Analyst Strong Views and Market Reactions

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Abstract

Financial analysts convey their opinions on the firms they cover through three primary measures: earnings forecasts, target prices, and stock recommendations. This study evaluates the strength of an analyst's opinion about a specific firm by examining the implied rate of return, which is calculated as the ratio of the forecasted target price to the current market price. This implied rate of return is then compared to those of other firms covered by the same analyst. Our findings indicate that the market reacts more strongly to target price revisions for firms where the analyst has a strong opinion, positive or negative, compared to other revisions. These reactions align with the analyst's positive or negative views and are reflected both in short-term returns around the revision date and in subsequent drift returns. Additionally, the study demonstrates how aggregating analysts' strong opinions about a particular firm can be utilized in portfolio construction, leading to significant statistical and economic returns. These results suggest that what might be perceived as an analyst's excessive bias may actually convey valuable information about "winners-" and "losers=" stock ideas to market participants.

I. Introduction

On August 24, 2009, the Wall Street Journal published an article about a practice that would become infamous as the "Huddles" at Goldman Sachs, ultimately leading to a $10 million fine for the firm.[1] These Huddles were morning meetings where research analysts shared their top trading ideas with traders. Some of these traders used the insights to manage Goldman's own funds, while others relayed the information to select clients before it appeared in analysts' published reports. Sophisticated investors are eager for access to the best trading ideas from analysts and traders. This demand is evident in the business model of the TIM Group, which provides subscribers—primarily buy-side firms—with contributors' top trade ideas.[2]

In an innovative recent study Birru et al. (2024) investigate explicit designations of "top picks" (i.e. best trading ideas) by analysts in the period 1999-2016. They find that analysts provide this designation when they wish to highlight their best selections among stocks in their covered universe, and a portfolio which follows these designations can earn returns of over 17% annually. Furthermore, this performance is superior to other documented approaches that use analysts' recommendations or other inputs. While being the first study of its kind in the literature, it is limited along two main dimensions. It uses explicit designations of "top picks" or "best ideas" from analysts' textual reports, and finds only about 3,500 such designations in their 18-year sample period. Furthermore, it only identifies analysts' best candidates, but investors can gain substantial insights from knowledge of analysts' worst candidates as well. Our study aims to extract analysts' strongest opinions, or "best and worst trading ideas," from their publicly available reports and explores the relationship between these opinions and equity returns.

Sell-side analysts communicate their insights both within their firms and externally to buy-side investors. They typically highlight the stocks they are most bullish or bearish on, offering valuable signals for buying, selling, or shorting.[3] In turn, traders in these firms often share these strong views with preferred clients. Buy-side analysts also incorporate this

[1] "Goldman's Trading Tips Reward Its Biggest Clients", *Wall Street Journal*, August 24, 2009.

[2] TIM Group | The world's largest independent trade ideas network

[3] Given the limited time for these interactions, analysts are likely to highlight just their best ideas. The literature documents that sell side analysts routinely interact with buy side analysts and provide trading ideas (Brown et al. 2016; Spence et al. 2019; Millo et al. 2023).

information, along with insights from other market participants, into their investment decisions (Brown et al. 2016; Spence et al. 2019; Millo et al. 2023).

Our study proposes a method to quantify analysts' strongest views (positive or negative) and examines the association between these views and equity returns. If analysts can effectively identify winners and losers and convey their insights to the market, we expect to see a corresponding impact on trading activity and stock prices. Specifically, the continuous interaction between analysts, traders, and sophisticated investors likely leads to increased trading in stocks with strong analyst views, resulting in above-normal price and volume changes.

We identify the analyst's strongest views at any given date t, based on the Target Price Ratio (TPR) for each firm that the analyst covers. TPR is the ratio of the most recent 12-months target price to the stock's closing price on day t-1, and it reflects the analyst's expected return for the stock over the next year. We then rank these TPRs into quintiles (at the analyst level). The firms in the top quintile represent the analyst's strongest positive views (i.e. "top picks"), while those in the bottom quintile represent the strongest negative views ("worst picks").

The TPR is a superior measure to trading ideas based on stock recommendations for several reasons: (i) stock recommendations tend to be positively skewed and remain static for long periods,[4] and (ii) recommendation levels do not differentiate between companies within the same rating, whereas the TPR offers a continuous measure of expected performance.[5,6]

[4] A recent analysis of the IBES recommendation file shows that over 50% of the recommendations are not revised within 230 days, and 34% are outstanding for more than a year. Also, 49% of the recommendations are Buy or Strong Buy, and less than 8% are Sell or Strong sell recommendations. In contrast, analysts revise TP much more frequently; for example, 50% of the TP forecasts are revised within 90 days.

[5] The TPR is also superior to earnings forecasts. Although Earnings forecasts are typically the least stale of the analyst outputs, they are difficult to use as a ranking measure. For example, an analyst who covers companies in the healthcare sector may have very different sub-industries such as pharmaceutical companies, medical device manufacturers and healthcare providers, all with very different business environments, growth expectations and risks. In addition, selecting a proper denominator to scale the earnings forecast is likely to cause additional ranking noise. The TPR rank mitigates these issues and uses an ideal measure for investors - the expected rate of return.

[6] The literature indicates that target prices provide valuable insights and are distinct from earnings forecasts and recommendations (Brav and Lehavy 2003; Asquith et al. 2005; Feldman et al. 2012). However, target prices are often optimistic, with the implicit returns they suggest typically higher than actual outcomes (Dechow and You 2020). Hence, we also provide evidence below that using earnings forecasts, earnings multiples and target prices can also help identifying analyst's strong views about specific firms.

We focus on two major research objectives. The first is to analyze market reactions to target price revision announcements, considering the strength of analysts' views. We examine both the immediate market responses and subsequent drift returns following revisions that characterize the firm (based on the updated TPR) as a top or worst pick. We expect that analysts' views will positively influence the relationship between target price revisions and market reactions. As mentioned earlier, sell-side analysts regularly share trading ideas with traders within their firms and with buy-side analysts. These interactions are likely to lead to increased trading activity in stocks that analysts have strong opinions about, resulting in above-normal price.

Moreover, analysts' views are likely to have longer-term implications for two reasons. First, large price changes can prompt additional trading in the same direction by traders who interpret this signal as momentum. Second, the ongoing promotion of strong views is likely to stimulate heightened trading activity by traders and sophisticated investors, impacting future returns. Sophisticated investors who recognize this pattern are likely to respond to strong-view target price revisions, earning both immediate and drift abnormal returns.

Our second objective is to validate the mechanism through which analysts' views affect the relationship between target price revisions and immediate as well as future returns. Specifically, we aim to find a positive association between strong views and trading activity by institutional investors.

Our findings align with our predictions. Consistent with existing literature, we first confirm a positive and significant relationship between target price revisions and both immediate and drift returns. We then show that market reactions are stronger for firms where analysts have the strongest views, with more positive (negative) views leading to greater (smaller) immediate and subsequent market reactions. Moreover, incorporating strong-view target price revisions into portfolios can yield abnormal returns, which are mostly concentrated in the long-side of the hedge portfolio, i.e. the companies for which more analysts have strong positive views. The hedge returns are both statistically and economically significant, with an average annual return of around 17%.

Supporting our hypothesis that analysts continuously promote their top trading ideas, we also find that positive TPR revisions associated with strong views lead to increased institutional holdings. Additionally, firms with the most optimistic analyst views tend to experience

significant improvements in operating income and cash flows over the following three years, demonstrating analysts' ability to identify "winners."

To further support our findings using the TPR measure, we introduce a second measure of strong views that exploits the documented relationship between earnings forecasts, earnings multiples and target prices. Specifically, we estimate the average earnings multiple (price per share divided by earnings per share) the analyst likely uses to determine the target price for a specific firm. We then use the EPS forecast and the earnings multiple to estimate the "intrinsic" target price that the analyst should have determined for the specific firm. We rank the firms covered by the analyst based on the ratio of the actual target price to the "intrinsic" target price, and use these ranks to identify those firms for which the analyst has strong (both positive or negative) views. We estimate the average earnings multiple for each firm covered by the analyst using three approaches – (i) average earnings multiple for all analysts and companies in that the focal firm's industry, (ii) average multiple for all companies covered by the specific analyst and (iii) average multiple for all companies that the analyst covers in the focal firm's industry. We find that this approach to identify strong views yields similar results to those based on the TPR rankings.

We contribute to the literature in several keyways. First, we contribute to the new research stream focusing on trading ideas. Although these ideas are not directly observable for a broad sample of firms, we offer and validate two measures based on target price forecasts. We then provide evidence that these strong trading ideas are associated with heightened market activity by institutional investors. Additionally, we demonstrate that strong trading ideas serve as an important moderating variable in explaining both immediate and subsequent equity returns to target price revisions. Our findings also shed additional light on the long-standing puzzle regarding the drift returns associated with target price revisions. Second, we expand the literature on bias in target prices by providing a straightforward method to separate the bias from the signal. We accomplish this by examining the relative standing of each company within an analyst's covered universe, without relying on external information to potentially remove the bias component. Finally, we identify an additional anomaly that predominantly affects large companies and is primarily concentrated among positive holdings. This finding suggests that implementing the strategy may involve lower potential trading costs.

The next section provides a literature review and develops our predictions. Sections 3 and 4 describe the data and provide the main results. Section 5 briefly discusses robustness tests for our main findings, and Section 6 summarizes and concludes our study.

II. Literature Review

Analysts' "top picks"

In an insightful study, Birru et al. (2024) examine in-depth the developing practice of "Top Pick" designations by analysts in response to the Global Analyst Research Settlement. They provide an extensive description of the institutional setting, and how the transition to a three-tier recommendation levels induced analysts to designate specific stocks as "top pick" or "best idea"; essentially, it provided the analyst a mechanism to highlight and distinguish specific stocks among their "buy" recommendations. Birru et al. (2024) provide evidence that following such "enhanced recommendations" is profitable and is more profitable than other types of portfolios constructed according to prior studies which use recommendations, recommendation upgrades, etc. to identify trading ideas based on analysts' outputs. They also show that institutional investors react quickly to these new designations, whereas retail investors are slower in their reactions. They further provide evidence that these "top pick" designations are not caused entirely by analysts' incentives, and are more likely to reflect a genuine ability to identify top performers.

However, Birru et al. (2024) rely on an explicit designation of companies as "top pick" or "best idea" in the analyst report. As a result, their study is limited to about 200-300 designations per year in the most recent part of their sample, ignoring other firms for which the analysts are optimistic. Furthermore, they concentrate on analysts' best ideas, neglecting completely the other side of the spectrum – analysts' worst performers. In practice, knowing that an analyst has a strong negative view about a particular firm are also relevant to investors for trading decisions. Thus, it seems natural to develop an alternative that will in effect highlight analysts' strong views about both their best and worst companies and will be applicable to a wide universe of firms.

Target Prices

The early literature on target prices focused on market reactions to these revisions, either in isolation or in comparison to other analysts' outputs. Brav and Lehavy (2003) examine market responses to individual analysts' target price revisions from 1997-1999, documenting both immediate and drift abnormal returns in the direction of the revisions. These reactions are incremental to the information provided by earnings forecasts and stock recommendations. Similarly, Asquith et al. (2005) investigate market reactions to reports from "star" analysts during the same period, finding strong market responses to target price revisions even after controlling for other factors like earnings forecasts and the qualitative analysis presented by the analysts. Feldman et al. (2012) extends this line of research, analyzing market reactions to revisions in earnings forecasts, target prices, and stock recommendations from 1999-2010. They find significant market reactions to all three measures, with target prices and recommendation revisions generating the strongest responses. They also demonstrate that a portfolio strategy incorporating all three types of revisions yields significantly greater future returns than strategies based on any single measure. This evidence underscores the valuation relevance of target price revisions, in line with the broader literature on earnings forecasts and stock recommendations changes.

More recent studies have delved into the sources of bias in target price forecasts—defined as the difference between the expected equity return implied by the forecast and the actual return—and attempt to disentangle the bias from the valuable information contained in target prices. Dechow and You (2020) identify the main sources of bias as analysts' errors in assessing a firm's risk, inaccuracies in earnings forecasts, and job-related incentives. They show that adjusting for these biases can yield significant immediate and subsequent portfolio returns, as investors often overreact to the biased elements of target prices. Green et al. (2024) refine this approach by incorporating explicit cost of capital estimates in analysts' reports, finding that approximately 66% of their sample observations have implied rates of return exceeding the cost of capital, and those cases are positively correlated with future returns. Loudis (2024) further disentangles the bias and information components of target prices, providing evidence that investors tend to overreact to the bias and underreact to the TP’s genuine information, suggesting that focusing on the informational component can lead to abnormal future returns. Collectively, these studies highlight systematic biases in analysts' target prices and the potential for enhancing portfolio returns by accounting for these biases. We also document that target prices are biased. However, we are not concerned with the accuracy of the predicted prices, but rather use the target prices to identify strong trading

ideas. Indeed, although we find that target prices are biased, they do allow users to separate "winners" from "losers".

Da and Schaumburg (2011) analyze target price announcements from 1997-2004, emphasizing the importance of relative target price ratios within sectors. They identify trading ideas based on the consensus TP relative to current price by sectors. They find that portfolios constructed using relative target price ratios generate significant abnormal returns. Our approach to the identification of an analyst's strong views is based on the analyst's covered universe. If an analyst covers companies in just one industry, then our approach may be similar to that of Da and Schaumburg (2011). However, our analysis of the covered universes of analysts from 2000-2023 shows that most analysts (over three quarters) cover companies in more than just one industry.[7] Moreover, our study differentiates itself by focusing on the relative target price ratios across all firms covered by the same analyst, allowing us to tease out the individual analyst's views across their entire coverage universe.[8]

We propose that analysts signal their views about the future prospects of the stocks they cover through relative TPRs at each point in time. Variations in these TPRs can be attributed to firm fundamentals and differences in analysts' access to information or expertise in specific sectors. For instance, analysts may have closer relationships with the management of certain firms or specialized knowledge in specific industries, leading to stronger views on certain stocks within their coverage universe, reflected in more extreme TPRs. Whatever the reasons, the relative TPR of a firm among the universe of firms covered by the analyst is a proxy for the view of the analyst on the particular firm's expected performance.

Research on the relationship between sell-side and buy-side analysts indicates that while sell-side information is not the primary determinant of buy-side investment decisions, a significant proportion of buy-side analysts do consider sell-side insights (Brown et al. 2016; Spence et al. 2019; Millo et al. 2023). Therefore, to the extent that sell-side analysts actively promote stronger views on certain firms, we hypothesize that the strength of these views

[7] A further analysis of the classification of firms to top and worst ideas based on our approach and that of Da and Schaumburg (2011) shows that the correlation is about 56%. Further, a simple comparison of the top and worst trading ideas indicates only less than 50% overlap between the two approaches.

[8] The approach of Da and Schaumburg (2011) is affected by incentives of analysts to not incorporate negative news into their TP forecasts. Palley et al. (2025) examine whether the dispersion in the consensus TP forecast affects subsequent returns. They argue that some analysts are late to update TP after bad news. Consequently, the consensus TP may remain artificially high with higher dispersion in TP among analysts. Indeed, they find that future returns are higher (lower) for low (high) dispersion consensus of implied returns.

influences investor reactions to target price revisions. If investors recognize that an analyst has strong opinions about specific firms, we expect more pronounced market reactions to these firms' target price revisions. As noted in the literature, stock returns tend to drift in the direction of the target price revision. One potential explanation for this drift is that sell-side analysts regularly interact with traders and buy-side analysts, sharing trading ideas about the firms they cover. Thus, if investors understand the connection between analysts' strong views and future returns, we anticipate a positive association between the strength of these views and both immediate and future returns following target price revisions. Additionally, we expect to see a positive correlation between the strength of these views and trading activity by institutional investors.

III. Data

We obtain analyst data from IBES, financial statement data from Compustat, and price and return data from CRSP for our analysis. The sample period spans from 2000 through 2023. Our initial dataset includes Target Price (TP) information, along with non-missing analyst codes and CUSIPs. Matching the TP data with CRSP and Compustat yields 1,234,524 TP forecasts observations with valid PERMNO and GVKEY identifiers. We require that each analyst covers at least 5 firms on the announcement date of each TP revision and that each firm is covered by at least 3 analysts.[9] These criteria reduce our sample to 1,113,655 TP forecasts.

For each TP forecast, we compute the Target Price Ratio (TPR) as the ratio of the target price to the price per share on the last trading day before the forecast is issued. We also calculate cumulative abnormal returns (CARs) during the three days centered on the TP forecast issuance date, as well as CARs for the period following the forecast. Abnormal returns are determined as the buy-and-hold return on a stock minus the value-weighted buy-and-hold returns on a portfolio with similar characteristics (size, B/M, and momentum). The Appendix provides a detailed description of the variables used throughout this study.

Table 1, Panel A presents descriptive statistics of the Target Price Ratio (TPR) and abnormal returns. The mean (median) TPR is 1.21 (1.15), indicating that, on average, analysts expect

[9] We define a firm as being covered by an analyst on any TP revision date if the analyst provided a TP for this company within the prior 365 days.

stock prices to be 21% higher within the next 12 months compared to the current share price. Target prices are typically revised upwards, reflecting a general upward trend in equity prices. On average, target prices are revised 3-4 times per year, with a mean interval of 110 days between forecasts. The returns from prior TP announcements are also positive on average. As expected, the mean and median immediate and drift abnormal returns are nearly zero. The table also reveals that analysts usually provide TP forecasts approximately 30 days after the most recent earnings announcement date, with about 35% of TP forecasts issued within one- or two-days post-earnings announcement.[10]

Panel B of Table 1 provides characteristics of the firms in our sample. Sample firms are typically larger than the general CRSP universe, with a mean (median) value of $11.9 ($2.17) billion, reflecting the inclusion of firms followed by at least three analysts. The firms are profitable, with an average return on net operating assets of 17.3%, and are experiencing robust growth, with average annual sales growth of 15.4%. The book-to-market ratio is slightly lower than in typical samples, suggesting a slight tilt toward growth firms, which is further confirmed by a relatively high R&D intensity of 22%. This growth tilt is expected, given that analysts tend to follow larger firms with higher growth potential. The sample firms exhibit modest financial leverage, with an average debt-to-asset ratio of about 23%. On average, sample firms are covered by around 10 analysts, with a median coverage of 8 analysts.

(Insert Table 1 about here)

IV. Results

4.1 Base-Case Analysis – Market Reactions to TP Revisions

Table 2 serves as a base case analysis of market reactions to Target Price (TP) revisions, essentially confirming the results of prior studies. Panel A demonstrates a strong and positive correlation between TP revisions and stock returns for the period spanning from the previous

[10] We address this issue further in Section 5 below.

TP announcement to the current revision date. This correlation aligns with the expectation that stock price momentum will continue, likely due to persistent changes in market assessments of future earnings and cash flows. Additionally, analysts often adjust their target prices in the same direction as the most recent earnings surprise, which aligns with the well-documented Post-Earnings Announcement Drift (PEAD). These findings remain robust across various fixed effects specifications. Given the potential biases in target price levels, the analysis focuses on target price revisions, controlling for price movements from the previous forecast by the same analyst. This approach helps mitigate biases related to errors in risk assessments, changes in a firm's economic conditions, and analysts' incentives.

Panel B of Table 2 reveals that both immediate and drift market returns are significantly and positively associated with TP revisions, corroborating previous studies on revisions in earnings forecasts, stock recommendations, and target prices (e.g., Brav and Lehavy 2003)

(Insert Table 2 about here)

4.2 Market Reactions to TP Revisions Conditional on Analysts' Ranked Views

Table 3 presents the main results of this study, examining the effect of analysts' views on the relationship between market reactions and Target Price (TP) revisions. Analysts' views are measured as follows: on the TP revision date, we calculate the Target Price Ratio (TPR) for the company for which the analyst provides the TP revision, using the newly forecasted TP scaled by the share price on the day before the announcement (t-1). Additionally, we identify all other companies covered by that analyst and their most recent TP in the prior 365 days.[11] We then compute an updated TPR for each company using the most recent TP for that company and its share price on day t-1. This calculation provides the updated TPR for all companies covered by the analyst as of the TP revision date. We rank the updated TPRs of all covered firms into quintiles, with the highest (lowest) TPRs expected to reflect the best

[11] For example, suppose that an analyst issues a TP for company A on March 26, 2023. Suppose that the analyst covers firms B, C, D, E, and the most recent TP issued by that analyst for these companies was on Oct 15, 2022, Nov. 1, 2022, March 24, 2023, and Feb 28, 2023, respectively. We compute the updated TPR's using these TP's scaled by those firms' share prices on March 25, 2023.

(worst) share price performance relative to other covered firms by that analyst. The TPR rank thus indicates the relative ranking of the firm's future prospects, i.e., the analyst's view.

Panel A shows that the mean TPR in the lowest TPR quintile suggests an expected share price increase of just 1.6%, while the highest quintile indicates an expected increase of 43%. The mean revision in TP also increases monotonically with the TPR rank; mean revisions for the lowest and highest ranks are -3.9% and 6.2%, respectively. This suggests a positive association between the change in TP and analysts' implied returns, as indicated by the TPRs. Analysts tend to become more optimistic (pessimistic) about the highest (lowest) view firms. The TP revision is reflected in the abnormal returns around and after the TP revision date. Abnormal returns around the TP announcement increase monotonically with the TPR ranked-views quintiles. The immediate (3-day) market reaction in the lowest quintile is -1.9%, increasing to 1.9% for TPR in the highest quintile. Further, abnormal returns in the periods following the TP forecast date also show a monotonic drift—remaining negative for the lowest two quintiles and positive for the highest two quintiles. These results indicate that analysts can accurately predict the prospects of the companies they cover and convey this information through their relative target price revisions. The results also imply that investors can partially infer the analyst's relative ranking of covered firms, as there is a monotonic drift in returns following the initial TP revision. These findings are consistent with the documented bias in TP,[12] but while the bias is increasing with the TPR ranked-views quintiles, it is also positively associated with realized future stock returns. Hence, to the extent that market participants are interested in separating “winners” from “laggards”, the TPR, while biased in magnitude, can provide a valuable signal of the analyst’s strong views and the firms’ investment attractiveness.

(Insert Table 3 about here)

Panel B of Table 3 presents the means of firm characteristics when firms are grouped into quintiles based on their relative TPR rank. To transition from analyst-level TPR rank to firm-level TPR rank, we use the following procedure for each firm. First, on the last trading day of

[12] This can be inferred by the difference between the return implied in the TP ratio and subsequent abnormal returns. We provide more rigorous analysis of the bias in section 4.3 below.

the firm's fiscal year, we calculate the firm's TPR rank for each analyst who covers the firm. We identify the most recent TP provided by an analyst covering the firm and recompute the TP ratio for that analyst using the share price as of the last trading date of the year. We repeat this process for all other firms in that analyst's covered universe and assign the recomputed TPRs into quintiles for that analyst, obtaining the quintile rank for each firm in the analyst's covered universe. Second, we compute the average TPR quintile rank across all analysts for each firm and re-rank each firm at the end of the fiscal year into quintiles based on the average TPR quintile rank across all analysts who have TP forecasts for that firm. [13]

The results indicate that firms in the highest TPR quintiles tend to be the smallest on average, with a mean market capitalization of $7.2 billion. We also find a negative relationship between TPR quintile rank and Return on Net Operating Assets (RNOA)—mean RNOA for the lowest (highest) quintile is 0.2 (0.13)—as well as for the most recent earnings surprise. In contrast, we find a positive relationship between relative TPR quintile rank and metrics such as sales growth rate, R&D intensity, and book-to-market ratio. This suggests that analysts expect higher returns for smaller, growing firms with relatively poorer recent profitability, likely because they are identifying firms with catalysts not yet recognized by the market. The lower coverage of firms in the best-views quintile may be related to their smaller size, and for the worst-views quintile, possibly due to analysts dropping coverage of the poorest-performing firms in their universe.

To dive deeper into the relation between market reactions to TP revisions and the analysts' ranked views, we present in Panel C of Table 3 the results of regressions where the dependent variable is the abnormal returns around the TP revision announcement and various drift windows conditional on analyst ranked-views. The independent variables are the TP revision, the relative-views quintile rank (TPR Rank), the interaction of the TP revision and TPR Rank, and controls for recent SUE rank and return since the prior TP announcement. Column 1 shows the regression of the immediate reaction to the TP revision. The coefficient on the change in TP is positive but not significant, while the coefficient on the interaction of the change in TP and TPR Rank is positive and significant. Hence, the market reaction to TP revisions depends on the analyst's view of the firm relative to other firms they cover.

[13] More concisely, suppose that we are interested in computing the TPR for firm X on Dec. 31, 2020. We identify all analysts that cover the company on that day, and compute for each analyst an updated TPR for each company that the analyst covers, and the quintile rank for company X for each analyst. Averaging the firm's quintile rank across all analysts who cover that company provides the average ranked-views for that company. We then re-rank the firms into quintiles based on the average ranked-views.

Untabulated results show that the immediate reaction to TP is positive and significant across all TP ranks (computed as the sum of the coefficients on the change in TP and the interaction of this variable with TPR rank for each TPR rank). Thus, the market reacts more strongly to a TP revision the higher the TPR rank.

Columns 2-4 present the results of the drift analysis. The coefficient on the TP revision is negative and significant in the periods up to 60 days, but the coefficient on the interaction variable of the TP revision with TPR Rank is positive and significant, indicating that the drift also depends on the relative views of the analyst. Untabulated results indicate that there is a significant and increasing drift from quintile 2 upwards.

In Panel D of Table 3, we examine the market reactions to TP revisions for cases where the analyst has the strongest (positive or negative) views of the firm. This is done by regressing the immediate and drift returns on the TP revision magnitude and on a dummy variable for the highest (lowest) quintile rank, HRD (LRD), as well as interactions between these dummy variables and the TP revision magnitude. We observe a positive market reaction to the TP revision itself, but a significantly stronger reaction for firms where the analyst has a strong positive view relative to firms with a strong negative view. Specifically, both the immediate and drift returns are incrementally higher for firms with the most positive views (relative to firms in the three middle quintiles). In contrast, returns are significantly lower for firms with the worst relative prospects.

Panel E of Table 3 explores the incremental effects of changes in the TPR views' rank itself. Recall that a new TP forecast by an analyst for a particular firm implies not only a revision in the expected return for that firm but also may indicate that the analyst has moved that firm into a higher or lower ranked-views quintile relative to other firms covered by that analyst. We therefore regress the immediate and drift returns on both the TP revisions and the change in the TPR quintile rank. We measure the change in TPR rank as the difference between the current rank (on the announcement date of the revision in TP) and the rank on the announcement date of the previous revision in TP. We find a positive relationship between market reactions and the TP revisions, consistent with previous literature, and a positive and significant incremental reaction to the change in the relative TPR rank of that firm. Thus, investors seem to react not only to the TP revision itself but also to the changes in its rank compared to other stocks covered by that analyst.

In summary, the results in this section show that market reactions to TP revisions vary not only by the magnitude and direction of the revision but also by the strength of the analyst's views of that firm compared to other covered firms in the analyst's universe. Market reactions are incrementally more positive when the firm is at a higher quintile of the analyst's universe or has moved to a higher ranked-views quintile. Conversely, market reactions are incrementally more negative (or lower) if the firm is placed in the bottom quintile of the covered universe (or moved to a lower ranked-views quintile).

4.3 Trading Gains based on TP Revisions and Analysts' Ranked Views

The results indicate that while the market recognizes analysts' views on firms to some extent, the reaction is incomplete, as evidenced by the continued drift in returns. Sophisticated investors who can discern the analyst-ranked views might react more strongly to those with strong views, causing price changes that prompt slower investors to follow, leading to drift in returns. Given this observed drift, we assess whether it is strong enough to support a trading strategy that incorporates both TP revisions and the strength of analysts' views, controlling for risk factors.

To facilitate the analysis, we measure the firm-level view at the end of each calendar month as follows. At each month-end, we compute an updated TPR rank for each firm that an analyst covers. We then calculate the average quintile rank across all analysts covering that firm and re-rank all firms into quintiles based on the average quintile rank of all analysts. If all analysts have strong positive (negative) views about a firm, it will be in the top (bottom) ranked-views quintile. We then analyze the returns for each ranked-view portfolio during the following month.

Table 4, Panel A provides descriptive statistics by the Firm TP Ratio Rank. The average TPR ranges from 1.15 to 1.43, suggesting that firms with the lowest-ranked (highest-ranked) views are expected to generate 15% (43%) return over the next 12 months.[14] Realized raw returns—the average return in the month following the portfolio formation date—show a monotonic increase across ranked-views portfolios, with a mean raw monthly return of 0.6%

[14] Comparing the mean TP ratio at the firm level and at the analyst level indicates that there is high variation in the TP ratio across analysts. For example, the mean TP ratio for the lowest quintile at the analyst (firm) level is 1.016 (1.147). This is expected given the evidence in Dechow and You (2020) which shows that the TP ratio is affected by analysts' characteristics. This implies that a better proxy of the analysts' view is indeed the relative rank within the universe of companies that s/he covers rather than the level of the TP ratio. Put differently, given the variability in the TP ratio, a certain TP ratio may indicate strong view for one analyst and middle view for another analyst.

(2%) for the lowest (highest) ranked-views quintile. The difference of 1.4% per month is economically significant (18% on an annual basis) and statistically significant. Abnormal returns show a similar trend, increasing monotonically across quintiles, with a 1.2% per month difference between the high and low portfolios, also economically and statistically significant. Firms in the highest view portfolio are the smallest, with an average market cap of $6.7 billion, although they are still quite large relative to the universe of firms.[15] The majority of the hedge return comes from the long side of the portfolio, which is easier to implement with lower transaction costs compared to short-selling. Given the sample's tilt toward larger firms, abnormal returns are more likely to cover transaction costs, which are generally lower for larger firms. Finally, note that the inherent bias in the TP forecast, i.e., the difference between predicted and realized return, is increasing with the TPR ranked-views (this is evident by comparing TPR with raw returns taking into account that TPR is on an annual basis and raw returns are on a monthly basis).[16] However, it is clear that high-biased TRP is also associated with high future returns for firms with strong positive ranked-views, indicating that although the bias is increasing with the TPR, a higher TPR is a good proxy for future realized returns.

(Insert Table 4 about here)

Table 4, Panel B presents results from regressing monthly returns of the ranked-view portfolios on common Fama-French risk factors: the market risk premium, size, value, investment, profitability, and momentum. The alpha for the lowest ranked-view firms (short position) is -0.15% per month and is significant at the 10% level. Alphas increase monotonically across the ranked-views quintiles and are significant except for Quintile 2. The alpha for the long positions in Quintile 5 (the highest ranked-view firms) is 1.18% per month (p-value < 1%), and the alpha for the hedge position is 1.33% per month—translating to annual returns of 17%—which are both economically and statistically significant.[17] Coefficients on the risk

[15] Mean (median) market cap of the universe firms on the merged Compustat-CRSP data is $4.8 (0.39) billions.
[16] The mean annualized raw return for the top (bottom) TPR quintile is 27% (7%) implying that the corresponding average bias is 16% (7%).
[17] Note again that most of the hedge return is from the long part of the portfolio and cannot be attributed just to shorting impediments.

factors are similar across ranked-views quintiles, indicating a negative momentum tilt (except for the lowest-ranked-view portfolio) and positive size and value tilts. Coefficients on the investment and profitability risk factors are generally insignificant. Overall, the results suggest that investors do not fully incorporate analysts' ranked views into their reactions to TP revisions; high-ranked (low-ranked) firms tend to significantly outperform (underperform) in subsequent periods. [18]

4.4 Analysts' Views and Changes in Institutional Ownership

The evidence thus far indicates that stock returns drift following TP revisions, with this drift increasing in accordance with the analyst-ranked views quintile. This leads us to investigate a potential explanation for the observed drift: institutional investors may have more advanced systems for capturing analysts' ranked views and reacting more swiftly to TP revisions. Additionally, buy-side investors might be exposed to analysts' trading ideas, particularly when analysts emphasize firms with their strongest positive views.[19] If investors react to either the actual trades of institutional investors or the price changes they induce, this could contribute to the observed drift in returns. Therefore, we should expect to see a positive association between institutional holdings and analysts' relative views in the period following TP revisions, which may help explain the drift.

To explore this potential explanation, we measure the change in institutional ownership in the calendar quarter following TP revisions, conditional on analysts' ranked views. Specifically, for each TP revision, we determine its TPR quintile rank relative to all other firms covered by the analyst. We then examine the relationship between the firm's TPR rank and the change in institutional ownership in the subsequent calendar quarter.[20]

Table 5, Panel A presents the percentage change in the number of institutional managers and the change in institutional ownership (percentage of shares held by institutions, scaled by

[18] To further examine the robustness of our results, we follow Daniel and Titman's (1997) methodology and regress abnormal returns on the risk factors. While, in theory, abnormal returns are adjusted for risk factors, firms within quintiles may still co-vary with risk factors. The results (untabulated) are consistent with the univariate returns. We observe negative (positive) alpha for the lowest (highest) ranked-view firms, and the alpha increases across the ranked-views quintiles. The alpha of the hedge portfolio is positive and statistically significant at 0.22% per month.

[19] They may do so after publishing and disseminating their reports, thereby not violating any rules that require a level playing field for all investors.

[20] For example, we regress the change in ownership in the second quarter (April-June) on each TP revision made in the first calendar quarter. The reason for looking at the subsequent calendar quarter (instead of the concurrent quarter) is that the TP revision may be issued late in the quarter whereas the change in ownership may have happened prior to the TP revision date. Note that institutional data is available at the calendar quarter level.

shares outstanding) during the calendar quarter following the TP revision, conditional on the ranked-views quintile[21]. This analysis is conducted at the analyst-TP revision level. We observe a positive change in the number of institutional investors across quintiles, with the change increasing monotonically across ranked-views quintiles. For instance, the average change in the number of institutional investors is 1.27% and 3.74% for the lowest and highest ranked-views quintiles, respectively. Similarly, the change in institutional ownership follows the same pattern, increasing monotonically across the quintiles.

(Insert Table 5 about here)

Table 5, Panel B shows regression results where we control for factors that might be correlated with institutional investors' decisions. Columns 1 and 2 explore the relationship between institutional variables and the ranked-views quintile (i.e., TPR rank), while Columns 3 and 4 examine the relationship between institutional variables and changes in ranked views. Since institutional ownership data is reported on a quarterly basis, and TP revisions occur at the analyst-date level, we use a Fama-MacBeth (1973) methodology for the regressions. Specifically, we estimate the regression each calendar month, assessing the relationship between TP revisions in that month and institutional ownership changes in the following calendar quarter. The results align with the univariate statistics, showing a positive relationship between changes in institutional ownership and ranked views. Additionally, changes in ranked views are positively associated with changes in institutional ownership.

4.5 Future Realizations of Income and Cash Flows of Highly Ranked Firms

In the previous sections, we document that firms with the highest rankings in an analyst's covered universe tend to experience both immediate and drift abnormal returns following TP revision announcements. In this sub-section, we turn our attention to the realized fundamentals of these firms over the subsequent three years. If analysts are indeed successful in identifying their "winners," these firms should demonstrate improvements in future income and cash flows that align with the observed positive drift returns.

[21] Data on institutional holdings and number of managers is from Thomson Reuters.

To facilitate this analysis, we estimate an annual ranked-view quintile for each firm in year t as follows. At each month-end during the fiscal year, we calculate the TP ratio rank for each firm covered by an analyst, using the most recent TP and the share price at the end of the month. We then average the quintile ranks of all analysts covering the firm at that month-end and re-rank it into quintiles. This month-end quintile rank reflects the strength of views of all analysts covering the firm. We compute the average month-end quintile rank over the fiscal year and determine the annual quintile rank based on the average of the 12-month ranks during year t. We use a dummy variable equal to 1 for firms in the highest quintile of the annual quintile rank. We then examine changes in operating income (after depreciation) and operating cash flows in years t+1, t+2, and t+3.

Table 6 presents the regression results for future income and cash flows of current highly-ranked TP firms during year t, controlling for various variables typically associated with future positive changes in income and cash flows. The results indicate a statistically significant positive association between high-ranked firms and future increases in operating cash flows, as well as changes in income during years t+1, t+2, and t+3. These findings support the notion that the high ranks assigned by analysts to these firms are justified by subsequent improvements in their financial performance.

(Insert Table 6 about here)

V. Robustness Tests

5.1 Using historical TP Ratios

We replicate the long-short analysis using historical TP ratios instead of updated TP ratios. Specifically, for each analyst-firm-month, we rank firms that the analyst covers into quintiles based on the TP ratios at the time the TP forecast was issued. For example, if an analyst issued a TP with a ratio of 1.2, we use this ratio for each subsequent calendar month until the analyst issues a new TP. We then compute the average ranked views by month for each firm, following the same steps as previously described. The results remain significant but show

weaker statistical significance and slightly lower abnormal returns compared to the updated TP ratio analysis.

5.2 TP Revisions Close to Earnings Announcements

As previously noted, about 35% of TP revisions occur within 2 days after earnings announcements. To address this, we split our sample into two subsets: revisions close to earnings announcements (within 2 days) and those further apart. We repeat our tests for each subset separately and find that the main results hold for both groups.

5.3 Incremental Information in Relative Views beyond Recommendations

We also examine the potential relationship between TP revisions and recommendation levels. An analyst with strong relative views about a firm, as reflected by a TP revision, might also signal this through a favorable or unfavorable recommendation level. We investigate the relationship between ranked-view quintiles and IBES recommendation levels. Due to the skewness in analysts' recommendations (with many being positive and few categorized as "sell" or "strong sell"), we collapse the sell recommendations into a "hold" category.

Our findings indicate that more than 50% of the observations have "Strong Buy" or "Buy" recommendations, and about 47% have "Hold" recommendations. Notably, when analysts have the most negative future views (i.e., quintile rank 1), 77% are assigned a "Hold" recommendation, while nearly a quarter still receive positive recommendations. Conversely, for the most positive ranked-view quintile, only 30% receive a "Strong Buy" recommendation, and 17% receive a "Hold" recommendation. This suggests that while there is a positive relationship between recommendation levels and ranked-view quintiles, it is not perfect. This may help explain the observed market reactions and trading gains associated with the relative ranked views inferred from TP revisions.

5.4 An Alternative Ranking Based on Earnings Forecasts and Multiples

As indicated by Bradshaw (2009), analysts first forecast future earnings, then determine the target price based on an assumed earnings-multiple, and then assign a recommendation level that is consistent with their implied rate of return.

Considering this simple setting, we assume that the analyst's views are determined primarily by the expected growth in future fundamentals, primarily future earnings. Ohlson and

Juettner-Nauroth (2005) show analytically that the forward P/E ratio is increasing with expected future growth in earnings, and hence, the analyst's views are incorporated into the earnings multiple. However, since we do not observe the actual earnings multiple used by the analyst, we utilize the following structure to estimate the analyst's views:

$$TP_{ac} = EPS_{ac} * M_i * F_{ac}$$

where TP_{ac} is the target price assigned to company c by analyst a, EPS_{ac} is the FY2 earnings per share forecast of analyst a for company c, M_i is a proxy for a forward EPS multiple the analyst presumably assigns to similar firms, and F_{ac} is a constant that reflects analyst's a view about company c. [22] In other words, we separate the actual forward P/E ratio used by the analyst into two components: a proxy for a relevant forward P/E and a factor which proxies for the analyst's view about the company. If the analyst has strong positive views about the firm, then the forecasted target price is higher than the simple multiplication of the EPS forecast by the assumed multiple, and the constant F will be large. In contrast, if the analyst has strong negative views of the firm, the target price will be lower than the forecasted EPS times the assumed multiple and the constant F will be small. Thus, by computing the constant F for each of the firms covered by the analyst and classifying them into quintiles, we can obtain an estimated rank of strong views for the covered universe of the analyst.

We use three proxies for the forward P/E. The first proxy is computed as follows. At each month-end we identify the most recent FY1 EPS forecast, provided that it was issued within 365 days prior to month-end date, of all analysts and all companies in an industry. We then compute the forward P/E using the share price for each firm in the industry and calculate the average multiple for the industry at month-end. The second approach is to use an analyst-specific multiple – it uses only the companies covered by that analyst to obtain an analyst-specific multiple. The third approach is to use only the companies that are covered by the analyst in that industry. The benefit of the third approach is that it uses the analyst's own average multiple for that industry. The downside is that the estimation may be based on just a few observations, resulting in additional noise of the estimated strong view rank. The first approach uses substantially more observations to estimate the industry-specific multiple, but it also averages out individual differences in analyst forecasts. The second approach balances the two extreme approaches.

[22] We use the annual forecast for year t+2, because the analysis is geared to estimate the target price at the end of year t+1, which would be based on expected earnings in year t+2.

We compute F_{ac} using the three forward P/E proxies for each analyst-firm at each month-end, and for each analyst-month end assign the firms to quintiles based on the computed F. We then compute the average rank for each firm at each month-end across all analysts that cover the firm, and finally rank the firms to quintiles based on the computed average rank.

In Panel A of Table 7, we present the correlations between the constructed factors and target prices (TP). Factor 1 and Factor 2 exhibit the strongest correlation (0.6148), suggesting that analysts' views relative to industry consensus (Factor 1) are closely aligned with their positioning across the broader research universe (Factor 2). This finding implies that analysts' industry-level perspectives significantly influence the structure of their research portfolios. In contrast, Factor 3, which captures analysts' relative rankings of firms within an industry, is less correlated with Factor 1 (0.3159), indicating a greater role of individual analyst characteristics in intra-industry stock assessments. The correlation between Factor 2 and Factor 3 is also relatively low (0.3369), likely because analysts' coverage typically spans multiple industries. Moreover, the low correlations between each factor and the target price (ranging from 0.0421 to 0.1715) indicate that these factors do not merely reflect target price levels, but rather different ways analysts incorporate and convey information in their valuation frameworks.

In Panel B, we report the correlation matrix of the ranked versions of the three factors and the target price implied return rank. We document strong correlations among the three factor ranks, but all of them have low correlations to the TPR rank, indicating that the two methods for estimating strong views are in fact quite distinct.

(Insert Table 7 about here)

Panel C reports monthly raw returns, abnormal returns, and market capitalization across quintiles sorted by Factor 1. The results using the other two factors are very similar. Stocks ranked higher by the factor yield higher returns and are generally larger in size, supporting the economic feasibility of long-short investment strategies based on analysts' relative views. More specifically, the top quintile earns a raw monthly return of 1.33% (annualized 17.1%) and an abnormal return of 0.43% (annualized 5.27%), compared to 1.10% and 0.07% in the

bottom quintile. While the differences in monthly raw returns between the two extreme views portfolios are generally small and statistically insignificant, the differences in abnormal returns are statistically significant. The abnormal hedge return is 0.36% per month for Factor 1 (4.45% annually).

Panel D presents Fama-French factor-adjusted regressions, further validating the robustness of the signal. Higher-ranked quintiles yield significantly greater Jensen's Alphas. The top quintile earns a monthly alpha of 0.46% ($p < 0.01$), versus 0.04% for the bottom quintile, yielding a hedge alpha of 0.42% (5.17% annually). These results underscore the significant implications of analysts' relative subjective views for abnormal returns, even after partially controlling for the information analysts possess regarding future short-term earnings and long-term growth potential. Stocks receiving the most positive analyst views (top quintile) consistently generate significantly higher abnormal returns than those with the most negative views (bottom quintile).

VI. Summary and Conclusions

The main purpose of this study is to provide a methodology for inferring analysts' strong views about subsets of their covered universe. We propose a straightforward procedure for achieving this, which involves ranking the target price ratios (TPRs) of all the stocks within an analyst's coverage. On the announcement date of a new target price (TP) by an analyst, we collect all TP forecasts made by that analyst for other firms and update the TPRs for these forecasts, scaling them by their prices on the announcement date. We then rank all stocks in the covered universe according to their updated TPRs and assign them to quintiles based on these rankings.

Our findings indicate that market reactions to TP revisions increase with the analyst's view rank—stronger market reactions are observed for revisions where the analyst has a more positive view. Specifically, market reactions to the highest (lowest) quintile of TP-ranked views are significantly greater (lesser) than those to other TP revisions. Moreover, we find that market reactions are more pronounced when an analyst issues a TP revision for a company and its ranked view has improved from the prior TP announcement. This suggests that the relative standing of a company based on its updated TPR is valuation-relevant.

Additionally, we aggregate the strong views of a company across all analysts covering it, re-rank the companies into quintiles according to the average individual ranks assigned by all covering analysts, and use these rankings to construct monthly portfolios. We observe that portfolios consisting of firms with the most optimistic scores yield economically and statistically significant abnormal returns. Furthermore, we find increases in institutional holdings following positive ranked views by analysts and improvements in future income and cash flows over the subsequent three years. These results align with the notion that analysts can effectively identify "winners" within their coverage universe and that professional investors are capable of following these signals, resulting in drift in returns.

We obtain similar results using another method to identify analysts' views, which is based on earnings forecasts and average earnings multiples together with the analyst's target price.

Our study offers a novel perspective on the documented bias in target prices by pinpointing the extremely positive and negative forecasts where analysts have strong views. It also provides a practical approach for investors to leverage these forecasts in portfolio construction to achieve abnormal returns.

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Appendix - Variable Definitions

Analyst Level Variables

Target Price Ratio$_{kit}$ = Target Price$_{kit}$/Share Price$_{it-1}$, where k is analyst, i is firm, t is date

Target Price Revision$_{kit}$ = Target Price$_{kit}$/ Target Price$_{kiz}$ - 1, where z is the date of the previous target price forecast

Days from Previous TP date = number of days from z to t

Return from Previous TP date = cumulative raw returns from day z+1 to t-1

Days from Earnings – number of days from the TP revision date (t) and the most recent earnings announcement date (IBES actual announcement date)

SUE Rank$_{ft}$ - the most recent SUE decile rank prior to the TP announcement date. SUE is calculated as IBES actual minus the average of all quarterly EPS estimates in the 90-day period prior to the earnings announcement date (using the most recent estimate for each analyst) scaled by the standard deviation of those forecasts.

TPR Rank - Target Price Ratio Rank$_{kit}$ – rank of the Target Price Ratio$_{kit}$ on the date of the TP revision relative to all other firms covered by the analyst. Specifically, on the TP revision date, t, we identify all other companies covered by that analyst and their most recent TP in the prior 365 days. We compute an updated TP ratio for each of these companies on day t as the most recent TP provided by the analyst scaled by the firm's share price on day t-1. We then rank all the analyst's covered firms according to the updated TP ratio.

High (Low) Rank Dummy – top (bottom) quintile of TPR Rank

Change in TPR Rank - the difference in TPR rank following the change in TP, that is, the difference between current rank (on the announcement date t of the revision in TP) and the previous rank (on the announcement date of the previous revision in TP).

mpeaind - Median P/E for all companies in the same Fama-French industry for that analyst.

mpea - Median P/E for all the analyst covered universe.

mpe - Median P/E for all analysts and all companies in the Fama-French industry.

Factor 1$_{ac}$ = Target Price$_{ac}$ / (EPS$_{ac}$*mpe$_{c}$), where a is analyst, c is firm.

Factor 2$_{ac}$ = Target Price$_{ac}$ / (EPS$_{ac}$*mpea$_{ac}$), where a is analyst, c is firm.

Factor 3$_{ac}$ = Target Price$_{ac}$ / (EPS$_{ac}$* mpeaind$_{ac}$), where a is analyst, c is firm.

Factor j Rank - The ranking of a firm's Factor j value on the portfolio formation date. Specifically, at the end of each month, Factor j is calculated as the ratio of the most recent target price issued within the prior 365 days to the expected target price, where the expected target price is estimated as the analyst's most recent earnings forecast multiplied by mpe. Within each analyst's research portfolio, firms are ranked into quintiles based on their Factor j values. To determine the final Factor j Rank, we first compute the average quintile ranking assigned by all analysts covering the firm. The firm is then re-ranked into quintiles based on these aggregated rankings, ensuring that the final rank captures the consensus strength of analysts' relative views.

Firm Level Variables

Abnormal Returns$_{x,y}$ – cumulative abnormal returns from day x to date y, where x and y are relative to the target price revision date. Abnormal returns are the buy and hold return on a stock minus the value-weighted buy and hold returns on a portfolio with similar characteristics (size, B/M and momentum).

Market Value of Equity – share price times number of shares outstanding (tabulated in $millions)

Return on Net Operating Assets – operating profit after depreciation (OIADP) scaled by Net Operating Assets (NOA), where NOA is operating assets [total assets (AT) minus cash and short-term investments (CHE)] minus operating liabilities [total liabilities (LT) minus short-term debt (DLC) and long-term debt (DLTT)]

Sales Growth – total sales (SALE) in year t/total sales in year t-1

R&D intensity – Research and Development expense (XRD) divided by total sales

Book-to-Market – Common shareholders equity (CEQ) divided by Market Value of Equity

Leverage – total debt (DLC+DLTT) divided by total assets

Number of Analysts – number of analysts who provided at least one target price forecast within the prior 365 days.

Firm Target Price Rank$_{it}$ – Target price quintile for firm i on date t. On date t we compute the Target Price Ratio Rank$_{kit}$ of the firm for each analyst that covers the company (see definition above). We then average this variable across all analysts that cover the firm, and re-rank the average to quintiles.

Del_Manager – percentage change in the number of institutional holders during the calendar quarter

Del_Shares – the difference in the ratio of shares held by institutions during the calendar quarter

Table 1: Descriptive Statistics

Panel A: Analyst forecast level - TPR and future returns

	Mean	SD	Min	p25	p50	p75	Max
Target Price Ratio	1.207	0.297	0.724	1.056	1.150	1.269	2.839
TP revision	0.022	0.198	-0.556	-0.079	0.033	0.113	0.743
Abnormal Return (-1,1)	0.002	0.077	-0.267	-0.027	0.002	0.033	0.265
Abnormal Return (1,30)	0.000	0.095	-0.279	-0.049	-0.002	0.046	0.326
Abnormal Return (1,60)	0.000	0.136	-0.386	-0.072	-0.004	0.066	0.475
Abnormal Return (1,90)	-0.001	0.173	-0.476	-0.094	-0.005	0.084	0.603
Days From Previous TP Date	110	98	11	49	86	125	604
Return from Previous TP Date	0.019	0.160	-0.467	-0.044	0.006	0.083	0.612
Days From Earnings	30	35	0	1	11	58	153

Panel B: Firm-Year level – Characteristics

	Mean	SD	Min	p25	p50	p75	Max
Market Value of Equity	11,918	51,399	11	746	2,165	7,053	2,852,312
Return on Net Operating Assets	0.173	1.046	-4.818	0.063	0.134	0.248	6.421
Sales Growth	0.154	0.372	-0.568	0.002	0.088	0.213	2.484
R&D Intensity	0.219	1.058	0.000	0.000	0.000	0.086	9.035
Book-to-Market	0.476	0.350	0.023	0.226	0.395	0.638	1.915
Leverage	0.226	0.186	0.000	0.057	0.205	0.351	0.731
Number of Analysts	9.689	5.849	4	5	8	12	31

Table 1 provides descriptive statistics of the analyst and firm level samples. Panel A shows statistics related to TP revisions. Panel B presents the distribution of variables at the firm-year level. Please refer to the Appendix for variable definitions.

Table 2: Market Reaction to TP revisions

Panel A: Determinants of the change in TP

	(1)	(2)	(3)
Constant	-0.029***	-0.014***	-0.032***
	(0.001)	(0.001)	(0.000)
Return Previous Period	0.477***	0.379***	0.571***
	(0.003)	(0.003)	(0.002)
SUE Rank	0.007***	0.005***	0.008***
	(0.000)	(0.000)	(0.000)
Observations	945,106	945,106	945,106
R-squared	0.178	0.141	0.237
Fixed Effects	Announcement Date	Analyst, Announcement Date	Firm, Analyst

Panel B: Market Reaction to Changes in TP

	Abnormal Returns			
	(-1,1)	(1,30)	(1,60)	(1,90)
Constant	0.072***	0.001***	0.004***	0.006***
	(0.000)	(0.000)	(0.001)	(0.001)
TP Revision	0.003***	0.000***	0.000***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
SUE Rank	-0.025***	-0.007***	-0.010***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)
Return Previous Period	-0.017***	0.000	-0.000	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	973,729	968,299	958,507	949,936
R-squared	0.067	0.000	0.000	0.000
Fixed Effects	TP Announcement Date			

Table 2, Panel A shows analysis of the determinants of the change in TP at the analyst level. Panel B presents the analysis of the relation between abnormal returns and the TP revision. Abnormal Returns (j,t) is the abnormal returns from day j through date t relative to the TP announcement date. All variables are defined in the Appendix. The regressions are estimated using OLS with fixed effects. Standard Errors are clustered at the firm level. *, **, *** indicates significance at the 10%, 5%, 1%, respectively.

Table 3: Market Reactions to TPR Revisions Conditional on Analysts' Ranked Views

Panel A: Analyst forecast level - TPR Quintiles and future returns

TPR Rank	TPR	Target Price Revision	Abnormal Return (-1,1)	Abnormal Return (1,30)	Abnormal Return (1,60)	Abnormal Return (1,90)	Days From Earnings
1	1.016	-0.039	-0.019	-0.002	-0.003	-0.004	30
2	1.129	0.013	-0.002	-0.001	-0.002	-0.002	30
3	1.206	0.033	0.005	0.000	0.000	-0.001	30
4	1.292	0.049	0.011	0.001	0.001	0.001	31
5	1.433	0.062	0.019	0.004	0.004	0.004	32

Panel B: Firm-Year level - TPR Quintiles and Characteristics

TPR Rank	TPR	Market Value of Equity	Return on Net Operating Assets	Sales Growth	R&D Intensity	Book-to-Market	Leverage	Number of Analysts	SUE Rank
1	1.010	11,213	0.205	0.128	0.166	0.402	0.205	8	6.069
2	1.115	14,527	0.179	0.135	0.167	0.430	0.224	10	5.863
3	1.205	13,541	0.174	0.137	0.203	0.466	0.229	10	5.772
4	1.324	13,147	0.176	0.160	0.218	0.508	0.235	10	5.585
5	1.639	7,201	0.128	0.215	0.348	0.580	0.238	9	5.227

Panel C: Reaction TP revision Conditional on Ranked Views

	Abnormal Returns			
	(-1,1)	(1,30)	(1,60)	(1,90)
Constant	-0.041***	-0.004***	-0.006***	-0.009***
	(0.001)	(0.000)	(0.001)	(0.001)
Target Price Revision	0.041	-0.003***	-0.003*	-0.002
	(0.025)	(0.001)	(0.002)	(0.002)
TPR Rank	0.008***	0.001***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
TPR Rank * Target Price Revision	0.011*	0.002***	0.002***	0.003***
	(0.006)	(0.000)	(0.001)	(0.001)
SUE Rank	0.003***	0.000**	0.000**	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Return Previous Period	-0.020***	-0.007***	-0.010***	-0.008***
	(0.006)	(0.001)	(0.002)	(0.003)
Observations	971,351	965,959	956,244	947,701
R-squared	0.085	0.001	0.001	0.001
Fixed Effects		TP Announcement Date		

Panel D: Reactions to TP Revisions Conditional on Highest and Lowest Ranked Views

	(-1,1)	(1,30)	(1,60)	(1,90)
Constant	-0.015***	0.000	-0.000	-0.003***
	(0.001)	(0.000)	(0.001)	(0.001)
Target Price Revision	0.062***	0.001	0.004***	0.006***
	(0.016)	(0.001)	(0.001)	(0.002)
High Rank Dummy (HRD)	0.011***	0.004***	0.004***	0.005***
	(0.001)	(0.000)	(0.001)	(0.001)
HRD* Target Price Revision	0.049***	0.006***	0.009***	0.012***
	(0.015)	(0.002)	(0.003)	(0.004)
Low Rank Dummy (LRD)	-0.022***	-0.002***	-0.003***	-0.004***
	(0.001)	(0.000)	(0.001)	(0.001)
LRD* Target Price Revision	-0.002	-0.003**	-0.005***	-0.006***
	(0.029)	(0.001)	(0.002)	(0.002)
SUE Rank	0.003***	0.000**	0.000***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Return Previous Period	-0.020***	-0.007***	-0.009***	-0.006**
	(0.006)	(0.001)	(0.002)	(0.003)
Observations	973,729	968,299	958,507	949,936
R-squared	0.084	0.000	0.000	0.001
Fixed Effects		TP Announcement Date		

Panel E: Reactions to TP Revisions and Changes in Ranked Views

	(-1,1)	(1,30)	(1,60)	(1,90)
Constant	-0.017***	0.000	0.000	-0.002***
	(0.000)	(0.000)	(0.001)	(0.001)
Target Price Revision	0.065***	0.000	0.002**	0.004***
	(0.015)	(0.001)	(0.001)	(0.002)
Change in TPR Rank	0.009***	0.001***	0.002***	0.002***
	(0.001)	(0.000)	(0.000)	(0.000)
SUE Rank	0.003***	0.000**	0.000***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Return Previous Period	-0.014*	-0.006***	-0.009***	-0.006**
	(0.008)	(0.001)	(0.002)	(0.003)
Observations	971,343	965,952	956,240	947,697
R-squared	0.082	0.000	0.000	0.000
Fixed Effects		TP Announcement Date		

Table 3 examines market reactions to TPR revisions conditional on the analysts' views about the firm's prospects. Panel A shows the mean of main variables by TPR ranked-view quintile. Panel B provides the mean of firm characteristics by quintiles formed on the basis of the updated TPR at year-end. Panel C shows the regressions of abnormal returns on the change in TP conditional on TPR Rank. All variables are defined in the Appendix. The regressions are estimated using OLS with fixed effects as indicated at the bottom of the table. Standard Errors are clustered at the TP announcement date. *, **, *** indicates significance at the 10%, 5%, 1%, respectively.

Table 4 - Monthly Returns and Ranked-Views Quintiles

Panel A: Raw and Abnormal Equity Returns by Firm-Level Target Price Rank Portfolio

Firm Target Price Rank	TP Ratio	Raw Returns	Abnormal Returns	Market Value of Equity
LOW	1.147	0.006	-0.003	9,747
2	1.189	0.009	0.000	13,975
3	1.227	0.010	0.001	13,540
4	1.283	0.013	0.003	11,756
HIGH	1.425	0.020	0.009	6,737
Diff High-Low		0.014**	0.012***	

Panel B: Jensen's Alpha - Raw Returns

	Ranked-Views Quintiles					
	Low Ranked-View	2	3	4	High Ranked-View	High-Low
Alpha	-0.152*	0.124	0.192**	0.432***	1.179***	1.332***
	(0.084)	(0.081)	(0.086)	(0.104)	(0.174)	(0.175)
RMRF	0.950***	0.996***	1.059***	1.119***	1.222***	0.273***
	(0.020)	(0.020)	(0.021)	(0.025)	(0.043)	(0.043)
SMB	0.384***	0.437***	0.479***	0.582***	0.742***	0.358***
	(0.031)	(0.030)	(0.032)	(0.038)	(0.064)	(0.065)
HML	0.125***	0.156***	0.136***	0.143***	0.026	-0.099
	(0.033)	(0.032)	(0.034)	(0.041)	(0.069)	(0.069)
RMW	-0.033	-0.026	-0.071	-0.100*	-0.101	-0.067
	(0.048)	(0.047)	(0.049)	(0.060)	(0.100)	(0.101)
CMA	-0.028	0.005	0.057	0.011	-0.052	-0.024
	(0.036)	(0.035)	(0.037)	(0.045)	(0.075)	(0.075)
MOM	0.035**	-0.084***	-0.150***	-0.287***	-0.527***	-0.562***
	(0.017)	(0.017)	(0.018)	(0.022)	(0.036)	(0.036)

Table 4 presents equity return analysis by Firm-Level Target Price ranked-views quintiles. Raw (abnormal) returns on a portfolio are calculated based on monthly raw (abnormal) returns in the month following the portfolio formation date. Panel A shows the mean of raw and abnormal returns together with the TP ratio (TPR) and firm size by Firm-Level Target Price ranked-views quintile. Panel B presents the Jensen's alphas and factor-loading estimates from the following regression model:

$ER = a0 + a1(RMRF) + a2(SMB) + a3(HML) + a4(RMW) + a5(CMA) + a6(MOM) + e,$

where ER is the portfolio return minus the risk-free rate, RMRF is the market risk premium, SMB is the size factor, HML is the value factor, RMW the profitability factor, CMA is the investment factor, and MOM is the momentum factor. High-Low is a zero-cost portfolio that takes a long position in the highest ranked-view portfolio and a short position in the lowest ranked-view portfolio. *, **, *** represent significance at the 10%, 5%, and 1% levels, respectively.

Table 5 – Institutional Ownership and Ranked-Views

Panel A: Changes in Institutional Holdings by TPR Rank

TPR Rank	Del_Manager	Del_Shares
1	0.0127	-0.0009
2	0.0250	0.0021
3	0.0309	0.0029
4	0.0350	0.0034
5	0.0374	0.0038

Panel B: Regressions of Institutional Holdings on TPR Rank

	(1) Del_Manager	(2) Del_Shares	(3) Del_Manager	(4) Del_Shares
Constant	0.043***	0.0093***	0.0093***	0.048***
	(0.005)	(0.0029)	(0.0029)	(0.0053)
TPR Rank	0.002***	0.0005***		
	(0.000)	(0.0001)		
Change in TPR Rank			0.0002	0.0012***
			(0.0001)	(0.0002)
Return on Net Op. Assets	-0.001	-0.0008***	-0.0007***	-0.0024***
	(0.000)	(0.0003)	(0.0003)	(0.0005)
Sales Growth Rate	0.013***	0.0002	0.0001	-0.0008
	(0.002)	(0.0004)	(0.0004)	(0.0005)
R&D Intensity	0.001***	-0.0014	-0.0018	0.0136***
	(0.003)	(0.0013)	(0.0013)	(0.0018)
Book-to-market	-0.021***	0.0023	0.0018	0.0012
	(0.002)	(0.0013)	(0.0012)	(0.0026)
Size	-0.003***	-0.0021	-0.0015	-0.0193***
	(0.000)	(0.0013)	(0.0014)	(0.0023)

Table 5 provides information about changes in institutional holdings for the ranked-views quintiles. Panel A provides descriptive statistics, and Panel B presents the regression results. We estimate the regressions by calendar month using Fama and MacBeth methodology using only TP revisions that occurred during the calendar month. The table reports mean coefficients of the monthly cross-sectional regressions. All variables are defined in the Appendix. *, **, *** represent significance at the 10%, 5%, and 1% levels, respectively.

Table 6 – Future Growth in Fundamentals for Firms with the Highest Ranked-Views

	(1) Del_Income$_1$	(2) Del_CFO$_1$	(3) Del_Income$_2$	(4) Del_CFO$_2$	(5) Del_Income$_3$	(6) Del_CFO$_3$
Constant	0.764***	0.610***	0.703***	0.801***	1.113***	0.805***
	(0.148)	(0.210)	(0.162)	(0.222)	(0.177)	(0.231)
High View Rank	-0.044**	0.093***	0.047**	0.079***	0.112***	0.059**
	(0.020)	(0.028)	(0.021)	(0.029)	(0.023)	(0.030)
Return on Net Op. Assets	0.046***	0.019*	0.058***	0.021*	0.081***	0.025*
	(0.007)	(0.010)	(0.008)	(0.011)	(0.011)	(0.014)
Sales Growth Rate	1.620***	0.645***	1.749***	0.620***	2.088***	0.689***
	(0.029)	(0.040)	(0.032)	(0.044)	(0.039)	(0.051)
R&D Intensity	0.024	-0.055**	0.014	-0.070***	0.005	-0.139***
	(0.015)	(0.021)	(0.018)	(0.025)	(0.030)	(0.038)
Book-to-market	-0.649***	-0.176***	-0.664***	-0.199***	-0.698***	-0.248***
	(0.036)	(0.050)	(0.039)	(0.053)	(0.043)	(0.056)
Leverage	-0.428***	-0.294***	-0.477***	-0.251**	-0.392***	-0.252**
	(0.078)	(0.110)	(0.084)	(0.115)	(0.092)	(0.120)
Size (Market Value)	-0.061***	-0.035	-0.083***	-0.044*	-0.097***	-0.053**
	(0.017)	(0.024)	(0.019)	(0.025)	(0.021)	(0.027)
Observations	35,413	34,873	31,247	30,894	27,286	27,083
R-squared	0.139	0.016	0.142	0.015	0.155	0.016

Table 6 shows the results of regressions of each of change in income and change in operating cash flows in year t+1 through t+3, where the ranked-views quintiles are determined in year t. High View Rank is an indicator with 1 if the average ranked-view during the year is in the top quintile. Specifically, at the end of each calendar month, we compute for each analyst-firm an updated TP ratio as the most recent target price issued by the analyst scaled by price per share at the end of that calendar month. We then rank the firms that the analyst covers to quintiles based on the updated TP ratio. Next, for each firm we compute the average quintile rank across all analysts that cover the firm (again at the end of each calendar month), and rank all firms at the end of each calendar month to quintiles based on the average quintile rank. Finally, we compute the average of the ranking during the fiscal year, and rank the average ranking to quintiles. These quintiles are the average rank during the year. The dependent variables are measured based on the firm's fiscal year in year t+1, t+2 and t+3. Del_Income (Del_CFO) is the change in operating income after depreciation (operating cash flows) scaled by total assets. The regressions include firm and year fixed effects, standard errors are clustered at the firm level. *, **, *** represent significance at the 10%, 5%, and 1% levels, respectively.

Table 7: Factor-View Analysis

Panel A: Correlation Matrix of Factors and Target Prices

	Factor 1	Factor 2	Factor 3	Target Price
Factor 1	1.0000			
Factor 2	0.6148	1.0000		
Factor 3	0.3159	0.3369	1.0000	
Target Price	0.1715	0.0874	0.0421	1.0000

Panel B: Correlation Matrix of Factor Ranks and Target Price Ratio Rank

	Factor 1 Rank	Factor 2 Rank	Factor 3 Rank	Target Price Ratio Rank
Factor 1 Rank	1.0000			
Factor 2 Rank	0.9011	1.0000		
Factor 3 Rank	0.8413	0.8283	1.0000	
Implied Return Rank	-0.0641	-0.0735	0.0038	1.0000

Panel C: Monthly Returns by Factor-Based View Quintiles

Factor 1 Rank	Raw Return	Abnormal Return	Market Capitalization
Low	0.011	0.0007	12037.75
2	0.010	0.0009	14503.86
3	0.009	0.0000	14215.93
4	0.010	0.0012	13537.68
High	0.013	0.0043	16542.42
Diff High-Low	0.002	0.0036***	

Panel D: Jensen's Alpha and Risk Factor Loadings by Factor 1 Rank

	Ranked-Views Quintiles					
	Low Ranked-View	2	3	4	High Ranked-View	High-Low
Alpha	0.036	0.143	0.033	0.163*	0.457***	0.421***
	(0.099)	(0.097)	(0.097)	(0.097)	(0.105)	(0.111)
RMRF	1.107***	1.063***	1.071***	1.035***	1.036***	-0.070**
	(0.024)	(0.024)	(0.024)	(0.024)	(0.026)	(0.027)
SMB	0.511***	0.379***	0.416***	0.412***	0.381***	-0.130***
	(0.036)	(0.036)	(0.036)	(0.036)	(0.039)	(0.041)
HML	0.325***	0.305***	0.242***	0.211***	0.094**	-0.231***
	(0.039)	(0.039)	(0.038)	(0.038)	(0.042)	(0.044)
RMW	-0.202***	-0.164***	-0.084***	-0.071***	-0.031	0.171***
	(0.020)	(0.020)	(0.020)	(0.020)	(0.022)	(0.023)
CMA	0.288***	0.161***	0.125***	0.090**	0.165***	-0.123**
	(0.043)	(0.042)	(0.042)	(0.042)	(0.045)	(0.048)
MOM	0.024	-0.008	-0.151***	-0.107*	-0.108*	-0.132**
	(0.057)	(0.057)	(0.056)	(0.056)	(0.061)	(0.065)

Table 7 presents summary statistics and correlation matrices for key variables used in the alternative analysis of estimating strong views using earnings forecasts and multiples. Factor definitions are in the Appendix. Panel A shows the correlation matrix among the factor variables and target price. Panel B reports the correlation matrix of ranks based on factor variables and the rank derived from implied returns of target price. Panel C presents the summary statistics for raw and abnormal monthly returns as well as market capitalization across quintile rankings for Factor 1. The abnormal return is defined as the raw return minus the risk-free rate. The difference between the highest-ranked (Rank 5) and lowest-ranked (Rank 1) quintiles is reported in the last row of each panel. Panel D reports the Jensen's alphas and factor loadings estimated from the following regression model:

$ER = a0 + a1(RMRF) + a2(SMB) + a3(HML) + a4(RMW) + a5(CMA) + a6(MOM) + e,$

where ER is the portfolio return minus the risk-free rate, RMRF is the market risk premium, SMB is the size factor, HML is the value factor, RMW the profitability factor, CMA is the investment factor, and MOM is the momentum factor. The High-Low column represents a zero-cost portfolio that takes a long position in the highest ranked-view portfolio and a short position in the lowest ranked-view portfolio. Standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.