What are Analysts Really Good At?

RONI MICHAELY
RM34@CORNELL.EDU

and

KENT L. WOMACK
kent.womack@dartmouth.edu

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Abstract

On average, recommendation changes by sell-side analysts signal future over- and under-performance of target stocks that have been upgraded and downgraded, respectively, relative to appropriate market or industry benchmarks. However, these average excess returns belie significant and predictable variation that can be exploited by investors. Recommendation changes "supported" by confirmatory earnings forecast changes have approximately double the investment value of recommendations unsupported by earnings estimates changes. We also show that analysts' recommendations based on long-term high-growth optimism inevitably disappoint. Both upgraded and downgraded stocks in the highest long-term-growth quintile substantially underperform (by over 200 basis points) recommendations on slower growth counterparts in post-event periods of six months and one year.

Equity analysts upgrade their recommendations on a followed stock because they believe that stock is undervalued relative to its industry or the overall market and will outperform its peers. Similarly, they downgrade a stock when they believe it is over-valued. In essence they are saying in a change of opinion, "the current stock price is too low (or, too high), considering all I can glean about the company."

Of course, what stocks analysts assert to be mispriced may be different from which actually are mispriced, even systematically. Previous academic research has shown that analysts' pronouncements are predictive of future stock price changes *on average*.[1] Beginning two days after the prototypical recommendation change, investors appear to be able to make positive risk-adjusted returns *on average*, over the next few months, even after transactions costs.[2] But these on-average results do not tell the whole story. Even though analysts appear to identify mispricings that *average* 4% for their upgrades and 6% for their downgrades using the price the day before the recommendation as a benchmark, they are directionally "correct" in the post-event period only about 54% of the time. The rest of the time, their picks and pans do not "beat the market".[3] Considering this slim margin of accuracy, only in well-diversified trading strategies should traders expect to succeed using recommendation changes.

This ostensibly modest success ratio in how often analysts "beat the market" mentioned above begs an important question. Can we identify and exploit systematic judgment biases on the part of analysts that help investors favor (and thus invest in) their best judgments and avoid their worst? That is, can the low odds be improved? Michaely and Womack (1999) provide evidence that underwriter analysts' judgments for IPOs were both optimistically biased and conflicted due to agency issues. This, for example,

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[1] See Womack (1996), Barber, Lehavy, McNichols, and Trueman (2001), and Boni and Womack (2006). There is convincing evidence that analysts fulfill the compensated informant's role in a Grossman and Stiglitz (1980) economy that continually pushes market prices towards greater efficiency.

[2] 80 basis points . . .

[3] We define "beating the market" here as an upgraded stock outperforming or a downgraded stock underperforming a relevant (Fama French or size and industry adjusted) benchmark over the next three months, starting the day after the recommendation pronouncement. To date, there is no convincing evidence that recommendation information has any lasting value beyond 3 to 6 months after the announcement a recommendation change, and hence the reason why changes in as opposed to levels of recommendation have predictive value to investors.

argues for discounting the information of underwriter analysts and using only information from less conflicted "unaffiliated" analysts.

This study identifies two other dimensions of analysts' analysis are fruitful for identifying more and less valuable recommendations. Our first finding is that the one-third of recommendations "supported" by concurrent short-term earnings forecast changes in the same direction are considerably more valuable (meaning the post-recommendation drift is significantly larger) than recommendations with no earnings estimate changes, despite initial larger market reactions and presumably more investor awareness.

Our second significant finding is that upgraded recommendations of very high growth companies are, on average, least valuable to investors and should be avoided. On the other hand, downgraded recommendations of these stocks are highly valuable. We demonstrate that the consensus high-growth quintile of firms underperforms by one to two percent post-recommendation those firms with lower expected long-term earnings growth. That is, upgrades increase much less and downgrades lose even more than recommendations on slower-growth stocks.

By ignoring analysts' recommendations that are not supported by earnings forecast revisions also and by strategically understanding and using the optimism bias in high growth stocks, we find that the value to investors using recommendation information approximately doubles.

What decision process do analysts use to make their recommendation changes? In the theory of finance, behind virtually all valuation judgments, there is some notion of "the right price" of an investment being the discounted present value future expected cash flows. The most general version of this idea is the discounted cash flow (DCF) valuation model. Specifically:

$$P = \frac{CF_1}{1+r} + \frac{CF_1(1+g_2)}{(1+r)^2} + \frac{CF_1(1+g_3)^2}{(1+r)^3} + \text{. . . etc.} \qquad (1)$$

Often analysts and investors cleverly disguise this model in variations or simpler heuristics approximating the general DCF equation. For example, in PE ratios or other

simplistic heuristics, several inputs to the valuation are held constant over time or assumed to change proportionately in some reasonable way. Nevertheless, we assume that the general DCF model is normatively correct, whether or not analysts' decisions in upgrading or downgrading their valuation opinions *explicitly* consider the inputs to the model or even the notion of the model.

With the DCF model as a presumed underpinning to valuation judgments, consider the three fundamental inputs necessary to obtain a valuation. In the numerator, there is a potentially infinite sum of future cash flows that flow from the initial (first-period) estimated cash flow and the growth rate or rates assumed for those cash flows. In the denominator, these future cash flows are discounted by the discount rate of the investment.

We posit that when an analyst makes a recommendation change, the analyst's mental model of the stock's valuation implicitly assumes a difference in his own estimate in at least one of those three forecast inputs (short-term earnings, the longer-run growth rate in those earnings, or the discount rate) for that stock in absolute terms or relative to the market or industry consensus.

The analysis of this paper discriminates between analysts' judgments (recommendation changes) that are based on cash flow changes (which affect the numerator of the DCF model and for which we have regular publicized proxies such as earnings in future fiscal years 1 and 2 and the long-term growth rate in earnings) and those that are based on discount rate changes (which affect the denominator of the DCF model and for which we rarely observe analysts' explicit changes in assumptions).[4]

What motivates this decomposition? It is clear that analysts are not equally accurate in estimating these three components of stock value, and we hypothesize that investors misread the relative usefulness of the three inputs also.

Chan, Karceski, and Lakonishok (2003) show that the median cross-sectional long-term growth rate forecast by analysts in the period 1992-1998 was +12.3% but the realization five years later was only +6.5% revealing an optimism bias of over 100%. For the highest growth quintile, the difference was even more extreme. In a classic case

[4] We will initially ignore the possibility of endogenous covariation in cash flows and discount rate as at least a second-order effect relative to the main numerator and denominator distinctions we examine.

of over-optimism, analysts estimated an annualized five-year growth rate of +22.4% for the top quintile while only +9.5% earnings growth materialized. It seems clear from this evidence, which we replicate through 2001 (with even larger estimated growth rates during the tech bubble), that sell-side analysts are not well calibrated with respect to viable long-term growth rates.

Similarly, not only is there a controversy about how one should compute the cost of capital (the denominator of the DCF model), but the variation across time of imputed discount rates using practically any model is very significant.[5] Analysts sometimes disclose the discount rates they use in their reports, but those rates are not easily obtainable for a cross section of companies and analysts.

For the third input, the proxy of cash flows as the one and two-year-ahead forecasts of earnings per share, analysts' accuracy appears to be not completely accurate, but at least "in the ballpark". Chopra (1998) shows that analysts start a fiscal year on average about 11% optimistic relative to the ultimate realization, but that this bias naturally decreases as the company's fiscal year progresses.

To reframe our examination, equity analysts convey their outlook of the stocks they follow through at least three channels, sometimes concurrently but often independently: their stock recommendations, their earnings forecasts and, to a lesser extent, long-term growth estimates.[6] Our primary goal is to better understand the connection between these three valuation signals and how the emphasis on the last two affects the validity and hence investor usefulness of recommendations. For example, is there a difference in recommendation value when a recommendation change is based on a revision in a near-term earnings forecast relative to those that implicitly assume a change in the discount rate or a change in the analyst's long-term growth assumption? Since there are many cases where recommendation changes are associated with changes in near-term earnings forecasts, we are able to clearly identify recommendations that are based on forecasted earnings changes and those that are not.

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[5] See Gode and Mohanram (2003) and Gebhardt, Lee, and Swaminathan (2001).

[6] In recent years, some analysts have also issued price targets, which are not studied here. See Brav and Lehavy (2003).

Not only do we care about analysts' decision calculus but also about the resulting price formation process, that is, the market's potentially differential response to analysts' recommendation changes through event time. Conceptually, the degree of market efficiency can be measured in the phenomena of immediate reaction versus post-event drift and may be different for different types of information signals that analysts may give or for some sets of stocks but not others.

An additional contribution of this study is the development of a buy-and-hold, Fama-French adjusted event methodology for daily data that controls for autocorrelation among the recommendation events.

II. The Data and Descriptive Statistics

The timeframe for our study is 1996 through August 2004. The data for this study are centered on those well-defined events when sell-side brokerage analysts change their recommendations on the stocks they follow. We focus on *changes* of recommendation (upgrades or downgrades) because previous work has established that recommendations coded as initiations or reiterations are much less informative, and in addition, may be the result of data limitations. Recommendation *levels* are reasonably uninformative after the market's delayed digestion of the information in the first 3 to 6 months post-recommendation-change (Jegadeesh, Kim, Krische, and Lee, 2004). The data we use to examine recommendations come from several sources as described in this section.

IBES Recommendations Data, Detail and Summary History Files: The dates of these events, as well as the name of the broker making these recommendation changes are taken from the IBES Detail History Recommendations file for the years 1996-2004. Our data are through August 2004. Important variables include the date of the change, the analyst and the brokerage firm's name, and to what level the change was made. Using data from before 1996 as a base from which to calculate changes, Table 1, Panel A shows that we find 136,951 recommendation changes during this 9-year period on 7,275 different stocks. The numbers of recommendation changes per year are in line with previous studies. Naturally, the stocks followed and recommended by analysts are not a randomly drawn sample from the entire universe of stocks traded in the US, since a larger

proportion of followed and recommended companies have the highest market capitalizations as shown in Table 1, Panel B. Tenth-decile firms average nine recommendation changes per year, far more than the 3.4 average for all stocks.

[Table 1 about here]

In addition to the IBES Detail data specifying individual changes by each analyst, we incorporate the IBES Summary History Recommendation file records for each stock that tracks at mid-calendar month (similar to the Summary History-EPS file) the number of analysts following the stock, the average consensus rating level on a 1 to 5 scale (where 1 is a "strong buy" and 5 is a "sell") and its standard deviation for the stock, and the number of analysts upgrading and downgrading their opinion level from the previous month. We construct a daily consensus recommendation average for each stock for each day by updating the mid-month consensus averages throughout the next month with the day by day detail innovations. We use this data to calculate on the event day the relative innovation of each recommendation change and whether the consensus level in the target stock had been changing due to changes by other brokers during the week leading up to the new recommendation.

IBES Earnings Estimates Data, Detail and Summary History Files: Because the focus of this paper is the dynamics of the market's price reaction to recommendations pronouncements relative to other types of information analysts provide, we also extract earnings and long-term growth (LTG) estimates from the IBES Earnings Detail and Summary History files. As with the recommendation files, we use the detail records to construct a daily consensus (average) file for fiscal years one and two and long-term growth leading up to and after each recommendation change. We also collect the most recent earnings forecasts by the target broker in the target stock at the time of the recommendation change, and whether they change their forecasts at the time of the recommendation change. We also track the forecast consensus innovation through time during our post-event measured periods.

Global Industry Classification Standards (GICS) from Compustat:

We utilize the Global Industry Classification Standard (GICS), which is designed and maintained by Standard & Poor's and Morgan Stanley Capital International and accessible through Compustat. The superiority of using the GICS classification scheme for various financial and accounting research applications has been documented by Bhojraj, Lee, and Oler (2003).[7] Boni and Womack (2006) show that the GICS industry classification into 59 industries provides a good partition defining industries as analysts define themselves by their coverage choices.

CRSP Stock Files: We collect market capitalization and size decile information on all recommended stocks. We also collect returns prior to, at, and subsequent to recommendation changes for use in cross-sectional event study methods. We define the event return as a two-day window (-1 to 0) relative to the IBES reported recommendation change. We confirmed this choice by preliminary analysis (not reported here) that finds that this window corresponds with the largest changes in return and volume. Day +1 appears "normal" in a substantial majority of cases. For pre- and post-event periods, we construct event returns in two ways. First, we compute size-adjusted returns as the buy-and-hold return of the stock over 1, 3, and 6 month periods minus the return of the appropriate size decile. Second, we compute buy-and-hold industry-adjusted returns using the GICS six-digit industry. The industry returns are not reported although the main results of the study are consistent using either method.

III. A Buy-and-Hold Event Study Methodology for Daily Data

Prior research has show that the market reacts vigorously but incompletely to recommendation changes. We therefore find it of interest to measure the returns available to investors buy purchasing upgrades and short selling downgrades. In this section we present a new methodology designed to compute excess buy and hold "alphas" where the factor mimicking portfolios are buy-and-hold Fama French portfolio returns. The steps in this methodology are as follows:

[7] Bhojraj, Lee, and Oler compare four industry classification schemes: 1) the Standardized Industry Classification (SIC); 2) the North American Industry Classification System (NAICS); 3) Fama-French (1997) groupings; and 4) GICS. They examine a variety of capital market research applications and conclude that the GICS classification is superior for identifying firms with the industry peers.

1. *Determine the length of periods of interest and create buy and hold raw returns on each stock on each day upgrades or downgrades.* If the stock is upgraded or downgraded multiple times on the same day, they are collapsed into one stock-day observation. We define the buy and hold cumulative event period as days -1 and 0 relative to the IBES date for recommendation changes. We choose 21-trading-day returns for monthly returns and calculate raw buy and hold returns for the first month before the recommendation event and for cumulative months 1, 2, 3, 6, 9, and 12 after the event.
2. *Create buy and hold Fama French factor returns for the same time intervals.* We create buy and hold returns for the six Fama French portfolios and then appropriately average and difference these returns to calculate SMB and HML portfolio returns for the same exact intervals at the raw returns cumulated in Step 1.
3. *Calculate value*-weighted market and risk-free returns for the same intervals.
4. *Regress the raw returns minus the risk free returns on the Fama French factors and the excess return of the market for each of the intervals.* Because recommendations overlap in event time, we calculate the maximum extent of this overlap for each time period calculated and use this maximum as the number of lags in Newey West corrected standard errors.

This methodology solves several problems that have not been easily corrected for in prior event study methods. First, is uses buy and hold returns, not CARs. Second it incorporates the three factor Fama French methodology in the benchmark. To our knowledge, these two problems have not been simultaneously addressed in prior procedures. Finally, it can easily incorporate and adjust for serially correlated errors in the overlapping observations.

IV. The Market Reactions to Recommendation Changes

Table 2, Panel A shows the results of event study mean returns for the two-day event window and the immediate post-event window, using the Fama French adjusted methodology described above. As a check on this methodology, we also computer buy and hold, size decile adjusted returns with similar returns and no significant differences in conclusions. Consistent with prior research, the two-day event return averages +2.6% for upgrades and -3.2% for downgrades. As can be seen in Table 1, Panel B, 62% of the recommendation changes are from stocks in the two largest capitalization deciles so these substantial returns are not entirely due to small stocks. Of course, stocks below the median capitalization of US stocks, although not easily investable by institutional investors, respond much more vigorously immediately to the recommendation news. As an example of the efficiency of the market in the largest capitalization stocks, the event returns and especially the post-event returns are substantially smaller in the largest decile (10^{th}).

[Table 2 about here]

Consistent with Womack (1996), on average, stocks upgraded drift upward for a few months post-event and stocks downgraded drift downward. The three-month post-event return is chosen for additional analysis in this paper but returns and conclusions drawn for related post-event time frames (for example, 1-month, 2-month, 6-month, and 9-month) are consistent with those reported here. Over half of the 3-month drift occurs in the first month and about 80% of the six-month return drift occurs in the first 3 months as can be seen in Table 3, Column 1.

[Table 3 about here]

Table 2, Panel B shows a particularly interesting phenomenon not previously reported. Dividing the sample each year using the expected long-term growth consensus quintiles of Chan, Karceski, and Lakonishok (2003), we examine the event reactions for expected consensus low growth to high growth stocks. The post-event returns in the high-growth quintile are very significantly different from the rest of the population. They

are much more negative (less than half the size in magnitude) despite having the largest event period returns. Our initial conjecture is that the high growth quintile is already trading at a precariously high level of optimism that must, on average, diminish through time. Good news (e.g. an analyst's upgrade) is already impounded into top-quintile stocks' prices and bad news (e.g., a downgrade) substantially adjusts the market's consensus view downwards in high-growth companies.

Table 3 preliminarily shows the effect of "earnings support" on the market's response to recommendation changes. We define earnings support as an increase (decrease) in the recommending analyst's earnings forecast concurrently with his recommendation upgrade (downgrade). We show in Table 1, Panel A that roughly one-third of recommendation changes is supported by concurrent earnings forecast changes. These earnings adjustments can be in one-year-ahead or two-year-ahead earnings or both. We find marginal evidence that two-year-ahead forecasts are more valuable for predicting future price drift than one-year-ahead forecasts but Table 3's Earnings Support dichotomy, for purposes of parsimony, does not discriminate.

These univariate results are suggestive but not definitive that using these two characteristics of analysts' valuation models (short term earnings forecasts and long-term growth consensus) is valuable for identifying more predictive recommendation changes. The regression models in Table 4 provide additional support.

[Table 4 about here.]

The first two variables in the regressions control for the well-studied size factor in event returns. Both the logarithm of the stock's market capitalization and the number of analysts following the stock show that large size upgraded stock increase less at the event time and in the post-event window. Similarly, downgraded stocks decrease less. The variable Earnings Report Date is an indicator variable when the recommendation change occurs concurrently with the target stock's quarterly earnings report. The stock's immediate response shown in Panel A to the combination of an earnings report and an upgrade (downgrade) increases (decreases) the event return by over 150 basis points. We also measure the impact of earnings forecast and recommendation activity in the same

stock in the Previous Week variables. When earnings or recommendations have been made in the previous week, there is a significant reinforcing effect on the event and post-event returns. That is, upgraded stocks where other brokers have raised earnings or upgraded the stock within the prior week (days -2 to -6 in event time) have significantly higher stock price moves at both the event and in the next three months. The impact of multiple recommendations within the same two day window is also very significant but not very surprising.

The variables of interest in this regression are Earnings "Support" and Long Term "Support" and an indicator variable for stocks in the consensus highest growth quintile. We observe in Panel A that Earnings Support is positive in both the positive and negative directions. About 22% of the time when a stock is upgraded, the analyst concurrently increases his earnings forecast for either fiscal year 1 or 2 or both. Similarly for downgrades, 26% are accompanied by lowered earnings forecasts but 2% have raised forecasts. The evidence shows that dual confirming signals (e.g. a downgrade and a lowered earnings forecast) are very significant in both upgrades and downgrades and that mixed signals provide poor predictive value.

The effect of an analyst concurrently raising or lowering his long-term earnings growth rate (LTG Rate "Support") with a recommendation change is less salient in the market. First of all, at the time of recommendation changes, analysts change their LTG forecasts only 5% of the time. This suggests that these LTG forecasts have less focus for investors or analysts. Only about 75% of stocks recommended by an analyst have existing LTG forecasts by the same analyst, whereas virtually 100% of recommendations have earnings forecasts. The marginal impact at the time of a downgrade is a significant 53 basis points at event time, it is reversed in the three month window. No other coefficient suggests that the market responds meaningfully to LTG Rate changes by recommending analysts.

The impact of the target recommended stock *being* in the highest IBES-consensus LTG Rate quintile, however, is gargantuan. In the three-month post-event window, upgraded stocks increase 2.2% less than other upgrades, and downgraded stocks decrease 4.1% more than other downgrades. These marginal effects are larger than the average effect of both upgrades and downgrades.

V. The Positive Value of Earnings "Support"

Tables 3 and 4 lead to an important conclusion: recommendations accompanied by earnings-forecast support appear to be more credible to the market and, at least in the 3 and 6 month post-event periods, better predict future stock prices. Why does the market respond differentially to earnings supported and non-earnings supported recommendations?

A consideration of the fundamental valuation paradigm mentioned earlier may give us some clues. Of the three important inputs to the generic valuation model, near-term cash flows (for which earnings forecasts are our proxy) are the most tangible. Whereas analysts are systematically optimistic by more than 50% in their long-term growth rates, according to Chan, Karceski, and Lakonishok (2003), Dreman and Berry (1995) suggest that analysts' forecasts miss reported earnings by over 10% about 50% of the time.

Gleason and Lee (2003) give us another suggestion as to which earnings supported recommendation changes have the most value. They dichotomize earnings forecast changes into "high innovation" forecasts which are changes away from the average consensus forecast, and "low innovation" forecasts which are changes toward the consensus. They show that the market responds much more vigorously after "high innovation" changes. We examine this distinction for earnings-supported recommendation changes in Table 5. For upgrades, we create two indicator variables for positive EPS support, one for high innovations and one for low. For downgrades, we do the same for negative EPS support.[8] We find a significant difference of over 100 basis points in the post-event returns depending on whether earnings forecast changes are "high innovations" or "low".

[Table 5 about here.]

[8] While we do find some analysts upgrading stocks while lowering earnings forecasts and downgrading stocks while raising forecasts, the examples of this phenomenon are rare and, as portfolios, are

Because we observe such significant responses to earnings supported recommendation changes, one might sensibly ask whether what we are reporting is simply another manifestation of post-announcement drift. That is, is the key information only the earnings innovation and the recommendation change itself is uninformative? We construct a matched sample for all recommendations that occur at the time of quarterly earnings reports. The matching firms are constructed by finding a company from the closest size decile with the most closely matched fiscal year 1 and 2 earnings forecast changes but which was not upgraded or downgraded by any analyst. Table 6 shows the results. Companies with earnings forecast increases respond in a positive direction but by only a fraction of the increase of the matched, upgraded company. The results are similar for downgrades. Downgraded companies (with earnings forecasts lowered) lose an excess 2.7% over 6 months whereas the matched sample of stocks with similarly lowered earnings forecasts appreciate 0.5%. We conclude that while earnings forecasts are extremely important to credible recommendation changes, it is more than simply the earnings forecast changes that analysts are identifying in their recommendation changes.

[Table 6 about here.]

VI. The Negative Effect of High Long-Term Growth Expectations

Tables 2 and 4 show a very significant (negative) difference in the market's response to analysts's recommendations when the target stock is considered a high growth company. The initial response to the recommendation change is in line with normal priors of these stocks as riskier and more volatile. The marginal impact at the time of the recommendation change of being a high growth company is +103 basis points for upgrades and -210 basis points for downgrades. However, the post-event response is more puzzling and more interesting.

The average post-event drift for three months after a recommendation upgrade is +2.2%. The marginal impact of a high growth quintile company, controlling for other characteristics, shown in Table 4 is negative 2.2%. Similarly, average post-event drift for

three months after a recommendation downgrade is -1.3%, but the additional marginal impact of being a high growth quintile company is another -4.1%.

The preliminary conclusion for investors is that upgrades of high-growth stocks are perilous and downgrades are spectacularly informative. Could this be right? Recall that these companies have a median forecast LTG (five-year) rate of about 32% but that on average, only about half of it materializes, according to Chan, Karceski, and Lakonishok (2003). In fact, they show that for most of the companies, the first year of the five years forecasted does not even average the projected 32% (and each subsequent year gets worse after that). We conjecture that the lack of ultimate realization of these LTG forecasts are triggered in recommendations, particularly downgrades.

In order to start to understand this long-term growth forecast puzzle, we compare for both upgrades and downgrades, the fiscal year 2 and long-term growth average consensus forecasts at the date of the recommendation change versus the date six months later (to coincide with our six-month excess return tests). What we find in Table 7 is intriguing. For both upgrades and downgrades, the consensus long-term growth rate of the high-growth quintile stocks has fallen. For downgrades, the consensus long-term growth rate is down 2.47%. Even for upgraded stocks, the consensus LTG rate has decreased 1.37% in the six months since the (positive) recommendation

[Table 7 about here.]

We conclude that the inevitable disappointment that stocks with overly optimistic forecasts must face on average begins to occur even when stocks have been touted positively and occurs even more significantly in downgraded stocks.

VII. Conclusions

The primary *raison d'être* of sell-side security analysts is to provide investors with earnings and growth rate forecasts that can be used to generate investment decisions. Analysts regularly go further and identify, through their own recommendations, stocks that they believe to be relatively under- and over-valued. Earlier research has shown

these recommendation changes to be modestly valuable to investors if used unconditionally.

In this study, we identify two characteristics of analyst forecasts that discriminate more from less accurate recommendations. Positive (upgrade) recommendations of high-growth stocks, with consensus estimated five-year growth rates of approximately 25% per year and above, are systematically overly optimistic, while downgrade recommendations in these high-growth stocks are strikingly accurate. Our results suggest that recommended very high-growth stocks systematically underperform the market, no matter what the analysts recommend.

We also show that recommendations accompanied by earnings forecasts in the same direction are apparently judged more credible than stand-alone recommendations. The incremental value to investors by ignoring non-earnings-supported recommendations is about 100 basis points over a three-month investment horizon.

These results suggest that markets and analysts do not fully understand the costs of aggressive optimism and the speculative nature of non-earnings-based recommendations.

References

Note: We are aware that we have not yet cited and developed in the text all appropriate references, and we welcome readers' suggested additions.

Asquith, Paul, Michael B. Mikhail, and Andrea S. Au, 2005, Information Content of Equity Analyst Reports, *Journal of Financial Economics*, 75, 245-282.

Barber, Brad, Reuven Lehavy, Maureen McNichols, and Brett Trueman, 2001, Can Investors Profit from the Prophets? Security Analyst Recommendations and Stock Returns, *Journal of Finance* 56, 531-563.

Bhojraj, Sanjeev, Charles M. C. Lee, and Derek K. Oler, 2003, What's My Line? A Comparison of Industry Classification Schemes for Capital Market Research, *Journal of Accounting Research* 41, 745-774.

Boni, Leslie, and Kent L. Womack, 2006, Analysts, Industries, and Price Momentum, *Journal of Financial and Quantitative Analysis*, 41, 85-109.

Bradshaw, Mark T., 2004, How Do Analysts Use Their Earnings Forecasts in Generating Stock Recommendations?, *The Accounting Review*, 79, 25-50.

Brav, Alon, and Reuven Lehavy, 2003, An Empirical Analysis of Analysts' Target Prices: Short-term Informativeness and Long-term Dynamics, *Journal of Finance*, 58, 1933-1967.

Busse, Jeffrey A., and T. Clifton Green, 2002, Market Efficiency in Real Time, *Journal of Financial Economics*, 65, 415-437.

Chan, Louis K.C., Jason Karceski, and Josef Lakonishok, 2003, The Level and Persistence of Growth Rates, *The Journal of Finance*, 68, 643-684.

Dreman, David and Michael A. Berry, 1995, Analyst Forecasting Errors and Their Implications for Security Analysis, *Financial Analysts Journal*, May-June.

Eames, Michael, Steven M. Glover, and Jane Kennedy, 2002, The Association Between Trading Recommendations and Broker-Analysts' Earnings Forecasts, *Journal of Accounting Research*, 40, 85-104.

Fama, Eugene, and Kenneth French, 1993, Common Risk Factors in the Returns on Stocks and Bonds, *Journal of Financial Economics* 33, 3-56.

Francis, Jennifer, and Leonard Soffer, 1997, The Relative Informativeness of Analysts' Stock Recommendations and Earnings Forecast Revisions, *Journal of Accounting Research*, 35, 193-211.

Gode, D.K. and Partha Mohanram, Inferring the Cost of Capital using the Ohlson-Juettner Model, *Review of Accounting Studies*, Volume 8, Number 4, December 2003.

D'Avolio, Gene, 2002, The Market for Borrowing Stock, *Journal of Financial Economics* 66, 271-306.

Fama, Eugene, and Kenneth French, 1997, Industry Costs of Equity, *Journal of Financial Economics* 43, 153-193.

Gebhardt, W. R., C. M. C. Lee and B. Swaminathan (2001). Toward an Implied Cost of Capital, *Journal of Accounting Research*, 39, 135-176.

Gleason, Kristi, and Charles M. C. Lee, Analyst Forecast Revisions and Market Price Discovery, *The Accounting Review*, 78, January 2003, 193-225.

Green, Clifton, 2005, The Value of Client Access to Analyst Recommendations, forthcoming, *Journal of Financial and Quantitative Analysis*.

Grossman, Sanford, and Joseph Stiglitz, 1980, On the Impossibility of Informationally Efficient markets, *American Economic Review* 70, 393-408

Hong, Harrison, Terence Lim, and Jeremy C. Stein, 2000, Bad News Travels Slowly: Size, Analyst Coverage, and the Profitability of Momentum Strategies, *Journal of Finance* 55, 265-295.

Ivkovic, Zoran, and Narasimhan Jegadeesh, 2004, The Timing and the Value of Forecast and Recommendation Revisions, *Journal of Financial Economic*s 73 (3), 433-463.

Jegadeesh, Narasimhan, Joonghyuk Kim, Susan D. Krische, and Charles M.C. Lee, 2004, Analyzing the Analysts: When Do Recommendations Add Value?, *Journal of Finance* 59, 1083-1124.

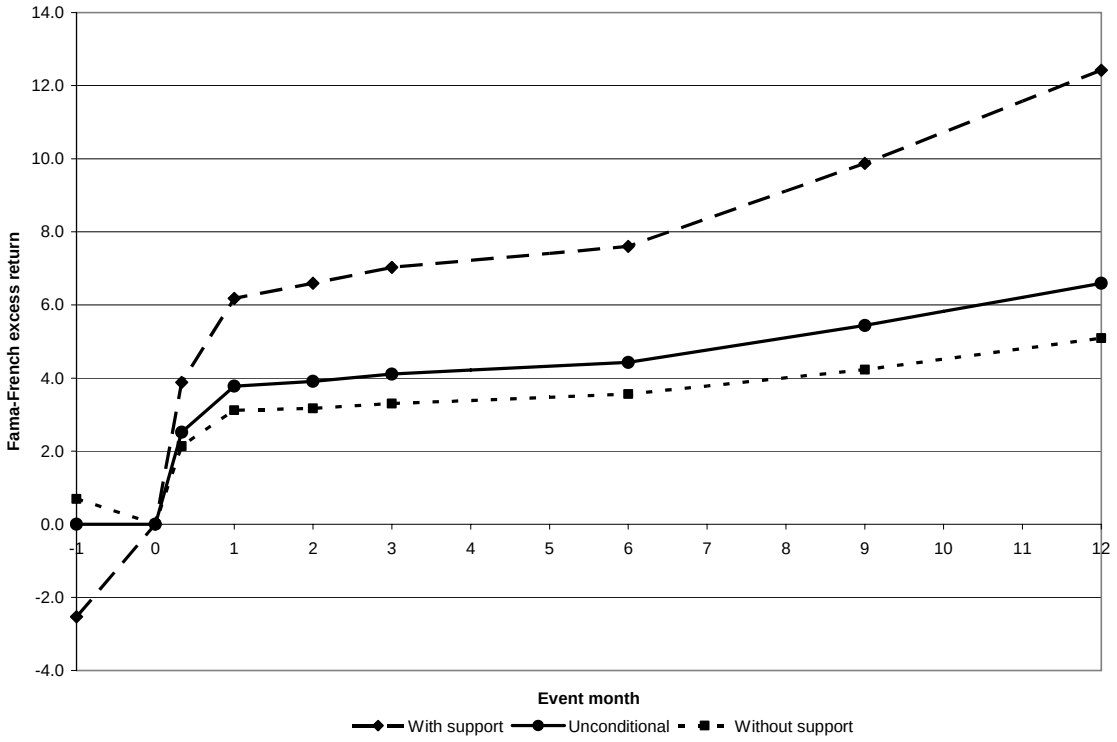
Kantsyrev, Dimitri, 2006, Explaining Overconfidence in Financial Analysts' Forecasts, Working Paper, USC.

Loh, Roger K., and G. Mujtaba Mian, 2005, Do Accurate Earnings Forecasts Facilitate Superior Investment Recommendations?, *Journal of Financial Economics*

Womack, Kent L., 1996, Do Brokerage Analysts' Recommendations Have Investment Value? *Journal of Finance* 51, 137-167.

Figure 1
Event Study Excess Returns (Fama-French adjusted) to Analyst Recommendation Upgrades and Downgrades Conditional on Earnings Support

Panel A shows returns in event time for upgraded stocks, and Panel B shows returns for downgraded stocks. Time=0 is the day before the recommendation news. The intermediate point is 2 days after the recommendation. For each subsequent month, the returns are the buy-and-hold average of all stocks in that category, consistent with Table 2. Stocks with earnings support increase (decrease) more at the time of and in the months after upgrades



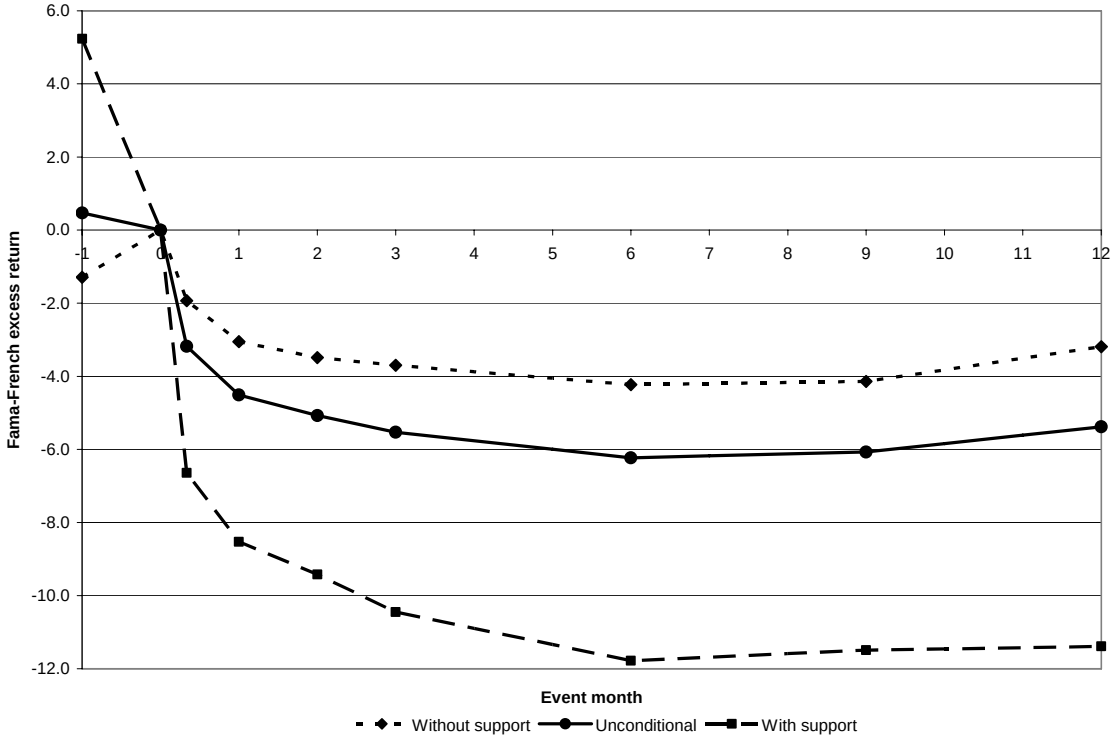


Figure 2
Portfolio Returns to a Long-Short, 3-Month Holding Period Recommendation-Change Strategy

This figure displays the quarter-by-quarter portfolio returns presented by calendar year in Table 6. The first series presents the 3-month return for the equal dollar, long-short portfolio by quarter. The second series displays the results of the portfolio of firms with earnings support innovations only from Table 6, Panel C. Returns are not

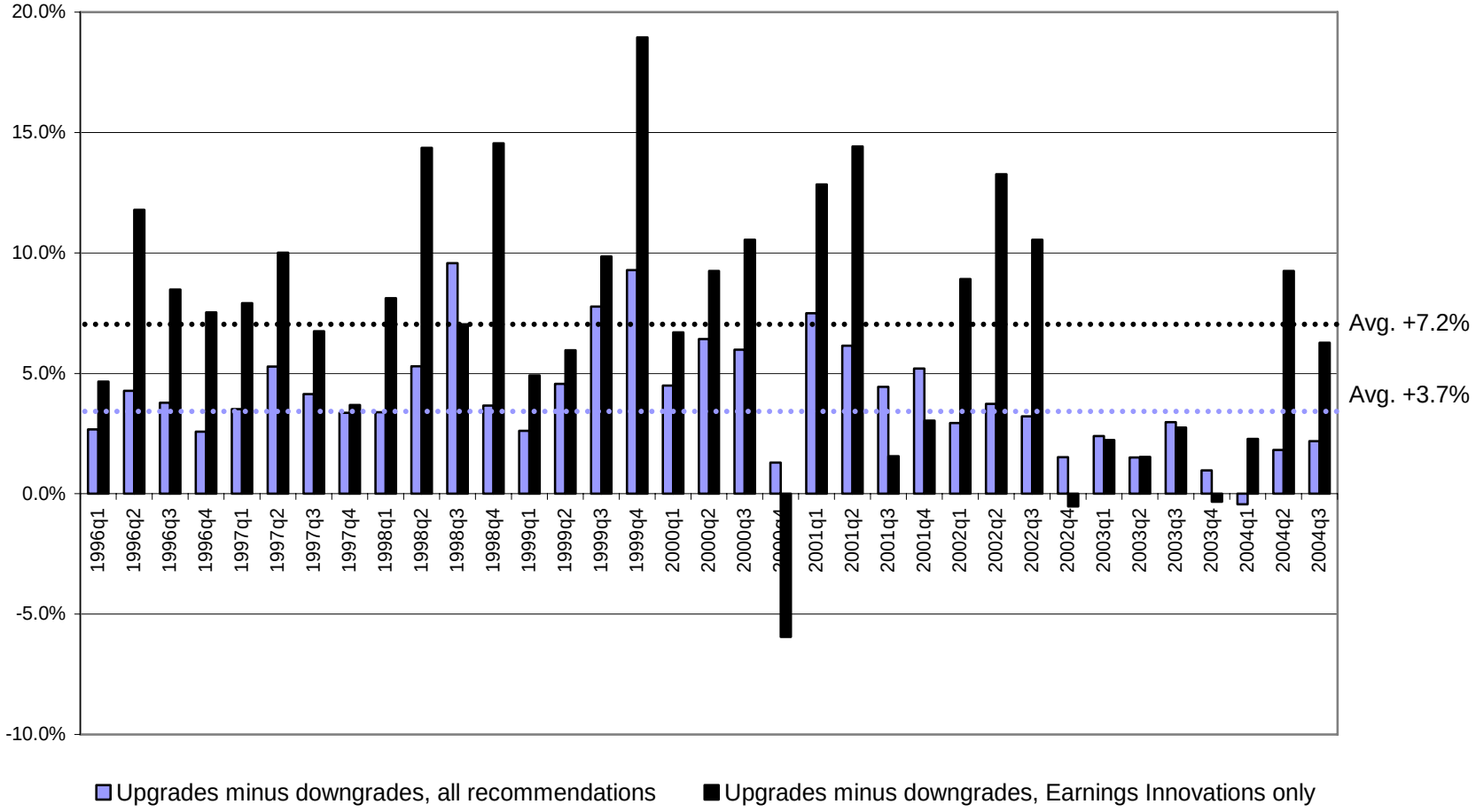


Table 1

Descriptive Statistics for Sample Firms and the Number of Recommendation Changes by Year, Firm Size, and Earnings "Support"

For the time period Jan. 1996- August 2004, there are 151,617 Recommendation Changes in the IBES detail database after eliminating initiations. The number is reduced to 146,279 after eliminating technical changes, and then to 136,951 when using only stocks with prices greater than $5. Panel A shows the distribution of opinion changes by year and Panel B shows changes by market capitalization decile. **Earnings Support** is defined as a recommendation change when the recommending analyst increases (in the case of upgrades) or decreases (in the case of downgrades) his earnings forecast for fiscal year 1 or 2 at the same time as the recommendation change.

Panel A: Number of Firms With Recommendation Changes and Statistics on Changes Per Year

		Recommendation Changes		*Number of Rec.Changes per Year*		
Year	*Number of Firms*	*Up*	*Down*	*Average per firm*	at Earnings Report Date	w/ Earnings "Support"
1996	3,350	7,095	7,671	4.4	12.2%	24.2%
1997	3,631	6,550	7,977	4.0	11.6%	25.6%
1998	3,745	7,373	9,154	4.4	12.5%	24.5%
1999	3,542	8,261	8,105	4.6	17.8%	24.5%
2000	3,340	6,677	8,567	4.6	17.0%	24.9%
2001	2,911	6,089	9,357	5.3	18.2%	24.8%
2002	2,975	6,939	10,290	5.8	16.9%	23.6%
2003	3,019	7,666	9,652	5.7	20.4%	28.4%
2004*	2,647	5,153	4,375	- *	18.6%	27.6%
TOTALS	7,275	61,803	75,148			25.3%
		136,951				

Panel B: Number of Recommendation Changes and Firms by Firm Size Decile

CRSP Size Decile	Rec. Changes	% of Sample	Avg. Number of Firms/Yr.	Rec. Changes per Firm/Yr.	w/ Earnings "Support"
10th	58,037	42.4	717	9.0	24.3%
9th	28,171	20.6	614	5.1	25.9%
8th	17,810	13.0	517	3.8	26.4%
7th	11,327	8.3	409	3.1	26.0%
6th	7,530	5.5	323	2.6	27.2%
4th-5th	6,993	5.1	374	2.1	26.4%
1st-3rd	1,311	0.9	97	1.5	25.3%
Other**	5,772	4.2	186	3.4	22.7%
TOTALS	136,951	100%			25.3%

* A full year of data does not exist for 2004 so the average for that year is not meaningful

** "Other" Companies with no assigned CRSP Size Decile are typically foreign companies

Table 2

The Effect of "Earnings Support" on Recommendation Changes

For the dates Jan. 1996- Aug. 2004, there are 117,517 Company-Event Days when there are unambiguous (no offsetting positive and negative) Recommendation Change signals in the IBES detail database after eliminating initiations, technical changes, and stocks with prices > $5. Recommendation Changes with Earnings Support are considered those where the brokerage analyst increases (decreases) his fiscal year 1 or fiscal year 2 Earnings Forecast within the 2-day event window around his upgrade (downgrade). Newey-West Standard Errors are in parentheses.

Panel A: Average Market Response (FF 3-factor adjusted) to Recommendation Upgrades

	All Rec. Upgrades	*No Earnings Support*	*With Positive Earnings Support*	*Difference in Return**
Number of Changes	57,152	44,438	12,714 (22%)	
1-Month Prior Return	0.00	-0.69	2.53	3.19
	(0.09)	(0.11)	(0.18)	(0.18)
2-Day Event Return	2.25	2.14	3.88	1.74
	(0.04)	(0.05)	(0.08)	(0.1)
1-Month Post Return	1.26	0.98	2.30	1.21
	(0.07)	(0.08)	(0.13)	(0.17)
3-Month Post Return	1.60	1.16	3.15	1.71
	(0.12)	(0.13)	(0.29)	(0.28)
6-Month Post Return	1.91	1.42	3.72	1.99
	(0.2)	(0.2)	(0.56)	(0.4)
12-Month Post Return	4.07	2.95	8.54	4.39
	(0.43)	(0.36)	(1.0)	(0.88)

Panel B: Average Market Response (FF 3-factor adjusted) to Recommendation Downgrades

	All Rec. Downgrades	*No Earnings Support*	*With Negative Earnings Support*	*Difference in Return**
Number of Changes	66,039	48,609	17,430 (27%)	
1-Month Prior Return	-0.47	1.30	-5.23	-6.57
	(0.11)	(0.11)	(0.14)	(0.19)
2-Day Event Return	-3.19	-1.93	-6.65	-4.74
	(0.06)	(0.05)	(0.11)	(0.12)
1-Month Post Return	-1.33	-1.13	-1.90	-0.52
	(0.08)	(0.1)	(0.15)	(0.17)
3-Month Post Return	-2.35	-1.78	-3.81	-1.15
	(0.14)	(0.15)	(0.25)	(0.27)
6-Month Post Return	-3.05	-2.31	-5.15	-1.51
	(0.19)	(0.27)	(0.25)	(0.41)
12-Month Post Return	-2.19	-1.27	-4.75	-1.95
	(0.37)	(0.47)	(0.56)	(0.54)

* The Difference in Return is the coefficient of the indicator variable of Earnings Support in a regression including the Fama-French factors of all upgrades in Panel A and, separately in Panel B, all downgrades.

Table 3

Cross-Sectional Regressions of Recommendation Upgrades (incorporating Four-Factor-Model-Adjusted Returns) on Recommendation and Firm Characteristics Including Earnings Support and Earnings Innovation

For the dates Jan. 1996-Aug. 2004, there are 56,992 "pure" Recommendation Upgrade Firm/Days in the IBES detail database after eliminating initiations, technical changes, and stocks with prices < $5. The following three regression specifications use the upgraded stock's raw return minus the cumulative risk free rate during the two-day and three-month windows as the dependent variable. Risk factors are constructed as described in Section III. Indicator (dummy variables are denoted (0,1).

Upgrades, Market Response at the Event (Days -1 and 0) and 3-Month Post-Event Return Periods

	Event Return (Days -1 to 0)			**3-Month Post-Event**			**3-Month Post-Event**		
	Param.	**Std. Err.**	**T-Stat**	**Param.**	**Std. Err.**	**T-Stat**	**Param.**	**Std. Err.**	**T-Stat**
Intercept	4.51	0.206	21.90	6.31	2.190	2.88	6.39	2.180	2.92
Market Excess Return	1.30	0.047		1.07	0.039		1.07	0.038	
Small minus Large Factor	0.76	0.072		0.48	0.049		0.49	0.049	
High minus Low Factor	0.20	0.088		0.18	0.064		0.19	0.063	
Up minus Down Factor	-0.23	0.054		-0.13	0.038		-0.13	0.038	
Event Return (days -1 to 0)	-	-		6.85	4.590	1.49	6.85	4.570	1.50
Log(MarketCap)	-0.27	0.034	-7.80	-0.55	0.366	-1.52	-0.55	0.376	-1.51
Log(# Analysts Following)	-0.27	0.069	-3.86	-0.22	0.629	-0.35	-0.23	0.605	-0.37
EPS Report Date (0,1)	1.98	0.121	16.29	0.02	0.440	0.06	-0.03	0.394	-0.09
Prev. Week EPS Change	0.17	0.046	3.72	0.85	0.280	3.02	0.85	0.275	3.10
Prev. Week Upgrades	0.89	0.089	9.99	0.86	0.217	3.97	0.87	0.219	3.96
Prev. Week Downgrades	-0.98	0.100	-9.71	-0.70	0.297	-2.37	-0.71	0.300	-2.39
Multiple Recs Same Day	4.62	0.267	17.26	1.01	0.709	1.43	1.01	0.687	1.42
LTG Rate "Support" (0,1)	0.00	0.137	-0.02	0.39	0.751	0.53	0.42	0.656	0.56
Positive EPS "Support" (0,1)	**1.16**	**0.089**	**13.03**	**1.04**	**0.322**	**3.23**	**-**	**-**	
Positive EPS **Innovation** (0,1)							**1.75**	**0.457**	**3.83**
Positive EPS Non-Innovation (0,1)							-0.16	0.523	-0.31
Negative EPS "Support" (0,1)	**-0.78**	**0.124**	**-6.31**	-0.48	0.449	-1.07	-0.53	0.442	-1.20
Number of Obs / R-Squared	56,992		0.123	56,992		0.154	56,992		0.158

Table 4

Cross-Sectional Regressions of Recommendation Downgrades (incorporating Four-Factor-Model-Adjusted Returns) on Recommendation and Firm Characteristics Including Earnings Support and Earnings Innovation

For the dates Jan. 1996-Aug. 2004, there are 65,822 "pure" Recommendation Downgrade Firm/Days in the IBES detail database after eliminating initiations, technical changes, and stocks with prices greater than $5. The following three regression specifications use the upgraded stock's raw return minus the cumulative risk free rate during the two-day and three-month windows as the dependent variable. Risk factors are constructed as described in Section III. Indicator (dummy) variables are denoted (0,1).

Downgrades, Market Response at the Event (Days -1 and 0) and 3-Month Post-Event Return Periods

	Event Return (Days -1 to 0)			**3-Month Post-Event**			**3-Month Post-Event**		
	Param.	**Std. Err.**	**T-Stat**	**Param.**	**Std. Err.**	**T-Stat**	**Param.**	**Std. Err.**	**T-Stat**
Intercept	-6.13	0.251	-24.36	-2.41	1.660	-1.45	-2.45	1.680	-1.46
Market Excess Return	1.14	0.047		1.03	0.032		1.03	0.032	
Small minus Large Factor	0.72	0.069		0.53	0.041		0.53	0.041	
High minus Low Factor	0.17	0.101		0.21	0.038		0.21	0.038	
Up minus Down Factor	-0.32	0.082		-0.29	0.027		-0.30	0.036	
Event Return (days -1 to 0)	--	--		-2.34	3.060	-0.64	-2.44	3.640	-0.67
Log(MarketCap)	0.83	0.040	20.43	0.02	0.335	0.08	-0.02	0.336	0.06
Log(# Analysts Following)	-0.56	0.067	-8.28	0.66	0.629	1.05	0.67	0.630	1.07
EPS Report Date (0,1)	-1.77	0.172	-10.32	-0.71	0.451	-1.59	-0.72	0.451	-1.61
Prev. Week EPS Change	0.48	0.055	8.84	0.35	0.238	1.50	0.36	0.240	1.51
Prev. Week Upgrades	1.14	0.095	12.01	0.64	0.361	1.78	0.63	0.361	1.76
Prev. Week Downgrades	-1.03	0.087	-11.85	-0.17	0.237	-0.75	-0.18	0.237	-0.76
Multiple Recs Same Day	-9.65	0.329	-29.30	-0.83	0.495	-1.68	-0.80	0.496	-1.63
LTG Rate "Support" (0,1)	-0.61	0.180	-3.37	0.40	0.539	0.75	0.39	0.540	0.73
Positive EPS "Support" (0,1)	**0.96**	**0.131**	**7.30**	**1.15**	**0.375**	**3.08**	**1.19**	**0.382**	**3.13**
Negative EPS "Support" (0,1)	**-3.09**	**0.117**	**-26.39**	-0.82	0.457	-1.80	**--**	**--**	**--**
Negative EPS **Innovation** (0,1)							**-1.16**	**0.520**	**-2.22**
Negative EPS Non-Innovation (0,1)							0.07	0.580	0.12
Number of Obs / R-Squared	65,822		0.179	65,822		0.174	65,822		0.175

Table 5

A Comparison of Event and Post-Event Returns for Upgrades and Downgrades Concurrent with Earnings Report Dates and a Matched Sample of Non-Recommendations with Matched Earnings Changes

For the years Jan. 1996-Aug. 2004, there are 10,642 Recommendation Change Firm/Days in the IBES detail database within one day of a quarterly earnings release date. This table compares event returns for stocks recommended at a reporting date with a matched sample of companies whose earnings forecast changes for fiscal year 1 and fiscal year 2 in the two-day window around the earnings report in the same calendar quarter are most closely matched with the recommended stock. The objective of the table is to answer the question whether the recommendation adds anything incremental to the earnings revision.

Panel A: Market Response (FF-Adjusted) to Recommendation Upgrades At An Earnings Report Date

	Upgrades w/ Forecast Change	***Matched Sample w/ Similar Forecast Chg***	***Paired Difference***
	n=5,097		
2-Day Event Return	4.8	0.3	+4.5%*
	(.13, 37.8)	(0.09, 3.83)	
3-Month Post Return	2.7	0.4	+2.3%*
	(0.37, 7.3)	(0.36, 1.0)	
6-Month Post Return	3.6	1.2	+2.4%*
	(.56, 6.4)	(0.59, 2.2)	

Panel B: Market Response (FF-Adjusted) to Recommendation Downgrades At An Earnings Report Date

	Downgrades w/ Forecast Change	***Matched Sample w/ Similar Forecast Chg***	***Paired Difference***
	n=5,545		
2-Day Event Return	-6.2%	-0.5%	-5.7%*
	(0.15, -41.4)	(0.09, -5.61)	
3-Month Post Return	-2.7	-0.6	-2.1%*
	(0.34, -7.9)	(0.35, -1.7)	
6-Month Post Return	-2.7	0.5	-3.2%*
	(0.52, -5.2)	(0.54, 1.0)	

Table 6

Year by Year Returns to a Post Recommendation Buy-And-Hold Long-Short Strategy Comparing An All Recommendation Changes Strategy with One Using Only Those With Earnings Innovations

Panel A calculates the returns to a three-month holding period, purchasing all upgraded stocks and short selling all downgraded stocks the day after the recommendation change. Panel B shows shows the Fama French adjusted returns, which is not an easily implementable strategy. Panel C shows the portfolio returns when only recommendation changes that are accompanied by Earnings Innovations are used. Column 7 displays calculations excluding all firms with market capitalizations below CRSP NYSE decile 8.

Panel A: "Hedge" Portfolio Returns, Purchasing Upgraded Stocks & Short Selling Downgraded Stocks

	Rec.	3 Month Post-Event Raw Returns (not market adjusted)				
Year	Changes/Year	for Upgrades	for Downgrades	Net Qtly.	Annualized	Ann. Deciles 8+
1996	13,860	6.1%	3.3%	2.8%	11.8%	8.9%
1997	13,716	7.8%	4.2%	3.6%	15.3%	10.6%
1998	15,136	2.9%	-0.7%	3.6%	15.3%	12.4%
1999	14,436	10.5%	4.8%	5.7%	25.0%	17.9%
2000	13,481	2.4%	-2.5%	4.9%	21.2%	18.5%
2001	13,585	3.7%	-1.8%	5.5%	24.0%	19.9%
2002	15,193	-4.7%	-6.6%	1.9%	7.8%	3.7%
2003	15,274	13.8%	12.4%	1.4%	5.7%	1.3%
2004	8,510	-0.6%	-1.0%	0.4%	1.7%	-1.6%
Average	123,191	5.0%	1.4%	**3.7%**	**15.5%**	**12.0%**

Panel B: "Hedge" Portfolio Returns, Purchasing Upgraded Stocks & Short Selling Downgraded Stocks

	Rec.	3 Month Post-Event Fama-French Adjusted Residual Returns				
Year	Changes/Year	for Upgrades	for Downgrades	Net Qtly.	Annualized	Ann. Deciles 8+
1996	13,860	0.5%	-2.5%	3.0%	12.6%	9.8%
1997	13,716	0.1%	-3.7%	3.8%	16.2%	12.5%
1998	15,136	1.9%	-3.0%	4.9%	21.1%	18.4%
1999	14,436	3.7%	-1.7%	5.5%	23.9%	16.3%
2000	13,481	4.6%	0.4%	4.2%	17.9%	15.4%
2001	13,585	3.1%	-2.2%	5.3%	23.1%	18.6%
2002	15,193	1.9%	-0.9%	2.8%	11.7%	7.6%
2003	15,274	0.6%	-1.1%	1.7%	6.9%	2.6%
2004	8,510	1.2%	0.3%	0.9%	3.7%	1.0%
Average	123,191	2.0%	-1.7%	3.7%	15.6%	11.9%

Panel C: "Hedge" Returns, Purchasing Upgraded Stocks & Short Selling Downgraded "Innovation" Stocks

	Rec.	3 Month Post-Event Raw Returns, Using Only Those With Earnings Innovations				
Year	Changes/Year	for Upgrades	for Downgrades	Net Qtly.	Annualized	Ann. Deciles 8+
1996	1,917	9.1%	1.6%	7.4%	33.2%	28.0%
1997	1,957	9.7%	3.0%	6.8%	29.9%	20.0%
1998	2,148	8.2%	-2.0%	10.2%	47.7%	38.9%
1999	1,972	13.6%	3.4%	10.2%	47.7%	35.5%
2000	1,859	4.1%	-1.3%	5.4%	23.4%	21.7%
2001	1,841	6.6%	-1.0%	7.6%	33.8%	30.2%
2002	1,789	-3.2%	-10.2%	7.0%	31.0%	29.0%
2003	2,160	13.3%	12.6%	0.7%	2.7%	-6.7%
2004	1,171	1.6%	-3.7%	5.3%	22.9%	12.1%
Average	16,814	7.6%	0.4%	**7.2%**	**32.2%**	**25.0%**

Table 7

Post-Recommendation (Three and Six-Month) Changes in Consensus Fiscal Year 1 and Fiscal Year 2 Earnings Forecasts for Upgraded and Downgraded Stocks Conditional Upon Earnings Support

This table shows the percent change in the consensus earnings forecast and the change in the consensus scaled by price from one day after the recommendation change to 3 months (and, 6 months) later. Panel A shows these changes for recommendation upgrades and Panel B, for recommendation downgrades. Three separate rows distinguish recommendations that are unaccompanied by an earnings forecast change in the same direction by the analyst, those that do have earnings support, and those that have earnings support that are also innovations as described in Section V.

Panel A: Post-Recommendation Change in Earnings Forecast Level for Upgraded Stocks

	Percent Change in Consensus Earnings Forecast*				Change in Consensus Earnings Forecast / Price			
Earnings Supported	Fiscal Year 1 Estimate After		Fiscal Year 2 Estimate After		Fiscal Year 1 Estimate After		Fiscal Year 2 Estimate After	
Recommendation?	3 mos.	6 mos.	3 mos.	6 mos.	3 mos.	6 mos.	3 mos.	6 mos.
No	1.63	3.66[b]	3.88	7.13[b]	-0.16	-0.20	0.00	0.19
Yes	2.86	13.43[b]	2.86	9.24[b]	0.12	0.39[b]	0.15	0.38[b]
Yes+Innovation	8.29[a]	20.54[a,b]	6.07[a]	11.69[a,b]	0.31[a]	0.77[a,b]	0.24	0.45[b]

Panel B: Post-Recommendation Change in Earnings Forecast Level for Downgraded Stocks

	Percent Change in Consensus Earnings Forecast*				Change in Consensus Earnings Forecast / Price			
Earnings Supported	Fiscal Year 1 Estimate After		Fiscal Year 2 Estimate After		Fiscal Year 1 Estimate After		Fiscal Year 2 Estimate After	
Recommendation?	3 mos.	6 mos.	3 mos.	6 mos.	3 mos.	6 mos.	3 mos.	6 mos.
No	-2.71	-2.94	0.07	0.70	-0.85	-1.29	-0.26	-0.52[b]
Yes	-6.84	-8.21	-5.51	-8.22[b]	-4.50	-2.66	-0.55	-0.86[b]
Yes+Innovation	-18.44[a]	-23.55[a,b]	-14.04[a]	-19.20[a,b]	-2.60[a]	-4.12[a]	-2.06[a]	-3.75[a,b]

* Columns 2-5 use the percentage increase or decrease in the consensus earnings forecast after deleting observations where the annual consensus estimate is less than plus/minus $0.10.

[a] A t-test of the difference between "no earnings support for the recommendation" and "innovation earnings support" is significant at $p < .05$

[b] A t-test of the difference between the 3 mo. forecast change (post-recommendation) and 6 mo. forecast change is significant at $p < .05$