total, industry, and firm specific earnings news. For example, the returns of firms with higher (lower) analysts' forecasting activities are more positively associated with the current and future (current and prior) years' earnings news.

Also, in reacting to the earnings news, returns anticipate bad news (negative change in earnings) by up to 5 months before the period begins, but anticipate good news only around the period's beginning. Further, the returns of firms that have higher analysts' forecasting activities anticipate both good and bad news by up to a month earlier than that of firms with the low and no analysts' forecasting activities. Therefore differences in returns synchronicity are related largely to timing differences in the incorporation of earnings news and analysts' activities. In sum, an earnings prediction returns trading strategy should consider predicting the earnings long before their announcements. Also, the strategy needs to transfer earnings information say, from analysts' forecasts of firms with higher analysts' forecasting activities to predict the earnings and returns of firms with lower analysts' forecasting activities.

This study contributes to prior research in two major ways. First, the results in Piotroski and Roulstone (2004), while very inspiring, do not relate the differences in returns synchronicity to the earnings news. It is possible that for firms whose returns do not move with the industry, their earnings news also are less related to that of the industry, and this probably explains the low or no analysts' forecasting activities for such firms. This is the assumption underlying Ramnath (2002), who forms industry groups based on commonality of analysts' following. However, the approach in Ramnath (2002) has the potential to cause overreaction by 'duplicating' news, if the same news is incorporated from more than one earlier announcer. Thomas and Zhang (2008) show strong evidence on stock price overreaction to earlier announcers. This study shows that the difference in returns synchronicity is contemporaneous and is moderated by analysts' forecasting activities. This makes fundamental analysis potentially profitable.

Second, Ramnath (2002) requires that actual earnings of firms be released before the implications for the industry-wide earnings are ascertained and priced for other firms. Such an approach is less feasible because firms may announce earnings on the same date, and may be followed by different analysts. Using analysts' forecasts of industry peers that have more (not necessarily the same) analysts' activities, as suggested by this study will be more feasible because forecasts are often available even before the period begins.

The rest of the study proceeds as follows: Section 2 provides a link to prior research; section 3 describes the models used in the study, section 4 describes the sample and the treatment of data; section 5 discusses the results and the implications, section 6 summarizes and concludes the study.

PRIOR RESEARCH

A number of research studies have examined the relation between returns and earnings news. For example, Ball and Brown (1968) shows that prices tend to start impounding earnings news about 12 months prior to the earnings announcement month. Ayers and Freeman (1997) show that the returns of a firm are positively (negatively) associated with industry-wide and firm-specific components of the current and future (prior) period's earnings news.[1] Those studies show that the market anticipates and incorporates the earnings news before the period ends, and that an earnings prediction

[1] The approach in this study, similar to Ayers and Freeman (1997) adjusts the earnings news for that of the market so it does not consider the economy-wide earnings as in Anilowski et al. (2005). Therefore, the findings in Anilowski et al. (2005) do not have a direct implication for those of this study.

approach to stock trading would require a prediction of the earnings news before the period ends. Piotroski and Roulstone (2004), show that the co-movement in the returns of firms within an industry increases in analysts' forecasting activities.

Though Piotroski and Roulstone (2004) do not relate earnings news to returns, the study stresses that it takes trade generating activities such as earnings forecasting by analysts to incorporate earnings news into prices. However, it is not certain whether the differences in the returns co-movement is due to differences in earnings results amongst the firms and/or differences in analysts' forecasting activities. Earnings co-movement is the basis of Baber et al. (1999) and Ramnath (2002). These two studies assume indirectly (for the former) and directly (for the latter study) that commonality of analysts' following should enhance co-movement of earnings, and similarly, returns. The results in Ramnath (2002) are consistent with this assumption. This study argues that an earnings prediction approach to returns prediction requires that returns do not impound available earnings news. Accordingly, firms whose earnings co-move (usually industry peers) but whose returns vary in the speed (based on analysts' forecasting activities) with which the earnings news are impounded into prices, are candidates for such a trading strategy.

Consistent with its conjectures, this study shows that variations in the levels of analysts' forecasting activities provide a role for fundamental analysis (earnings prediction) approach to returns trading. It shows that it is possible for earnings to co-move (Magee 1974, Brown and Ball, 1967) yet returns would appear not to co-move because of variations in the level of analysts' forecasting activities.

It also shows that there is an asymmetry in the speed with which a change in news is anticipated: an annual change from bad (negative change in earnings) to good (positive change in earnings) news is anticipated earlier than a change from good to bad news. Elgers et al. (2001) shows that the stock prices exhibit a significant delay before impounding earnings news from analysts' forecasts that are available at the beginning of the year. This study extends those results by showing that the delay in impounding earnings news is inversely related to the level of analysts' forecasting activities and the sign of the earnings news. This is important in guiding arbitrageurs and fund managers as to what positions to take and for which firms when doing fundamental analysis involving earnings and returns prediction. Both an over- and under-reaction exist, because of differences first in industry and firm-specific news, and second analysts' activities.

METHODOLOGY

For each year, this study ranks firms by their level of analysts' forecasting activities: zero for no analysts' forecasts at all, one for low, two for medium and three for high analysts' forecasting activities. This is done within the first two-digit SIC code.[2]

There are two parts to the analysis in this paper. The first part of the analysis ascertains whether the relation between earnings components and returns vary with the level of analysts' forecasting activities. Following Ayers and Freeman (1997), this study estimates a regression of excess returns for the year on the industry-wide and firm-specific earnings components for the current, prior and next year. The specification is in model (1) below. Unlike Ayers and Freeman (1997), the regression is modified to include

[2] Using the NAICS shows that about 10% of the sample belonging to an SIC did not belong to the same NAICS. However, using NAICS groupings for the analysis yields similar results to those reported here.

the following: first, the interaction between the earnings news and the level of analysts' forecasting activities, and second returns drivers identified in prior research (see model (2). The controls are size, book-to-market, trading volume (Piotroski, 2000), change in financing (Bradshaw et al., 2004). The models are as follows:

$$VWR_{i,t} = \alpha + \sum_{\tau=-1}^{1} \beta_\tau IML_{j,t+\tau} + \sum_{\tau=-1}^{1} \gamma_\tau FIL_{i,t+\tau} + \varepsilon_{i,t} \quad \text{(see Ayers and Freeman, 1997).} \qquad (1)$$

$$VWR_{i,t} = \alpha + \sum_{\tau=-1}^{1} \beta_\tau IML_{j,t+\tau} + \sum_{\tau=-1}^{1} \gamma_\tau FIL_{i,t+\tau} + \psi * FCAF_{i,t} + \sum_{\tau=-1}^{1} \theta_\tau FCAF_{i,t} * IML_{j,t+\tau}$$

$$+ \sum_{\tau=-1}^{1} \phi_\tau FCAF_{i,t} * FIL_{i,t+\tau} + \lambda BM_{i,t-1} + \omega TVOL_{i,t-1} + \xi SIZA_{i,t-1} + \rho DFINA_{i,t-1} + \zeta VWR_{i,t-1} + \delta_{i,t} \quad (2)$$

Where: $VWR_{i,t}$ is the cumulative excess (over value weighted market) returns (see (3) below); Industry-wide earnings news; $IML_{j,t} = DINDP50_{j,t} - DMARP50_t$ (3a); Firm-specific earnings news; $FIL_{i,t} = DFEL_{i,t} - DINDP50_{j,t}$ (3b); $DINDP50_{jt}$=Two-digit industry's median change in earnings for industry j, $DMARP50_t$=Market (entire sample) median change in earnings, $DFEL_{i,t}$=Firm i's change in earnings, $FCAF_{i,t}$=Mean number of Analysts' Forecasts, scaled. The variables $BM_{i,t-1}$, $SIZA_{i,t-1}$, $TVOL_{i,t-1}$, $VWR_{i,t-1}$ *and* $DFINA_{i,t-1}$ represent book-to-market, size, trading volume, momentum and change in financing respectively. Returns are accumulated over the 12 months to the fiscal year t end for use in the regressions.[3] Model (4) captures the returns accumulation:

$$VWR_{i,t} = \prod_{m=-11}^{m=0}(1 + RET_{i,t,m}) - \prod_{m=-11}^{m=0}(1 + VWRETD_{t,m}) \qquad (3)$$

Where: $RET_{i,t,m}$ = firm *i*'s raw returns for month *m* of year *t*; $VWRETD_{,t,m}$ = CRSP value-weighted market returns in month *m*, for fiscal year t.

The second part of the analysis examines the returns reaction to the earnings news, by the ranks of analysts' forecasting activities. Following Ball and Brown (1968), this study plots mean cumulative excess monthly returns by the sign of earnings news.

SAMPLE

Data Sources and Sample

The analysis is based on USA listed firm year observations from 1980 through 2010. The principal source of financial data for computing the earnings news (change in earnings) and other financial variables is the *COMPUSTAT* annual file. The extent of analysts' forecasting activities (mean number of forecasts for the fiscal year issued during the fiscal year) is from the *FIRSTCALL* summary file. Returns are computed using the *CRSP* monthly stock files. Alternative analyses are presented using different returns measures. Following Ayers and Freeman (1997), only December fiscal year end firms with change in earnings before extraordinary items for the prior, current and next fiscal year are considered. This ensures that earnings news, especially for the industry, are well aligned for the observations, and avoids the impact of seasonality on firms' fundamentals. The change in earnings is scaled by lagged market value. Like Ayers and Freeman (1997), observations with absolute value of earnings news exceeding 1.5 are dropped.

[3] Alternative returns windows were used (not tabulated), but they yielded similar conclusions as reported.

Applying the foregoing criteria yields an initial sample of 97,291, but 88,179 of these qualify for final inclusion in the sample after requiring the availability of monthly returns data over the entire fiscal period through the six months of the following period (for the plots). The earnings news ($DFEL_{i,t+\tau}, \tau = -1,0,1$) is the change in earnings before extraordinary items (variable 'ib') scaled by lagged market value of common equity (CRSP monthly stock file variable 'prccd'*cshoc/1000000).[4] Size (SIZA) is defined as log of total assets (data item 'at'). Book-to-market (BM) is defined as book value of common equity (data item 'ceq') divided by market value of common equity. Trading volume is the number of shares traded (data item 'cshtr_f') divided by number of shares outstanding (data item 'cshoc'). The change in total financing (DFINA) is the sum of the change in equity (data item 'seq' less its lag), and debt financing (sum of data items 'dlc' for current portion of longterm debt + 'dltt' for longterm debt, less the sum of the lagged values), scaled by total assets.

Descriptive Statistics

I report summary statistics in Table 1. Panel A of the table pools together the entire sample. Panel B breaks the sample down by the level of analysts' forecasting activities. See Table 1 (appendix).

From panel A of Table 1, the mean (0.21) and median (-0.054) excess returns suggest that most firm years earned less than the value-weighted market portfolio but a few have a very high (than the market) return. This is expected because the sample comprises the larger well established firms that have a history of data, and tend to be efficiently priced early on. The book-to-market ratio (0.740 mean, 0.599 median) is less than one. Similar to Ayers and Freeman (1997), the sample has positive mean (0.17, 0.12, 0.22 for DFELt, $DFEL_{t-1}$, and $DFEL_{t+1}$ respectively), and median (0.007, 0.007, 0.007, for DFELt, $DFEL_{t-1}$, and $DFEL_{t+1}$ respectively) total earnings news. Also, as would be expected, the mean and median industry-wide and firm-specific news are zero or almost, since they represent the means and medians of deviations from the median.

The panel B of Table 1 shows that the mean (median) number of monthly forecasts issued and revised in the fiscal year for the year, i.e. MNEST, for high, medium and low ranks of MNEST are 14.438 (12.917), 5.181 (4.500) and 1.699 (1.250) respectively. In that panel, there is no clear pattern as to which category of firms in Panel B earn the most excess (over value-weighted market adjusted) returns, i.e. VWR. The dispersion in returns (Stdev) are similar in all the panels. The variation in the earnings news ($DFEL_t$) is not clearly different over the levels of analysts' forecasting activities. The caution in drawing conclusions here is that multivariate analysis based on multiple regressions for example, are necessary. This is because the maintained hypothesis of this study is that prices impound earnings news at different rates depending on the level of analysts' forecasting activities.

Book-to-market (trading volume and size) seems to decrease (increase) in analysts' forecasting activities. This is consistent with prior research (Hayes, 1998; McNichols and O'Brien, 1997 and Piotroski, 2000). There is no obvious relation between change in financing activities and analysts' forecasting activities ranks as per the table.

[4] The division by 1,000,000 converts the market value to the million scale, similar to the financial data.

RESULTS

Simple Analysis

Correlation analyses are reported in Table 2. Only the main test variables are considered. All coefficients are computed using the Pearson approach. See Table 2 (appendix).

Most of the correlation coefficients are significant at 1% or better. The excess returns (VWR) are positively correlated with the industry-wide earnings news (IML) of the prior, current and next year (coefficients of 0.033, 0.132 and 0.035 respectively). However, coefficients for the correlation between VWR and firm specific news (FIL) of the prior, current and future year are mixed (coefficients of 0.052, 0.253 and -0.090). The correlation between VWR and FCAF is positive (0.010). However, the correlation between VWR and TFML (interaction between FCAF and IML for all periods), and between VWR and TFFL (interaction between FCAF and FIL for prior and current year) are all positive (0.011, 0.060, 0.030, 0.011 and 0.136), but the coefficient for VWR and TFFL for the future year is -0.013. These suggest that analysts' forecasting activities speed up the incorporation of industry-wide news and to a lesser extent firm-specific earnings news into prices. Further analysis is necessary to ascertain the potential incremental impact of analysts' forecasting activities on the returns.

The Relation between Excess Returns and the Components of Earnings News

The multiple regressions that explain the excess returns using the components of the earnings news are reported in Table 3. These are based on model (2). To mitigate autocorrelation in the variables, yearly regressions are estimated, and then the time series means of the parameters are computed. Each part of the results specifies the model used. See Table 3 (appendix).

The first specification in Table 3 is a replication of Ayers and Freeman (1997). Consistent with the results in Ayers and Freeman (1997), the returns are significantly positively associated with the current industry (slope and 4.2146), and the prior and current firm-specific (slopes of 0.3881 and 0.8066 respectively) news. These suggest that the firm-specific news is generally not as speedily impounded in prices as the industry news, so that the prior firm specific news (but not the prior industry news) still explains the current returns, a year after the news is realized. This presents a general opportunity to trade if such news can be predicted early. The earnings news explain about 11.61% (i.e. AdjRsq of 0.1161) of the variations in the excess returns.

The second specification goes beyond Ayers and Freeman (1997) by modifying the first specification, introducing interaction terms and control variables. The interactions are first between analysts' forecasting activities and the industry news (TFML=FCAF*IML), and second between analysts' forecasting activities and the firm-specific news (TFFL=FCAF*FIL), for each firm 'j' in periods t-1, t, and t+1 respectively. They are meant to capture the incremental relation between the industry-wide earnings news and the excess returns as the level of analysts' forecasting activities varies. The control variables are drivers of returns that have been identified in prior research. All the parameters (except for $IML_{j,t-1}$ with slope of 0.8409 and FIL_{t+1} with slope of -0.1180, that

become significant) are similarly significant as in the first specification. The extent of analysts' forecasting activities (FCAF) is incrementally significant (slope 0.2853) in explaining the excess returns, consistent with the conjecture in Piotroski and Roulstone (2004). Of the interaction terms, $TFML_{t+1}$ with slope of 5.2311, $TFFL_{t-1}$ with slope of 0.9504, $TFFL_t$ with slope of 2.9559, and $TFFL_{t+1}$ with slope of 1.9349 are significantly positively associated with VWR. These suggest that analysts' forecasting activities are incrementally significant for incorporating future industry news and past, current and future firm-specific news into prices.

Still on the second specification, BM is positively associated with returns, suggesting that the book value lags the market in impounding future expectations. However, SIZA is negatively associated with returns, suggesting that big firms impound future news in prices sooner than small firms. The other control variables are not clearly significant. The adjusted R-square is 0.1738 (i.e. 17.38%). Thus, including those return drivers improves on the estimation and supports the original conjectures being tested.

These results suggest overall that first, industry-wide news are priced earlier than firm-specific news (corroborating Ayers and Freeman, 1997), and second that firms with lower or no analysts' forecasting activities delay in pricing earnings news. The returns are explained more by the prior and current period industry earnings news.[5]

This part of the analysis has demonstrated the variations in the delay at incorporating the earnings news into prices. However, an earnings prediction approach to returns prediction may not be feasible if the delay does not allow enough time for implementing the strategy. Also, the source of the earnings news for use in predicting the earnings may not be clear, for example where would a fund manager obtain the industry-wide earnings news? The following sub-section addresses these questions.

The Timing of the Returns Associated With Earnings News

I employ graphs similar to those of Ball and Brown (1968) to examine the association between returns and the earnings news over time. Figures 1a through 1c, present the relation between excess returns and total earnings news. See Figures 1a through (Appendix).

In figure 1a, the stock prices start impounding the earnings news, both good and bad, from the first month of the fiscal year. Figure 1b shows that depending on the level of analysts' forecasting activities, the prices may impound the earnings news with a different speed. For the firms with positive total good news, the returns are less associated with the current earnings news for the firms with the most forecasting activities, but this association increases as analysts' forecasting activities decreases. The relation between the excess returns and the current earnings news for the firms with high analysts' forecasting activities (VWRF3_B and VWRF3_G) is weak because analysts are also impounding the future year's earnings news in the prices. Similarly, for the firms with no forecasting activities (VWRF0_B and VWRF0_G), the weak returns association

[5] As explained under the methodology section, the analysis was repeated using two different return windows as follows: first the 12 months that end in the third month after the fiscal year end as done in Ayers and Freeman (1997), second the 12 months period that ends in the earnings announcement month as done in Ball and Brown (1968). Each of those two replications yielded similar results as reported in this study.

is because the returns are reacting in part to some of the prior period news. The relation between the returns and forecasting activities for the bad news portfolios (labels ending in "B" in figure 1b e.g. VWRF0_B) is not monotone as the plots are not clearly distinguishable for each of the rankings of forecasting activities.

To ascertain the implications for returns prediction, figure 1c presents a plot of the returns to a hedge portfolio that goes long (short) on the good (bad) news firms within each ranking of forecasting activities. For each rank of analysts' forecasting activities, the hedge portfolio returns are obtained by subtracting the returns for the bad news from that for the good news firms of Figure 1b. At the end of the fiscal year (month =0), the hedge portfolio returns increase monotonically from a low of about 22% for the highest rank firms to about 32% for the low rank. The monotone pattern is broken by the portfolio with no analysts' forecasting activities which has returns of about 29%. This is partly because the returns are also related to the prior earnings news as well (see Table 3 in the appendix). Thus, assuming all else equal, the potentially profitable portfolios are, in decreasing order, those in the Low, Medium, and then zero forecasting activities. See Figures 2a through 2c (Appendix).

Figures 2a through 2c repeat the analysis in figures 1a through 1c, but consider the industry-wide earnings news rather than total earnings news, for the current period only. The plot in figure 1a shows an overreaction (which is stronger for bad news than good news) to industry earnings news. The overreaction reverses, beginning 3 months earlier for good news, and at the end of the year (month=0) for bad news portfolios respectively. This is consistent in part with Thomas and Zhang (2008) who document a widespread overreaction to earlier announcing industry peers' earnings news. The returns in these figures (2a through 2c) are not as high as those in figures 1a through 1c, because they are the returns to only a part of the total earnings news. The patterns in figures 2a and 2b are similar to those of figures 1a and 1b; firms with low and medium forecasting activities earn higher returns to the current industry earnings news than firms with high and no forecasting activities. The differences are attributable to the fact that the no forecasting activities portfolio are reacting in part to the prior industry and firm specific earnings news, and the current firm specific news. The hedge portfolio returns, computed and plotted using a similar approach as 1c, show that at the year end, the returns decrease monotonically beginning with firms that have low to those with high forecasting activities. The portfolio with "no analysts' forecasting activities" earns higher (lower) returns than for the high (medium) forecasting activities.

Figures 3a through 3c repeat the analysis in 1a through 1c, but for only the firm-specific (idiosyncratic) earnings news components. The tenor of the results is similar to those for the total earnings news in figures 1a through 1c: By the year end (month 0), the portfolio in the highest forecasting activities rank show the least hedge returns (3c). Unlike figures 2a through 2c, there is no evidence of overreaction to firm specific news. See Figures 3a through 3c (Appendix).

How Early Does the Market Anticipate a Change in Earnings News

The results in Table 3 of this study, and those of Ayers and Freeman (1997) show that the returns tend to react to the earnings news of more than one period. The plots in figures 1a through 3c do not control for the prior and future earnings news so it is not

certain on average when precisely the market completes reacting to a given period's news and starts reacting to that of a subsequent period. This is important for determining when to start implementing a trading strategy. For this objective, this study plots the returns to the earnings news, for two adjacent periods (t, through six months into period t+1), in figures 4a and 4b. The plots consider the signs of the news for both period t and t+1. See Figures 4a through 4c (Appendix).

Figure 4a, presents the returns after double sorting by the sign of the news in both period t and t+1 for the entire sample. These plots focus on the total earnings news. For example, VWRNN_BB represents the portfolio of firms with bad news in both period t and t+1, and VWRNN_BG represents that of firms with bad news in period t but good news in t+1. In this figure, the returns to the portfolios for which the sign of the news did not change from period t to period t+1 (VWRNN_BB and VWRNN_GG) continue in the same direction from period t to period t+1, so, one cannot tell when the reaction to period t news ended and when that for t+1 started. For the portfolios with a change in news from period t to period t+1 (VWRNN_BG and VWRNN_GB), the excess returns do change in direction. The change is consistent with the change in news, revealing the approximate average timing of when the reaction to period t news ends, and when the reaction to period t+1 news starts. The reaction to the good news (VWRNN_BG) starts roughly at the beginning of the year (month=0, i.e. the beginning of year t+1, or 12 months to the fiscal year end). However, the reaction to the bad news (VWRNN_GB) starts at around month=-4 (i.e. about 5 months to the beginning of the fiscal year t+1, equivalent to 5+12=17months before the fiscal year end). Clearly, bad news is anticipated earlier than good news, and the transition shows the end (start) in the reaction to period t (t+1) news.

Figure 4b focuses on the portfolios with a change in news, but sorts further by analysts' forecasting activities rank. First figure 4b corroborates 4a, that bad news is anticipated earlier than good news. It is apparent from 4b that the high rank (of analysts' forecasting activities) portfolio starts impounding the news first, followed by the medium and low ranks. The portfolios that have no analysts' forecasts show a clear point in time for the change in returns direction only for the bad news portfolio.

Robustness Tests

Results of the most important of the various robustness tests conducted in this study are discussed below. First, for model (2), instead of directly interacting the analysts forecasting activities with the earnings news, dummies for the analysts' forecasting activities ranks are used and interacted with the earnings news components. For this specification, the results were similar to those in Table 3 based on model (2). Second, this study computes and uses size decile-adjusted returns and also the equally weighted market excess returns. For the size-deciles, firm-years in a given year are ranked into 10 using their year-end market capitalization as of the end of the prior year. This is important because though most studies use the market-adjusted (reported in Table 3 of this study) and size-adjusted returns interchangeably, Ayers and Freeman (1997) used the size adjusted returns. The results were quite similar to those reported in Table 3.

CONCLUSION

This study has examined the association between components of earnings news and returns, and the effect of analysts' forecasting activities on the association. The analysis also examines the timing of returns to earnings news. The results show that the returns of firms that are subject to high (low or none at all) forecasting activities tend to be more associated with current and future (current and prior) earnings news.

The results also show that the returns of firms in the portfolio that characterizes high analyst forecasting activities tend to incorporate the earnings news faster. Also, the timing of the incorporation of the earnings news is inversely related to the sign of the news (bad news is incorporated earlier). Future research can examine directly the profitability of an earnings prediction approach to fundamental analysis that predicts the earnings of firms with lower analysts' forecasting activities and uses these to predict the returns of such firms. Understandably, such a strategy would have to control for transaction costs and beat current or existing trading strategies.

REFERENCES

Anabila,A.A.. 2003. Improving earnings forecasts using intra-industry information transfers. *PhD Dissertation*, Columbia University.

Anilowski, C., M. Feng and D.J. Skinner. 2005. Is guidance a macro factor? The nature and information content of aggregate earnings guidance. *Working paper*. University of Chicago.

Ayers B. and R.N. Freeman. 1997. Market assessment of industry and firm earnings information. *Journal of Accounting and Economics*. 24: 205-218

Baber, W. R., J. D. Kim, and K. R. Kumar. 1999. On the use of intra-industry information to improve earnings forecasts. *Journal of Business Finance and Accounting* 26 (November/December): 1177-1198.

Ball, R., and Brown, P. 1968. An empirical evaluation of accounting income numbers. *Journal of Accounting Research* 6: 159-178.

Bradshaw, M. T., S. A. Richardson and R. G. Sloan. 2004. The relation between corporate financing activities, analysts' forecasts and stock returns. *Working paper*, University of Michigan

Brown, L. 1993. Earnings forecasting research: Its implications for capital markets research. *International Journal of Forecasting* 9: 295-320.

Brown, P., and R. Ball. 1967. Some preliminary findings on the association between the earnings of a firm, its industry, and the economy. *Journal of Accounting Research* Supplement: 55-80.

Elgers P. T., M.H. Lo and R. J. Pfeiffer. 2001. Delayed security price adjustments to financial analysts' forecasts of annual earnings. *The Accounting Review* 76 (4): 613-631.

Hayes, R. 1998. The impact of trading commission incentives on analysts' stock coverage decisions and earnings forecasts. *Journal of Accounting Research* 36 (Autumn): 299-320.

Magee, R. P. 1974. Industry-wide commonalities in earnings. *Journal of Accounting Research* 12 (Autumn): 270-287.

McNichols, M., and P. O'Brien. 1997. Self-selection and analysts' coverage. *Journal of Accounting Research* 35 (Supplement): 167-199.

Piotroski, J. D. 2000. Value investing: The use of historical financial statement information to separate winners from losers. *Journal of Accounting Research 38* (Supplement): 1-41.

Piotroski, J. D. and D. T. Roulstone 2004. The influence of analysts, institutional investors, and insiders on the incorporation of market, industry, and firm-specific information into stock prices. *The Accounting Review* 79 (4): 1119-1151.

Ramnath, S. 2002. Investor and analyst reactions to earnings announcements of related firms: An empirical analysis. *Journal of Accounting Research* 40 (December): 1351-1376.

Thomas, J., and F. Zhang. 2008. Overreaction to intra-industry information transfers? *Journal of Accounting Research* 46 (4): 909-940

Table 1: Summary descriptive statistics

	Panel A: Pooled (all) sample					Panel B: By ranks of analysts' forecasting activities											
	All observations (N=88,179)					None (N=36,402)			Low (N=16,856)			Medium (N=17,710)			High (N=17,211)		
Variable	Mean	Stdev	Q1	Q2	Q3	Mean	Stdev	Q2	Mean	Stdev	Q2	Mean	Stdev	Q2	Mean	Stdev	Q2
VWR_t	0.021	0.537	-0.314	-0.054	0.229	-0.002	0.573	-0.089	0.051	0.582	-0.045	0.033	0.507	-0.040	0.028	0.430	-0.017
VWR_{t-1}	0.022	0.532	-0.311	-0.052	0.229	-0.021	0.558	-0.103	0.018	0.555	-0.072	0.068	0.520	-0.011	0.069	0.448	0.005
BM_{t-1}	0.740	0.569	0.335	0.599	0.975	0.852	0.655	0.700	0.790	0.562	0.672	0.647	0.446	0.554	0.550	0.401	0.455
$TVOL_{t-1}$	1.057	1.182	0.298	0.625	1.308	0.724	0.922	0.414	0.902	0.978	0.570	1.300	1.227	0.874	1.664	1.478	1.083
$SIZA_{t-1}$	5.453	2.239	3.758	5.370	7.062	4.382	2.173	4.021	4.987	1.626	4.882	6.006	1.598	5.952	7.603	1.703	7.660
FIL_{t-1}	0.006	0.148	-0.029	0.000	0.028	0.009	0.184	-0.001	0.007	0.151	0.000	0.003	0.106	0.001	0.001	0.083	0.001
FIL_t	0.011	0.181	-0.031	0.000	0.029	0.020	0.223	0.000	0.015	0.187	0.001	0.000	0.131	0.000	0.000	0.104	0.000
FIL_{t+1}	0.016	0.214	-0.031	0.000	0.031	0.026	0.260	0.000	0.020	0.216	0.001	0.005	0.165	0.000	0.001	0.131	0.000
IML_{t-1}	0.000	0.014	-0.007	0.000	0.006	-0.001	0.014	0.000	0.000	0.014	0.000	0.000	0.014	0.000	0.000	0.013	0.000
IML_t	0.000	0.014	-0.006	0.000	0.006	0.000	0.014	0.000	0.000	0.015	0.000	0.000	0.015	0.000	0.000	0.014	0.000
IML_{t+1}	0.000	0.015	-0.006	0.000	0.007	0.000	0.014	0.000	0.000	0.015	0.000	0.000	0.015	0.000	0.000	0.015	0.000
$DFINA_{t-1}$	0.057	0.147	-0.005	0.015	0.092	0.064	0.163	0.016	0.054	0.146	0.013	0.059	0.137	0.018	0.044	0.118	0.013
$DFEL_t$	0.017	0.184	-0.026	0.007	0.036	0.026	0.226	0.007	0.021	0.190	0.007	0.006	0.134	0.006	0.006	0.106	0.007
$DFEL_{t-1}$	0.012	0.151	-0.024	0.007	0.035	0.016	0.187	0.006	0.013	0.154	0.006	0.009	0.109	0.008	0.007	0.086	0.008
$DFEL_{t+1}$	0.022	0.217	-0.027	0.007	0.039	0.033	0.262	0.007	0.027	0.219	0.008	0.012	0.168	0.007	0.007	0.134	0.007
$MNEST_t$	4.184	6.473	0.000	1.083	5.667	0.000	0.000	0.000	1.699	1.077	1.250	5.181	3.046	4.500	14.438	7.400	12.917

The sample comprises USA listed firm years in the Compustat Annual file over 1980 through 2010. To qualify for inclusion, the firm year must have earnings before extraordinary items and lagged total assets for the prior, current, and next year, and must have December fiscal year end. Firm years must also have monthly returns in CRSP monthly stock file. The level of analysts' forecasting activities (MNEST) is the mean of the number of earnings forecasts issued during the fiscal year for the fiscal year, as per the Firstcall summary file (I/B/E/S in Piotroski and Roulstone, 2004). VWR is the cumulative excess (over value-weighted market) returns for the current fiscal year, and its lagged value is used to control for momentum or contrarian tendencies. BM, TVOL and SIZA represent book-to-market common equity, trading volume (shares traded divided by shares outstanding), and log total assets (for size). DFELt, DFELt-1 and DFELt+1 are the earnings news (the change in earnings before extraordinary items) for the current, prior and next year (See Ayers and Freeman, 1997). IMLt-1, IMLt and IMLt+1 are the industry-wide earnings news, that is the median of the earnings news of the firm's two-digit industry group, less the median of the earnings news for the market (entire sample), for the prior, current and next year respectively. FILt-1, FILt and FILt+1 are the firm-specific earnings news computed as the change in earnings less the median two-digit industry's change in earnings. DFINAt-1 is change in financing for the prior year (the sum of change in debt and equity financing) scaled by total assets for the prior year. The data items used to compute the variables are further described in the main text.

Table 2: Correlation coefficients for main test variables

Variable	VWR_t	IML_{t-1}	IML_t	IML_{t+1}	FIL_{t-1}	FIL_t	FIL_{t+1}	$FCAF_t$	$TFML_{t-1}$	$TFML_t$	$TFML_{t+1}$	$TFFL_{t-1}$	$TFFL_t$
IML_{t-1}	0.033	1											
IML_t	0.132	0.095	1										
IML_{t+1}	0.035	-0.057	0.064	1									
FIL_{t-1}	0.052	0.071	0.011	-0.012	1								
FIL_t	0.253	-0.022	0.079	0.016	-0.221	1							
FIL_{t+1}	-0.090	-0.028	-0.024	0.078	-0.066	-0.207	1						
$FCAF_t$	0.010	0.010	0.004	0.005	-0.019	-0.039	-0.042	1					
$TFML_{t-1}$	0.011	0.561	0.049	-0.049	0.011	-0.002	-0.011	-0.008	1				
$TFML_t$	0.060	0.049	0.570	0.021	0.005	0.016	*-0.006*	-0.010	0.087	1			
$TFML_{t+1}$	0.030	-0.049	0.021	0.573	***-0.008***	0.004	0.021	0.005	-0.094	0.037	1		
$TFFL_{t-1}$	0.011	0.020	0.010	-0.014	0.393	-0.106	-0.031	***0.008***	0.012	0.016	-0.016	1	
$TFFL_t$	0.136	-0.004	0.029	***0.008***	-0.105	0.400	-0.109	***-0.007***	0.003	0.025	***0.008***	-0.283	1
$TFFL_{t+1}$	-0.013	-0.019	-0.011	0.039	-0.030	-0.106	0.422	-0.005	-0.028	-0.010	0.045	-0.060	-0.278

This table reports Pearson correlation coefficients. The variable FCAF represents the scaled (by 50) value of the level of analysts' forecasting activities (MNEST). All variables, including MNEST are defined in Table 1, except for the following variables: Interaction between analysts' forecasting activities and industry earnings news, $TFML_{t+j}=FCAF_{t+j}*IML_{t+j}$, for all j; Interaction between analysts' forecasting activities and firm-specific earnings news, $TFFL_{t+j}=FCAF_{t+j}*IML_{t+j}$, for all j. All underlined values are significant at 1% or better, all values in bold italics are significant at 5% or better, all values in italics are significant at 10% or better.

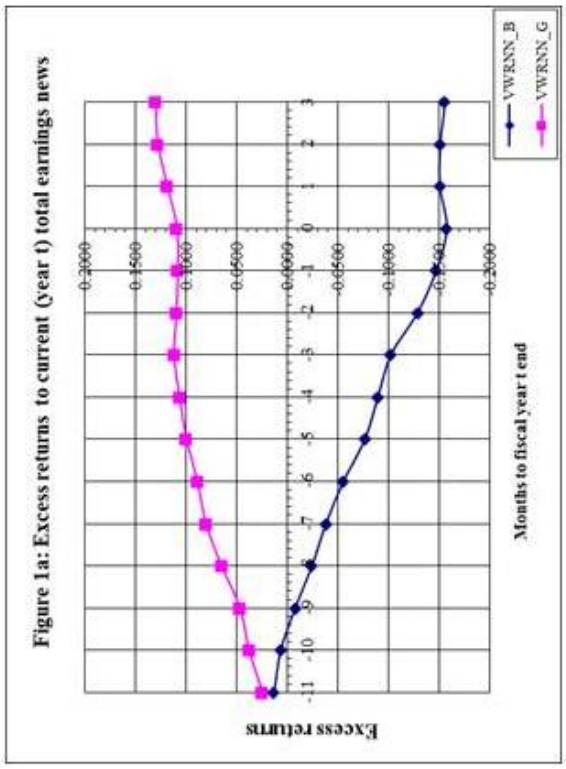
Table 3: Regression of excess returns on earnings news

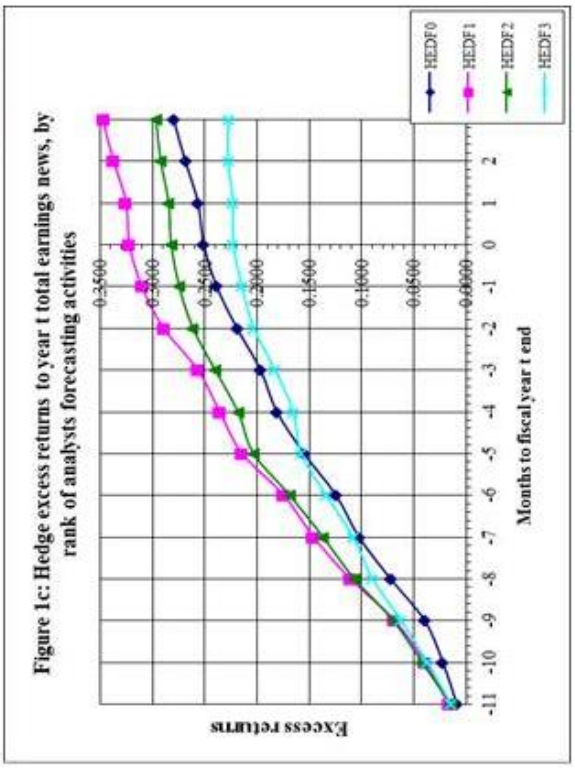
Dependent	VWR (Excess over value-weighted market returns)					
Variable	Slope	t-Val	p-Val	Slope	t-Val	p-Val
Intercept	0.0167	0.85	0.40	-0.0335	-1.20	0.24
IML_{t-1}	0.5212	1.02	0.31	0.8409	2.09	0.04
IML_{t}	4.2146	10.65	0.00	4.0985	10.32	0.00
IML_{t+1}	0.7835	1.47	0.15	0.0927	0.20	0.84
FIL_{t-1}	0.3881	12.34	0.00	0.3960	12.20	0.00
FIL_{t}	0.8066	21.14	0.00	0.7129	19.09	0.00
FIL_{t+1}	-0.0401	-1.61	0.12	-0.1180	-4.78	0.00
$FCAF_{t}$				0.2853	5.93	0.00
$TFML_{t-1}$				-2.5644	-1.68	0.10
$TFML_{t}$				-1.4150	-0.92	0.36
$TFML_{t+1}$				5.2311	3.25	0.00
$TFFL_{t-1}$				0.9504	4.64	0.00
$TFFL_{t}$				2.9559	7.88	0.00
$TFFL_{t+1}$				1.9349	8.39	0.00
BM_{t-1}				0.1019	6.82	0.00
$TVOL_{t-1}$				-0.0145	-1.35	0.19
$SIZA_{t-1}$				-0.0078	-1.88	0.07
$DFINA_{t-1}$				0.0867	1.56	0.13
VWR_{t-1}				-0.0343	-1.38	0.18
AdjRsq	*0.1161*			*0.1738*		
N (Years)	*31*			*31*		

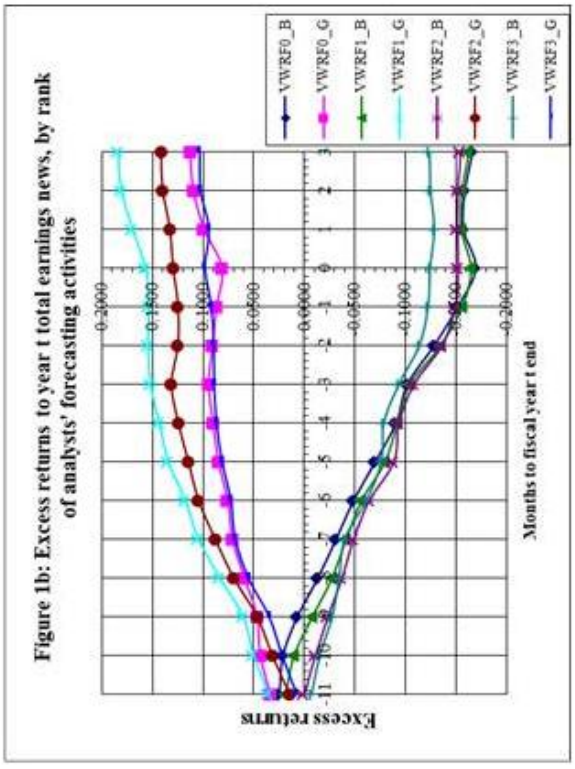
This table reports the results from regressions of cumulative excess (over value-weighted market) returns on industry-wide and firm-specific components of earnings news, and the interaction of such news with the level of analysts' forecasting activities. The returns are cumulated over the fiscal year. The parameters reported in this table are based on the mean for the annual regressions over the 31 years from 1980 through 2010. All variables are defined in Tables 1 and 2. The total number of firm year observations is 88,179, varying between 1,662 in 1980 and 3,000 in 2009. Variance Inflation Factors were computed along with the regression and these were found to have averages below 4 for each of all the independent variables over all the years.

$$VWR_{i,t} = \alpha + \sum_{\tau=-1}^{1} \beta_\tau IML_{j,t+\tau} + \sum_{\tau=-1}^{1} \gamma_\tau FIL_{i,t+\tau} + \psi * FCAF_{i,t} + \sum_{\tau=-1}^{1} \theta_\tau FCAF_{i,t} * IML_{j,t+\tau}$$

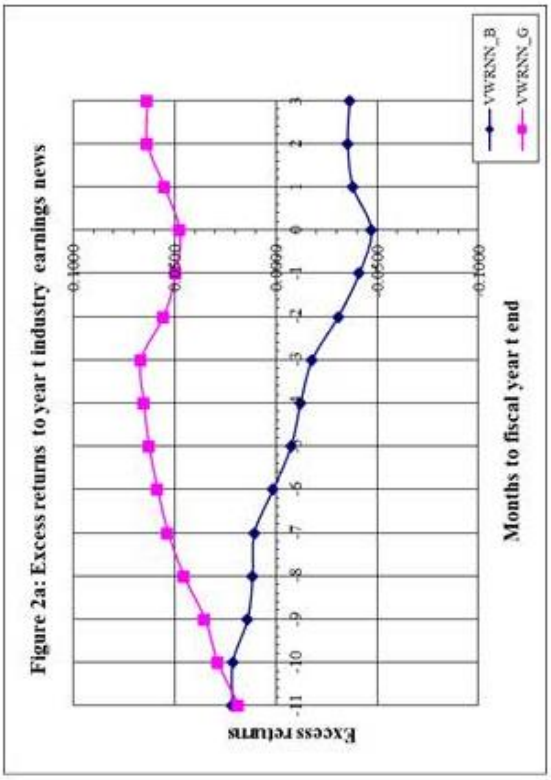
$$+ \sum_{\tau=-1}^{1} \phi_\tau FCAF_{i,t} * FIL_{j,t+\tau} + \lambda BM_{i,t-1} + \omega TVOL_{i,t-1} + \xi SIZA_{i,t-1} + \rho DFINA_{i,t-1} + \zeta VWR_{it-1} + \delta_{i,t} \quad (2)$$

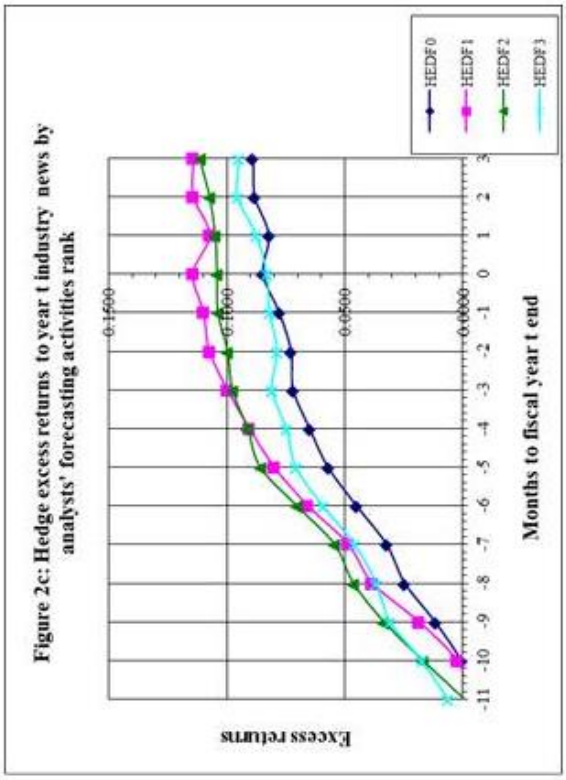


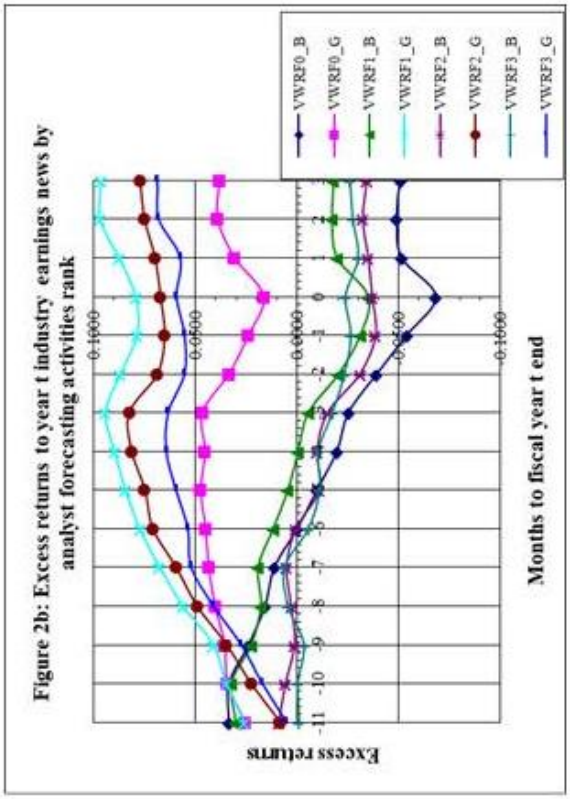




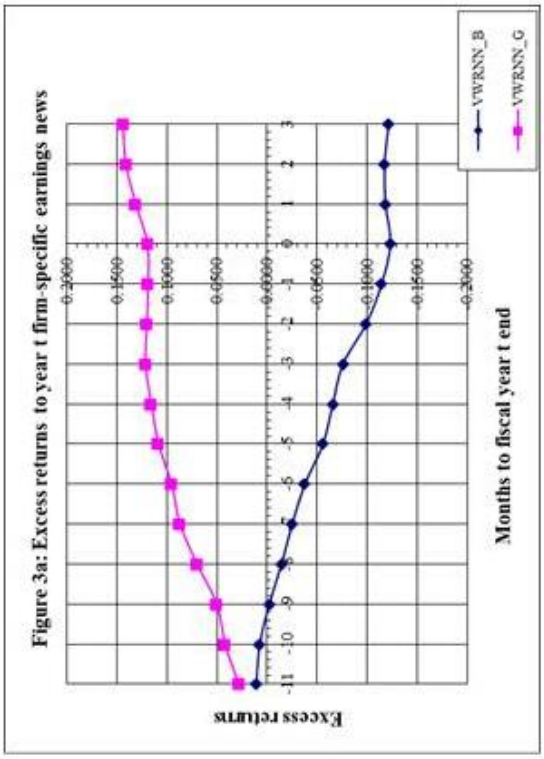
Figures 1a through 1c: These present the mean cumulative excess (over the value-weighted market) returns to total earnings news. Figure 1a considers the sign (VWRNN_G for positive or good, VWRNN_B for negative or bad) for the pooled sample (1a). Figure 1b further sorts by analysts' forecasting activities rank F"i", where i ϵ {0 for no analysts, 1 for low, 2 for medium, 3 for high}. Figure 1c presents the resulting hedge excess returns based on the difference between returns of the good and bad news portfolios respectively from Figure 1b (e.g. HEDF1= VWRF1_G less VWRF1_B). Total earnings news for a firm-year is defined as the change in earnings before extraordinary items, scaled by lagged total assets. See Table 1 for the number of analysts' forecasts associated with each of the rankings of analysts' forecasting activities (F"i") and other details.

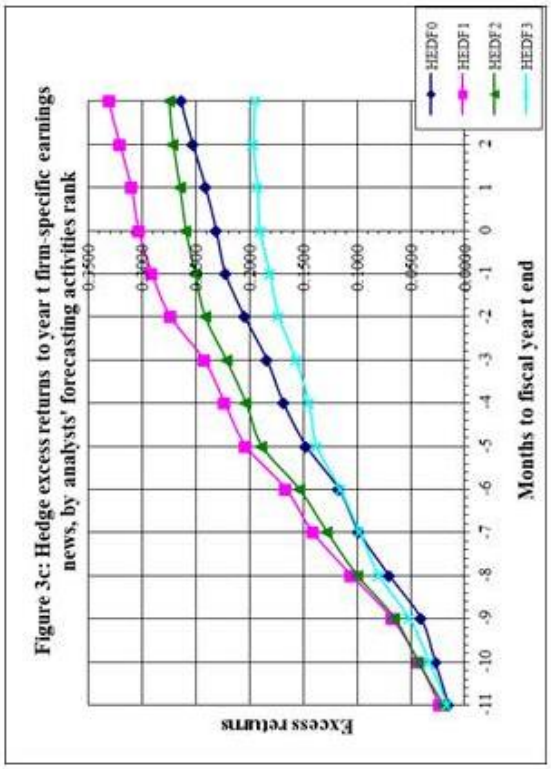


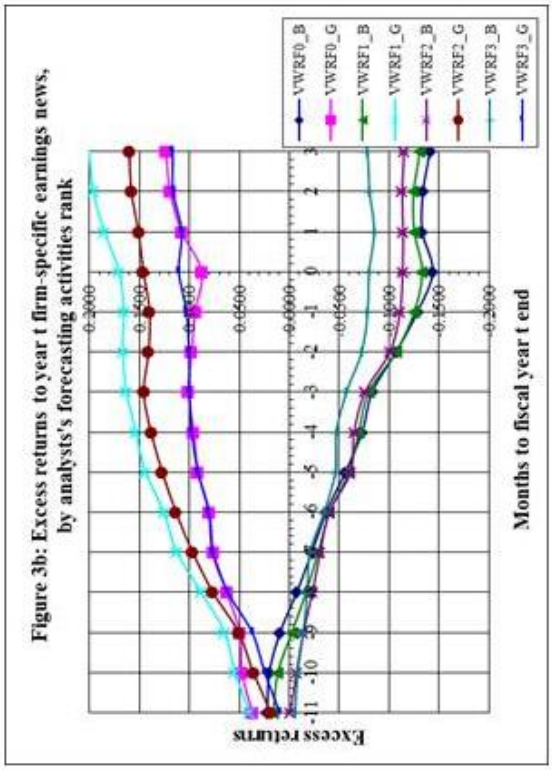




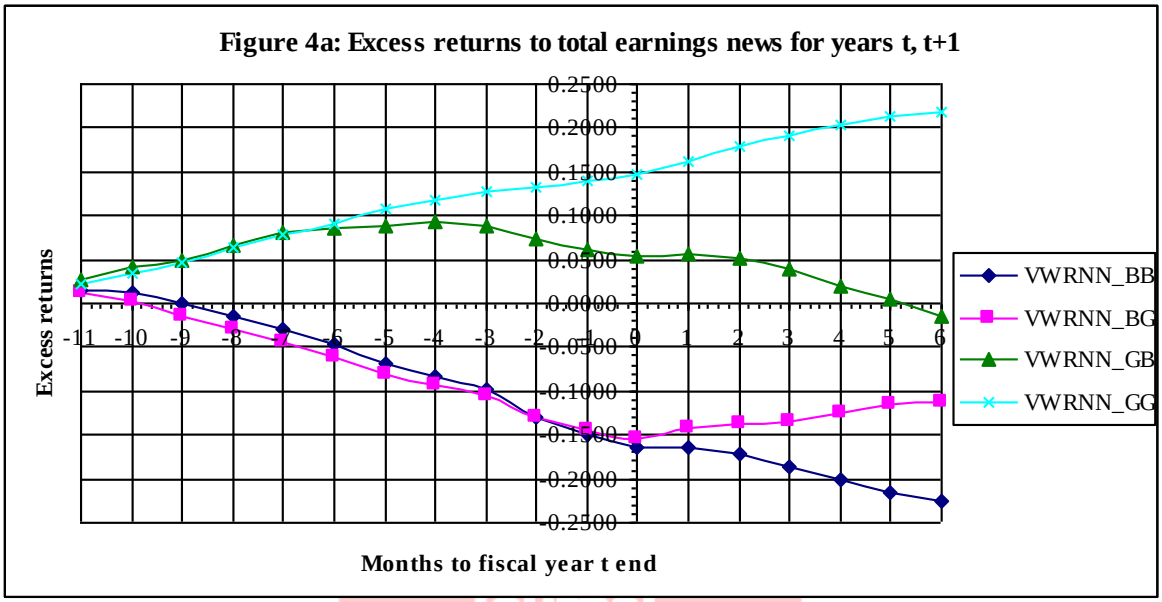
Figures 2a through 2c: These replicate Figures 1a through 1c, but replace total earnings news with industry-wide earnings news. For each year, Industry-wide earnings news is the median of the total news for the two-digit industry code, less the median of the total news for the market (entire sample of all firms). Further definition of the variables is in Table 1.

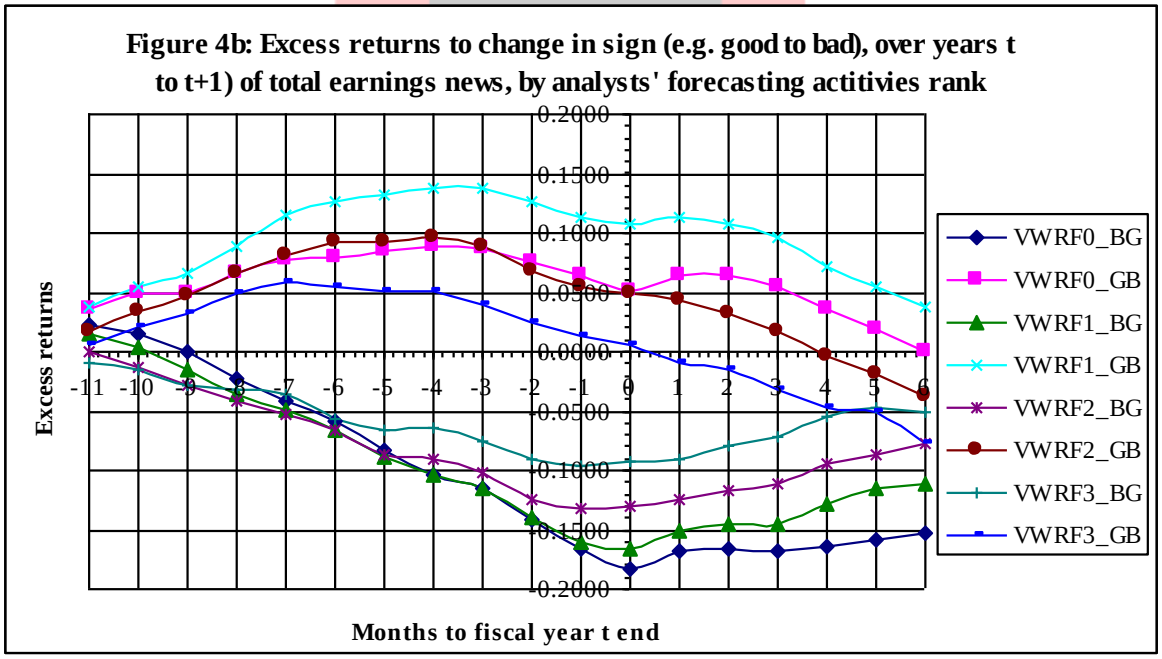






Figures 3a through 3c: These replicate Figures 1 a through 1c, but replace total earnings news with firm-specific earnings news. For each year, Firm-specific earnings news is the total earnings news less the median of the total news for the two-digit industry code. Further definition of the variables is in Table 1.





Figures 4a and 4b: These present the returns to total earnings news of two adjacent periods (t and t+1). Figure 4a plots the mean cumulative excess returns for the whole sample by the sign of news in both year t and t+1 (e.g. VWRNN_BB for Bad news in t and t+1, VWRNN_BG for Bad in t, Good in t+1). Figure 4b considers only "change in news" portfolios, (i.e. the VWRNN_BG and VWRNN_GB from 4a), but breaks these by analysts' forecasting activities F"i", where i ϵ {0 for no analysts, 1 for low, 2 for medium, 3 for high}. Earnings news is defined as the change in earnings before extraordinary items, scaled by lagged total assets. See Table 1 for the number of analysts' forecasts associated with each of the rankings of analysts' forecasting activities (F"i").