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The Disparity between Long-Term and Short-Term Forecasted Earnings Growth*

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Abstract

We find the disparity between long-term and short-term analyst forecasted earnings growth is a robust predictor of future returns and revisions in long-term forecasted earnings growth. After adjusting for industry characteristics, stocks whose long-term earnings growth forecasts are far above or far below their implied short-term forecasts for earnings growth have negative and positive subsequent risk-adjusted returns, respectively. Despite the importance of conditioning on short-term forecasted earnings growth, these returns are not driven by earnings momentum. Instead, consistent with investors having limited attention, predictable revisions in long-term analyst forecasts appear to induce return predictability.

JEL Classification: G12

Keywords: Analyst Forecasts, Return Predictability

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1 Introduction

Long-term earnings expectations are crucial to stock prices. For example, according to the Gordon growth model (1962), a price-to-dividend ratio of 20 implies that a 1% increase in long-term dividend growth translates into a 20% return.[1] Therefore, even small errors in long-term earnings expectations can induce economically significant mispricings. Long-term analyst forecasts are an important collection of expectations regarding long-term earnings growth, hence long-term dividend growth. Jung, Shane, and Yang (2008) document the relevance of long-term analyst forecasts to stock prices. Copeland, Dolgoff, and Moel (2004) also find that revisions in long-term analyst forecasts exert a greater influence on stock returns than revisions in short-term analyst forecasts.

However, the duration of an analyst's career averages four years according to Hong and Kubik (2003), while long-term analyst forecasts pertain to earnings growth over the next three to five years. Consequently, analysts are less accountable for their long-term forecasts and have weaker incentives to incorporate information into these forecasts in a timely manner to ensure their accuracy. We propose an ex-ante proxy to capture the slow incorporation of information into long-term analyst forecasts. Our empirical study then examines whether this proxy predicts revisions in long-term analyst forecasts as well as returns. Long-term analyst forecasts for earnings growth (LTG) and their implied short-term earnings growth forecasts ($ISTG$) are similar on average across stocks.[2] $ISTG$ is inferred from dollar-denominated annual earnings forecasts for the current year and realized earnings in the previous year. The consensus forecasts that define LTG and $ISTG$ are required to either be issued, revised, or reiterated during the month in which they are compared to ensure that "stale" forecasts are not included in our study. Under the assumption that short-term earnings growth forecasts are more accurate than long-term forecasts, *extreme* disparities between these forecasts in the cross-section likely reflect errors in long-term expectations of earnings growth.

The comparison between LTG and $ISTG$ is conducted across firms within the same indus-

[1]Starting with $P = \frac{D}{r-g}$ where P, D, r and g denote the price, current dividend, discount rate, and long-term dividend growth respectively, the derivative of P respect to g yields $dP = \frac{P}{r-g}dg$. It then follows that $\frac{dP}{P} = \frac{P}{D}dg$ since $\frac{1}{r-g}$ is equivalent to $\frac{P}{D}$.

[2]At the market-level, forecasted earnings growth averages 17.1% per annum for the long-term compared with 15.2% for the current year.

try since a long-term forecast of 20% may be high for utility companies but low for technology companies. Intuitively, we consider long-term earnings growth forecasts to be suspiciously high if a firm's LTG and $ISTG$ are simultaneously above and below their respective industry-level counterparts since this firm is forecasted to overperform in the long-term and underperform in the short-term relative to its industry peers. More generally, the industry-adjusted disparity between LTG and $ISTG$ provides an ex-ante proxy for errors in long-term analyst forecasts.

Using double-sorted portfolios formed according to LTG, then $ISTG$, we find the high LTG / low $ISTG$ portfolio has a negative risk-adjusted return (-27bp with a t-statistic of -2.73), while the low LTG / high $ISTG$ portfolio has a positive risk-adjusted return (21bp with a t-statistic of 2.39) in the first month after portfolio formation. Thus, the risk-adjusted return from buying low LTG / high $ISTG$ stocks and selling high LTG / low $ISTG$ stocks equals 48bp (t-statistic of 5.08). The risk-adjusted return from this trading strategy persists for six months and is almost 4% per annum. This return-adjusted exceeds transaction costs and is robust across different subperiods as well as different methods for inferring $ISTG$. These robustness tests account for realized earnings that are negative or near zero and replace $ISTG$ with a firm's forecasted return on book-equity.

The disparity between LTG and $ISTG$ identifies return variation across stocks with nearly identical long-term analyst forecasts. Although LaPorta (1996) documents that stocks with high long-term analyst forecasts earn low returns, buying low LTG stocks and selling high LTG stocks does not generate a risk-adjusted return in our sample. Dechow and Sloan (1997) demonstrate that LTG portfolios are closely related to market-to-book portfolios. Indeed, the value premium explains a significant portion of the return variation across LTG portfolios.

Despite the importance of conditioning on $ISTG$, our trading strategy's risk-adjusted return is not driven by earnings momentum (Chan, Jegadeesh, and Lakonishok, 1996). Specifically, eliminating stocks with large prior revisions in their annual earnings forecasts or large prior earnings surprises from our trading strategy does not diminish its risk-adjusted return. Instead, the disparity between LTG and $ISTG$ is highly persistent and is not attributable to a large amount of unexpected information.

After sorting stocks into LTG and $ISTG$ deciles within their industry, we construct a firm-level disparity variable as the rank (in descending order) of a firm's $ISTG$ decile minus the rank of its LTG decile.[3] A positive disparity variable indicates that a firm's LTG is ranked higher than its $ISTG$. Our disparity variable predicts returns after controlling for size, book-to-market, and past return characteristics as well as analyst forecast dispersion (Diether, Malloy, and Scherbina, 2002), analyst coverage (Hou and Moskowitz, 2005), idiosyncratic return volatility (Ang et. al., 2006), institutional ownership (Nagel, 2005), and revisions in analyst buy/sell recommendations (Barber et. al., 2001). Prior revisions in annual earnings forecasts and earnings surprises during the past quarter also cannot explain the disparity variable's return predictability. Thus, earnings momentum (Chan, Jegadeesh, and Lakonishok, 1996) is not responsible for the return predictability of our disparity variable. Moreover, neither LTG nor $ISTG$ predict returns. Instead, return predictability is limited to the industry-adjusted disparity between these earnings growth forecasts.

Consistent with prior empirical evidence, revisions in long-term analyst forecasts induce strong stock price reactions in our sample. Moreover, the return predictability of our disparity variable appears to originate from its ability to predict revisions in long-term forecasted earnings growth.[4] Our short portfolio has the most frequent and the largest downward revisions in long-term forecasted earnings growth. Conversely, our long portfolio has the most frequent and the largest upward revisions in long-term forecasted earnings growth. Within these two portfolios, post-formation return variation is also consistent with contemporaneous revisions in long-term analyst forecasted earnings growth.

For predictability in long-term forecast revisions to generate risk-adjusted returns, the market must not fully account for the predictability in long-term analyst forecast revisions. Our evidence suggests that investors have limited attention regarding long-term earnings. In DellaVigna and Pollet (2007), investors adopt simplifying heuristics when forming their long-term earnings expectations to reduce the amount of information processing. Peng and Xiong (2006)'s theory of category learning has investors focusing on the prior classification of firms due to limited attention. Barberis and Shleifer (2003)'s theory of style investing also has investors categorizing stocks to reduce the amount of firm-specific information that requires

[3]This intuitive non-parametric statistic is less sensitive to $ISTG$ outliers that can arise from realized earnings growth near zero.

[4]Predictability in long-term forecast revisions can arise from mean-reversion in earnings growth and errors in the initial forecasts of analysts. We control for mean-reversion in long-term earnings growth when examining the relationship between long-term analyst forecast revisions and returns.

processing. These prior classifications of stocks can include value and growth.

Intuitively, stocks with a large positive disparity are likely to be "disappointing growth" stocks while stocks with a large negative disparity are likely to be "recovering value" stocks. In accordance with this intuition, the stocks in our short portfolio are migrating from growth towards value after portfolio formation while the stocks in our long portfolio are migrating from value towards growth. Limited attention and category learning can explain the slow reaction of investors to the predictability in long-term analyst forecast revisions and the predictability in book-to-market characteristics, hence the risk-adjusted return of our trading strategy. Consistent with limited attention, order flow imbalances are sensitive to post-formation revisions in long-term forecasted earnings growth. Indeed, investors appear to be surprised by these revisions, despite their predictability. Observe that the migrations in book-to-market characteristics reported in Fama and French (2007) are consistent with the risk-adjusted returns of our long portfolio and short portfolio. However, in contrast to their study, we are able to predict migrations in book-to-market characteristics using the disparity between LTG and $ISTG$.

Our paper contributes to the literature on analyst forecasts, in particular their long-term earnings growth forecasts. While Copeland, Dolgoff, and Moel (2004) as well as Jung, Shane, and Yang (2008) find that long-term analyst forecast revisions exert a significant impact on stock prices, Chan, Karceski, and Lakonishok (2003) conclude that long-term analyst forecasts are a poor predictor of realized earnings growth. Our study finds that errors in long-term analyst forecasts are partially attributable to the slow incorporation of information into these forecasts. In particular, we extend the existing analyst forecast literature by finding the disparity between LTG and $ISTG$ to be an ex-ante proxy for such errors that yields economically as well as statistically significant risk-adjusted returns. The return predictability attributable to this disparity cannot be replicated by conditioning on LTG alone, as in LaPorta (1996), and is not a manifestation of earnings momentum derived from short-term analyst forecasts.

Therefore, our comparison of analyst forecasts over different horizons extends prior research on the return implications of analyst forecast biases. By relying on ex-post forecast errors, Scherbina (2005) concludes that short-term analyst optimism influences returns. Furthermore, a high price-to-value ratio from a residual income model (Frankel and Lee, 1998) can arise from low short-term and high long-term expected earnings growth or the opposite combination of high short-term and low long-term expected earnings growth. We differentiate between these respective scenarios by assigning them a positive and negative disparity. Although Jagannathan, Ma, and da Silva (2005) evaluate a combination of short-term and long-term analyst forecasts, they do not examine the disparity between forecasted earnings growth over different horizons.

Our paper also contributes to the expanding literature on limited attention. While traditional asset pricing assumes that information is instantaneously incorporated into prices, this assumption requires investors to constantly allocate sufficient attention to all relevant information. However, when attention is a scare cognitive resource (Kahneman, 1973), investors can have limited attention. Recent theoretical frameworks in which limited attention affects asset pricing include Sims (2003), Peng and Xiong (2006), and DellaVigna and Pollet (2007). Empirically, Hirshleifer, Lim, and Teoh (2007) find that investors are less attentive on days with more earnings announcements while DellaVigna and Pollet (2008) reach a similar conclusion for Friday announcements. Cohen and Frazzini (2008) report that the economic links between customers and suppliers yield return predictability. Similarly, Hong, Torous, and Valkanov (2007) find that market-level returns are predictable using the prior industry-level returns, especially for industries that are sensitive to economic activity. Our results extend prior research on limited attention by demonstrating that investors have limited attention towards long-term earnings growth. This form of limited attention has significant return implications given the importance of long-term earnings expectations to stock price valuations.

The remainder of the paper is organized as follows. Section 2 describes our data, while the return predictability and errors in long-term expectations of earnings growth associated with the disparity between LTG and $ISTG$ are reported in Section 3 and Section 4, respectively. Section 5 provides a theoretical explanation for the risk-adjusted returns of our trading strategy, while Section 6 concludes.

2 Data and Definitions

Our sample of analyst earnings forecasts is obtained from the Institutional Brokers Estimate System (IBES) Summary unadjusted file. Unadjusted IBES forecasts are not adjusted by share splits after their issuance date.[5]

Starting with all unadjusted consensus earnings forecasts from 1983 through 2006, we retain 722,034 firm-month observations for firms whose earnings in the previous year ($A0_t$), consensus earnings forecasts for the current fiscal year ($A1_t$), and long-term growth forecasts (LTG_t) are available in month t. Quarterly forecasts are not studied due to their seasonality and heightened susceptibility to smoothing by management. Mean consensus earnings forecasts in IBES are produced on the third Thursday of every month. Although the analysts issuing annual forecasts may differ from those issuing long-term forecasts, we use consensus forecasts for both maturities as they are the easiest earnings expectations for investors to access and interpret.

The IBES dataset is merged with COMPUSTAT and CRSP. Negative book values are eliminated from COMPUSTAT. Stock returns are obtained from CRSP after adjusting for delistings. Shares splits are also accounted for using the split factor in CRSP. Our analysis is conducted entirely on an earnings-per-share (EPS) basis.

The distribution of stocks with annual and long-term forecasts across the eleven IBES industries is reported in Table 1. The number of firms in our sample increases over time according to Panel A.[6] On average, there are about 2,500 firms in our sample every month. According to Panel B, their average size increases over time while their average book-to-market ratio (BM) declines. Panel B also reports that long-term forecasted earnings growth is increasing over the sample period, although its dispersion is stable. In contrast, annual earnings forecasts (normalized by realized earnings) become less uncertain. By requiring firms to have long-term analyst forecasts, our sample is orientated towards large stocks with relatively high analyst coverage.

For emphasis, annual earnings forecasts are denominated in dollars per share over a fixed

[5]As detailed in Diether, Malloy, and Scherbina (2002), the EPS after a share split is often a small number that I/B/E/S rounds to the nearest cent. This rounding procedure can distort certain properties of dollar-denominated analyst forecasts, such as their revisions and forecast errors.

[6]Analyst coverage is defined as the number of analysts issuing at least one forecast.

horizon while long-term forecasts are annualized percentage growth rates. For comparative purposes, the $A1_t$ forecasts are converted into annualized percentage growth rates denoted $ISTG_t$ (implied short-term growth) as follows

$$ISTG_t \quad = \quad \left[\frac{A1_t - A0_t}{|A0_t|}\right] \times 100\,, \tag{1}$$

based on the firm's realized earnings from the prior year. The difference $LTG_t - ISTG_t$ measures the disparity between long-term and short-term forecasts of earnings growth at the portfolio-level. However, for individual firms, $ISTG_t$ has outliers that arise from $A0_t$ being near zero. Therefore, we construct a Disparity_t^R variable as the difference between the *rankings* of LTG_t and $ISTG_t$. Within each industry sector, $ISTG_t$ and LTG_t are sorted into deciles from 1 to 10 in descending order. The $ISTG_t$ ranking minus the LTG_t ranking defines $\text{Disparity}_{i,t}^R$ for firm i in month t. This intuitive non-parametric statistic is less sensitive to $ISTG_t$ outliers and ranges from -9 to 9 for the lowest LTG_t / highest $ISTG_t$ stocks (1 minus 10) to the highest LTG_t / lowest $ISTG_t$ stocks (10 minus 1). In particular, a positive (negative) disparity variable indicates that a firm's LTG is ranked higher (lower) than its $ISTG$.

3 Disparity in Forecasted Earnings Growth

To determine whether the disparity between long-term and short-term forecasted earnings growth predicts returns, we construct double-sorted LTG_t / $ISTG_t$ portfolios and utilize our firm-level disparity variable in cross-sectional regressions.

Within the eleven IBES industries, we first conduct a three-by-three sequential double-sort each month from 1983 to 2006, first according to LTG_t and then $ISTG_t$. This procedure results in nine double-sorted portfolios that aggregate across the eleven industry sectors. Within each of the eleven industry sectors, stocks are equally-weighted. By construction, these double-sorted portfolios are not concentrated in specific industries.

Our trading strategy buys low LTG_t / high $ISTG_t$ stocks and sells high LTG_t / low $ISTG_t$ stocks. Initially, stocks with $A0_t < 0$ are removed (approximately 10% of the sample), which eliminates the need for the absolute value in equation (1). The removal of these firms does not alter our conclusions and is relaxed in a subsequent robustness test. Following common practice in the empirical asset pricing literature, we also exclude stocks with share prices below five dollars to ensure our results are not unduly influenced by bid-ask bounce.

Panel A of Table 2 presents the risk-adjusted returns from the nine double-sorted LTG_t / $ISTG_t$ portfolios. These returns are risk-adjusted using the three Fama and French (1996) factors along with Carhart (1997)'s momentum factor. The risk-adjusted return of the low LTG_t / high $ISTG_t$ portfolio equals 21bp (t-statistic of 2.39), while the high LTG_t / low $ISTG_t$ portfolio's risk-adjusted return equals -27bp (t-statistic of -2.73) one month after formation. The characteristic-based procedure in Daniel, Grinblatt, Titman, and Wermers (1997) confirms these risk-adjusted returns. The low LTG_t / high $ISTG_t$ portfolio and the high LTG_t / low $ISTG_t$ portfolio are the only portfolios that have significant risk-adjusted returns using the four-factor model and the procedure in Daniel, Grinblatt, Titman, and Wermers (1997).

Panel B reports that buying low LTG_t / high $ISTG_t$ stocks and selling high LTG_t / low $ISTG_t$ stocks generates a risk-adjusted return of 48bp in the first month after portfolio formation (t-statistic of 5.08). This return predictability persists for six months, declining to 22bp (t-statistic of 2.11) by the sixth month after portfolio formation. Over this six-month holding period, our trading strategy produces a cumulative risk-adjusted return of 190bp. The cumulative risk-adjusted returns from our trading strategy are plotted in Figure 1 along with a two standard deviation confidence interval.

The cumulative six-month risk-adjusted returns from our trading strategy exceed the quoted bid-ask spreads (in percentage terms) of 39bp and 46bp for the long portfolio and short portfolio, respectively. Moreover, if transaction costs were preventing investors from immediately incorporating information into prices, then risk-adjusted returns and transaction costs would decline in tandem. Instead, the respective bid-ask spreads for the long portfolio and short portfolio increase by 1bp and 3bp over the six month holding period. Therefore, the decline in return predictability is unlikely to be caused by arbitrageurs taking advantage of lower transaction costs.

Turnover within the long portfolio and short portfolio is moderate as 75% and 74% of the stocks in the long portfolio and short portfolio remain in their respective portfolio across consecutive months. This persistence indicates that salient information is not necessarily arriving in the month of portfolio formation since large disparities between long-term and short-term forecasted earnings growth continue for several months. Figure 2 illustrates a gradual decline in the disparity between LTG and $ISTG$ during the holding period. To minimize the influence of outliers arising from $A0_t$ being near zero, $ISTG_t$ in this figure is computed according to equation (1) using the aggregate $A1_t$ and aggregate $A0_t$ of each portfolio.

The temporary nature of our trading strategy's return predictability is difficult to reconcile with risk. Lettau and Wachter (2007) and Da (2008) argue that firms with higher cashflow durations, whose expected cashflows are concentrated in the more distant future, have lower stock returns. The high LTG_t / low $ISTG_t$ combination underlying our short portfolio is consistent with a high cashflow duration, while the opposite low LTG_t / high $ISTG_t$ combination underlying our long portfolio is consistent with a low cashflow duration. However, as cashflow duration is not expected to change drastically within a six-month horizon, explaining the short-term return predictability of our trading strategy is a challenge using cashflow duration.

We observe considerable post-formation return variation across stocks with similar long-term analyst forecasts as $ISTG_t$ identifies considerable return variation across the three high LTG_t portfolios and across the three low LTG_t portfolios. This property reinforces the importance of conditioning on the disparity between LTG_t and $ISTG_t$ rather than LTG_t itself. However, low $ISTG_t$ and high $ISTG_t$ do not induce mispricings consistent with analyst pessimism and analyst optimism, respectively, since the low $ISTG_t$ portfolios have lower subsequent returns than the high $ISTG_t$ portfolios. Furthermore, the disparity between LTG_t and $ISTG_t$ is far from zero for the high LTG_t / high $ISTG_t$ portfolio and low LTG_t / low $ISTG_t$ portfolio. Instead, the positive return from the high LTG_t / high $ISTG_t$ portfolio and the negative return from the low LTG_t / low $ISTG_t$ portfolio are consistent with their negative disparity and positive disparity, respectively. The return implications of our firm-level Disparity_t^R variable are examined later in this section.

Finally, the long-term forecast errors in Panel A of Table 2 are defined as LTG_t minus realized earnings growth over the subsequent three-to-five-year horizon. Thus, positive forecast errors correspond to optimistic long-term forecasts while negative forecast errors correspond to pessimistic long-term forecasts. The ex-post forecast errors reported in Panel A suggest that the high LTG_t / low $ISTG_t$ and low LTG_t / high $ISTG_t$ combinations are valid ex-ante proxies for analyst optimism and analyst pessimism regarding long-term earnings growth, respectively. Interestingly, as the returns from our short portfolio and long portfolio are similar, the market appears to be better at mitigating analyst optimism regarding long-term earnings growth than analyst pessimism.

3.1 Robustness Tests

Our first robustness test confirms that the risk-adjusted returns from our trading strategy cannot be replicated by conditioning exclusively on the level of long-term analyst forecasts. After sorting stocks into portfolios according to their LTG_t, LaPorta (1996) documents that high LTG_t stocks earn low subsequent returns. To ensure that this property is not driving the returns from our trading strategy, we implement LaPorta's trading strategy within our sample. As reported in Table 3, while low LTG_t stocks have higher unadjusted returns than high LTG_t stocks, the four-factor intercept from LaPorta's trading strategy is insignificant (t-statistic of 1.44). Consistent with the findings in Dechow and Sloan (1997), the Fama-French HML factor explains a significant portion of the return from LaPorta's strategy as its unreported loading of 1.583 is highly significant (t-statistic of 22.00). Intuitively, high LTG_t and low LTG_t are close proxies for growth and value characteristics, respectively.

The risk-adjusted returns from our trading strategy are not a manifestation of earnings momentum. After sorting stocks every month according to their earnings surprises in the prior quarter (SUE) or the revisions in their annual forecasts over the prior six months (FREV), we exclude stocks in the top and bottom quintiles of these cross-sectional sorts before implementing our trading strategy. The risk-adjusted returns from our trading strategy increase slightly after removing these stocks. Thus, the risk-adjusted returns from our trading strategy are not attributable to earnings momentum. The next section provides further evidence that revisions in long-term rather than short-term forecasted earnings growth are responsible for the return predictability associated with the disparity between LTG_t and $ISTG_t$.

Table 3 also confirms that our trading strategy's performance is similar across two non-overlapping subperiods; from 1983 to 1994 and from 1995 to 2006. Figure 3 plots the risk-adjusted returns from our trading strategy over the entire sample period and reinforces its consistency. Our trading strategy's performance is also robust to the enactment of the SEC's fair disclosure regulation (Reg FD) in August 2000. During the most recent subperiod starting in September 2000, its risk-adjusted return equals 52bp (t-statistic of 2.55) in the first month after portfolio formation.

Given the importance of short-term forecasted earnings growth, $ISTG_t$ in equation (1) is replaced with two alternatives. The first alternative relaxes the assumption that $A0_t$ is positive in equation (1). As reported in Table 3, this assumption does not exert a large influence on our trading strategy's risk-adjusted return. The second alternative definition of short-term forecasted earnings growth replaces $ISTG_t$ with the firm's forecasted return on book-equity

$$ROE_t = \frac{A1_t \cdot (\# \text{ of shares})}{B_{t-1}}, \tag{2}$$

where B_{t-1} denotes its book value from the prior year. This alternative definition for $ISTG_t$ does not alter our trading strategy's performance.

Finally, in unreported results, our trading strategy produces a risk-adjusted return of 33bp (t-statistic of 2.27) after value-weighting stocks within each industry sector. Recall that our sample is orientated towards relatively large stocks given the requirement for long-term analyst forecasts. The minimum price filter of five dollars also mitigates the influence of extremely small stocks.

3.2 Firm-Level Disparity Variable

This subsection uses our disparity variable to examine the marginal return predictability of Disparity_t^R after controlling for firm characteristics that have been found to predict returns in the existing literature.

Gleason and Lee (2003) find more rapid price adjustments to forecast revisions in stocks with higher analyst coverage. Hou and Moskowitz (2005) also find that investor recognition characteristics such as institutional ownership can explain price delays.[7] However, Panel A of Table 4 indicates that stocks in the long portfolio and short portfolio have similar analyst coverage (COVER) and institutional ownership (IO) as the other double-sorted portfolios.

Miller (1977) argues that short-sell constraints, in conjunction with differences of opinion, lead to overvaluation by preventing the opinions of pessimistic investors from being incorporated into stock prices. Using analyst forecast dispersion as a proxy for differences of opinion,

[7] Nagel (2005) concludes that low institutional ownership increases the difficulty associated with short-selling. D'Avolio (2002) reports that institutional investors are the primary lenders of securities in short-sale transactions, while Dechow, Hutton, Meulbroek, and Sloan (2001) find that short-sellers target stocks with high institutional ownership to minimize the cost of borrowing shares.

Diether, Malloy, and Scherbina (2002) find that stocks with high forecast dispersion have poor subsequent risk-adjusted returns. However, Panel A of Table 4 reports that the underperforming stocks in the short portfolio have lower forecast dispersions (DISP) than the overperforming stocks in the long portfolio. In particular, the average $A1_t$ forecast dispersion of 0.198 for the long portfolio exceeds 0.147 for the short portfolio.[8] Similarly, LTG_t's forecast dispersion of 0.327 for the long portfolio exceeds 0.234 for the short portfolio. Besides forecast dispersion, idiosyncratic volatility (Ang, Hodrick, Xing, and Zhang, 2006) is a common proxy for limits to arbitrage. However, the idiosyncratic volatility (IVOL) of the long portfolio and short portfolio are not unusually high. Nonetheless, the cross-sectional regression below controls for idiosyncratic volatility as well as forecast dispersion.

Barber, Lehavy, McNichols, and Trueman (2001) examine the consensus buy/sell recommendations of analysts. These recommendations are limited to five values, with 1 denoting a "strong buy" and 5 a "sell" recommendation. Consequently, lower numerical values for the consensus recommendation and negative revisions represent more favorable analyst recommendations and upgrades in these recommendations, respectively. Beginning in 1994, the REC variable in Panel A denotes the consensus buy/sell recommendation of analysts while REC-REV signifies its revision. The results in Panel A indicate that the stocks in our long portfolio have relatively more pessimistic consensus recommendations (REC) than those in our short portfolio. Stocks in the long portfolio also experience recent upgrades during the prior month while those in the short portfolio experience downgrades. However, our long portfolio and short portfolio are not associated with extreme analyst buy/sell recommendations nor extreme revisions in these recommendations. This finding is also confirmed by a later cross-sectional regression.

We also examine the characteristics in Jegadeesh, Kim, Krische, and Lee (2004), which include past returns over consecutive non-overlapping six-month horizons (RETP and RET2P respectively) as well as the combined twelve-month horizon (RET12) and turnover (TURN). RET denotes the prior one-month return that is skipped during the construction of RETP, RET2P, and RET12. These authors also consider analyst-related variables that include revisions in annual consensus forecasts over the past six months normalized by price (FREV) and standardized unexpected earnings (SUE) in the prior quarter. These revisions and earnings

[8]The standard deviation of $A1_t$ forecasts is proportional to the standard deviation of $ISTG_t$.

surprises are the conditional information in earnings momentum strategies. In addition, we account for a firm's earnings-to-price ratio (EP), total accruals to total assets (TA), capital expenditures to total assets (CAPEX), and previous sales growth (SG). Appendix A of Jegadeesh, Kim, Krische, and Lee (2004) defines each of these characteristics in detail.

Using these characteristics, we estimate the following cross-sectional regression

$$\begin{aligned} r_{i,t+1} &= \beta_1 \,\text{Disparity}^R_{i,t} + \beta_2 \,\text{BM}_{i,t} + \beta_3 \,\text{Size}_{i,t} + \beta_4 \,\text{RET12}_{i,t} + \beta_5 \,\text{RET}_{i,t} \\ &\quad + \beta_6 \,\text{DISP-}A1_{i,t} + \beta_7 \,\text{DISP-}LTG_{i,t} + \beta_8 \,\text{REC}_{i,t} + \beta_9 \,\text{REC-REV}_{i,t} \\ &\quad + \beta_{10} \,\text{FREV}_{i,t} + \beta_{11} \,\text{SUE}_{i,t} + \beta_{12} \,\text{LTG}_{i,t} + \beta_{13} \,\text{ISTG}_{i,t} + \gamma \cdot X_{i,t} + \epsilon_{i,t+1} \,, \end{aligned} \tag{3}$$

using monthly unadjusted returns for individual stocks. The firm and analyst characteristics in Panel A that are not reported separately as independent variables in equation (3) are contained in the X vector. Every independent variable is cross-sectionally demeaned and standardized.

The significant estimates for β_1 in Panel B of Table 4 indicate that our disparity variable predicts returns. In particular, future returns are inversely related to Disparity^R in every specification. In contrast, the β_2 coefficient for book-to-market is consistent with the value premium but insignificant in several specifications, while the β_3 coefficient for size is uniformly insignificant. The positive β_4 coefficient for RET12 indicates the presence of price momentum, while the negative β_5 coefficient can be explained by monthly return reversals that Avramov, Chordia, and Goyal (2006) conclude are caused by temporary liquidity shocks.

The β_7 coefficient for LTG_t's dispersion is uniformly insignificant, while the β_6 coefficient for $A1_t$'s dispersion is generally insignificant. Thus, analyst forecast dispersion cannot explain the return predictability of our disparity variable. The negative β_9 coefficient for REC-REV implies that analyst downgrades (upgrades) yield negative (positive) subsequent returns, although the recommendations themselves fail to predict returns since β_8 is insignificant.

The insignificant β_{10} coefficient indicates that past forecast revisions cannot predict returns. Despite β_{11}'s significance, earnings surprises in the prior quarter are similar for the long portfolio and short portfolio according to Panel A. Overall, the past forecast revisions and prior earnings surprises that define earnings momentum cannot explain the return predictability of our disparity variable. This finding supports the robustness tests in Table 3 that exclude stocks with extreme values for FREV and SUE from our trading strategy.

Interestingly, neither LTG_t nor $ISTG_t$ predict returns as the β_{12} and β_{13} coefficients are insignificant. Even after removing Disparity_t^R from the cross-sectional regression, these coefficients are insignificant although their respective signs are consistent with the inverse relationship between returns and our disparity variable. Thus, return predictability is limited to the disparity between a firm's LTG_t and $ISTG_t$ relative to its industry peers. The next section investigates the source of our disparity variable's return predictability.

4 Long-Term Forecast Revisions

Copeland, Dolgoff, and Moel (2004) report that stock returns are sensitive to revisions in long-term analyst forecasts, even after controlling for revisions in short-term earning forecasts. Revisions in long-term forecasted earnings growth during the month of portfolio formation as well as cumulative post-formation revisions are reported in Panel A of Table 5.[9] Six months after the long portfolio and short portfolio are formed, they experience cumulative upward and downward revisions in long-term forecasted earnings growth of 0.44% and -1.60%, respectively. These post-formation revisions are the largest upward and largest downward revisions across the nine double-sorted portfolios. These revisions do not simply reflect mean-reversion in long-term forecasted earnings growth. After six months, the difference between the cumulative revisions in long-term forecasted earnings growth for the short portfolio and the high LTG_t / high $ISTG_t$ portfolio, -1.60% versus -0.75%, is significant (t-statistic of -9.04) despite both portfolios having high LTG_t at the time of their formation. The comparable difference between our long portfolio and the low LTG_t / low $ISTG_t$ portfolio, 0.44% versus 0.19%, is also significant (t-statistic of 6.14) after six months despite both portfolios having low LTG_t at the time of their formation.

The long portfolio also has the highest percentage of upward post-formation revisions and the lowest percentage of downward post-formation revisions, 28.52% and 17.64%, respectively. In contrast, the short portfolio has the highest percentage of downward post-formation revisions and the lowest percentage of upward post-formation revisions, 38.84% and 12.62%, respectively.[10] This predictability implies that revisions in long-term analyst forecasts are not

[9] The cumulative post-formation revisions are based on the prevailing LTG_t forecasts in month t.

[10] The percentage of upward revisions and downward revisions does not sum to 100% since many revisions reiterate previous forecasts.

comparable to the cashflow innovations in Campbell and Shiller (1988).

For completeness, we also examined revisions in short-term analyst forecasts. In unreported results, the long portfolio experiences an average upward revision in $ISTG_t$ of 0.88%, while the short portfolio experiences an average downward revision in $ISTG_t$ of -1.42%. However, post-formation revisions in short-term forecasted earnings growth exhibit no discernible cross-sectional pattern across the double-sorted portfolios.

Panel B of Table 5 reports on the post-formation returns across three different subportfolios within the long portfolio and short portfolio of our trading strategy. These subportfolios are defined by post-formation long-term forecasts that are revised upward, downward, or unchanged. These subportfolios confirm that post-formation returns are driven by post-formation revisions in long-term forecasts. Indeed, upward revisions and downward revisions in long-term forecasted earnings growth coincide with positive returns and negative returns, respectively.

The importance of long-term analyst forecasts to stock returns is confirmed by the following cross-sectional regression of individual firm-level stock returns on contemporaneous revisions in long-term and short-term forecasts

$$r_t = \beta_0 + \beta_1 \,\text{A1 Revision}_t + \beta_2 \,\text{LTG Revision}_t + \epsilon_t \,, \tag{4}$$

where the i subscripts are omitted for notational simplicity. The revisions in equation (4) are computed by subtracting forecasts in month $t-1$ from forecasts in month t, and then normalizing these differences by the absolute value of the corresponding month $t-1$ forecasts.

Panel A of Table 6 indicates that the β_2 coefficient is significant (t-statistic of 2.99) and nearly three times larger than β_1. Thus, long-term analyst forecast revisions exert a significant impact on stock prices. The ability of our disparity variable to predict these revisions in long-term forecasted earnings growth is investigated by the following regression

$$\begin{aligned}\text{LTG Revision}_{t+6,t} &= \gamma_0 + \gamma_1 \,\text{Disparity}^R_t + \gamma_2 \,\text{LTG}_t + \gamma_3 \,\text{RET12}_t \\ &\quad + \gamma_4 \,\text{FREV}_t + \gamma_5 \,\text{SUE}_t + \epsilon_t \,, \end{aligned} \tag{5}$$

where the dependent variable is defined over a six-month horizon for individual firms. A negative γ_1 coefficient indicates that revisions in long-term forecasted earnings growth are inversely related to our disparity variable. A negative γ_2 coefficient captures mean-reversion in long-term earnings growth forecasts. Once again, RET12 refers to returns over the past twelve months (after a one-month delay), while FREV and SUE refer to past revisions in annual earnings forecasts and past earnings surprises, respectively. RET12, FREV and SUE are included in equation (5) to account for price momentum and earnings momentum.

The negative γ_1 coefficient (t-statistic of -5.74) for Disparity^R in Panel B of Table 6 indicates that a positive disparity predicts a decline in long-term forecasted earnings growth while a negative disparity predicts an increase in long-term forecasted earnings growth. This inverse relationship holds after accounting for mean-reversion in long-term analyst forecasts, as γ_2 is negative, and the predictability in long-term forecasts attributable to past returns. The positive γ_3 coefficient indicates that positive (negative) prior returns induce upward (downward) revisions in long-term forecasted earnings growth. The earnings momentum proxies FREV and SUE also cannot explain the ability of our disparity variable to predict revisions in long-term analyst forecasts, although positive (negative) prior earnings surprises lead to upward (downward) revisions in long-term forecasted earnings growth.

In summary, the disparity between long-term and short-term analyst forecasted earnings growth appears to reflect the slow incorporation of information into long-term analyst forecasts. The next section provides a mechanism in which this slow incorporation of information influences investor expectations of long-term earnings.

5 Limited Attention

The risk-adjusted returns underlying our trading strategy suggest that the market does not fully account for the predictability in long-term analyst forecast revisions. Besides these risk-adjusted returns, the disparity between long-term and short-term forecasted earnings growth also predicts *migrations* in firm-level book-to-market ratios.[11] This finding provides additional evidence that errors in investor expectations are captured by this disparity.

Intuitively, stocks with a large positive disparity between LTG_t and $ISTG_t$ are likely to be "disappointing growth" stocks while stocks with a large negative disparity are likely

[11]This predictability may be attributed to our disparity variable's ability to predict returns and revisions in long-term forecasted earnings growth since the market valuations that define book-to-market ratios are positively correlated with these returns and revisions.

to be “recovering value” stocks. According to Panel A of Table 7, which reports book-to-market ratios until twenty-four months after portfolio formation, our short portfolio consists of “disappointing growth” stocks that are migrating towards value while our long portfolio consists of “recovering value” stocks that are migrating towards growth. Therefore, the risk-adjusted returns of these portfolios are consistent with Fama and French (2007)’s finding that, on an ex-post basis, migrations in book-to-market characteristics explain a large portion of the value premium. However, in contrast to their study, our disparity variable is capable of predicting book-to-market migrations.

DellaVigna and Pollet (2007) provide an explanation for the slow incorporation of information into long-term investor expectations. Their theory of limited attention has investors using heuristics to simplify the formation of long-term earnings expectations.[12] Thus, limited attention in DellaVigna and Pollet (2007) can explain the slow reaction of investors to predictability in long-term analyst forecast revisions. Peng and Xiong (2006)’s theory of category learning has investors focusing on prior stock classifications due to limited attention towards firm-specific information. In the context of our study, category learning is consistent with investors reacting slowly to both migrations in book-to-market characteristics and firm-specific revisions in long-term analyst forecasts.

We examine the relationship between post-formation order flow imbalances, denoted OIMB, and post-formation revisions in long-term forecasts to gauge the appropriateness of limited attention as an explanation for the risk-adjusted returns from our trading strategy. Specifically, the following regression is conducted on stocks in the long portfolio and short portfolio of our trading strategy

$$\begin{aligned} \text{OIMB}_{t+6,t} &= \gamma_0 + \gamma_1 \,\text{LTG Revision}_{t+6,t} + \gamma_2 \,\text{BM}_t + \gamma_3 \,\text{Size}_t \\ &\quad + \gamma_4 \,\text{RET12}_t + \gamma_5 \,\text{FREV}_t + \gamma_6 \,\text{SUE}_t + \epsilon_t \,, \end{aligned} \tag{6}$$

where order flow imbalances are defined as

[12]Unlike DellaVigna and Pollet (2007)’s empirical study, which links industry-level returns and demographics, the disparity in forecasted earnings growth is constructed within industries each month. Our comparison of analyst forecasts over different horizons also does not require investors to understand demographics and barriers-to-entry when forecasting demand.

$$\text{OIMB} = \frac{\text{\# of buyer-initiated shares traded - \# of seller-initiated shares traded}}{\text{\# of buyer-initiated shares traded + \# of seller-initiated shares traded}}. \quad (7)$$

Buyer-initiated and sell-initiated trades are determined by the Lee and Ready (1991) algorithm. RET12 controls for the possibility that order flow imbalances are driven by investors conditioning on past returns (trend-chasing). Once again, FREV and SUE account for earnings momentum. For emphasis, equation (6) is estimated using firms in the long portfolio (low LTG_t / high $ISTG_t$) and short portfolio (high LTG_t / low $ISTG_t$) to better understand the return predictability of our trading strategy. Along with the need for order flow imbalance data, this focus accounts for the smaller number of stocks reported in Panel B of Table 7.

A positive γ_1 coefficient in equation (6) suggests that upward revisions in long-term forecasted earnings growth lead to a disproportionate amount of buy trades, while downward revisions lead to a disproportionate amount of sell trades during the trading strategy's six-month holding period. As reported in Panel B, the γ_1 coefficient is highly significant, even after controlling for book-to-market, size, and past return characteristics as well as prior revisions in short-term analyst forecasts and prior earnings surprises. The positive γ_2 and γ_3 coefficients indicate that buyer-initiated trades are more likely for value stocks and large stocks, respectively. The positive γ_4 coefficient provides evidence of trend-chasing as high (low) past returns lead to a disproportionate amount of buy (sell) trades. These properties hold after controlling for earnings momentum.

Overall, trading activity appears to be initiated by revisions in long-term forecasted earnings growth, despite the predictability of these revisions. Indeed, investors appear to be surprised by predictable revisions in long-term analyst forecasts. This finding supports limited attention as an explanation for the risk-adjusted returns of our trading strategy.

In contrast, our empirical results are less consistent the slow diffusion of *private* information hypothesized by Hong and Stein (1999) and overconfidence in Daniel, Hirshleifer, and Subrahmanyam (1998). In contrast to these theories, the return predictability we identify is based on public information in the form of analyst forecasts. In particular, our findings suggest that investors are overly reliant on long-term analyst forecasts.

6 Conclusions

Long-term earnings expectations are crucial to stock price valuations. We find the disparity between long-term and short-term analyst forecasted earnings growth predicts returns and revisions in long-term analyst forecasts. Intuitively, after adjustments for industry characteristics, a larger disparity reflects the slower incorporation of information into long-term analyst forecasts than short-term analyst forecasts. This slow incorporation of information is responsible for errors in long-term analyst forecasts that yield risk-adjusted returns.

The cross-sectional risk-adjusted return from buying stocks with negative disparities, low long-term and high short-term forecasted earnings growth, and selling stocks with positive disparities, high long-term and low short-term forecasted earnings growth, persists for six months and reaches an annualized risk-adjusted return of almost 4%. This return-adjusted return exceeds transaction costs and is robust across different subperiods. Short-term earnings growth forecasts are crucial to the identification of return variation across stocks with nearly identical long-term analyst forecasts. However, our trading strategy's risk-adjusted return is not attributable to earnings momentum. Moreover, our trading strategy's risk-adjusted return cannot be replicated by conditioning on long-term analyst forecasts alone, as in LaPorta (1996).

The disparity between long-term and short-term forecasted earnings growth predicts returns after controlling for a multitude of firm characteristics such as analyst forecast dispersion, idiosyncratic volatility, institutional ownership, analyst coverage, as well as prior earnings surprises and prior forecast revisions in the earnings momentum literature. Instead, post-formation revisions in long-term forecasts are consistent with the return predictability of our trading strategy. In particular, high long-term and low short-term forecasted earnings growth (positive disparity) corresponds with the largest and most frequent downward revisions in long-term forecasted earnings growth. Conversely, low long-term and high short-term forecasted earnings growth (negative disparity) corresponds with the largest and most frequent upward post-formation revisions in long-term forecasted earnings growth. The disparity between long-term and short-term forecasted earnings growth also predicts migrations in book-to-market characteristics as the stocks in our long portfolio are migrating from value to growth while the stocks in our short portfolio are migrating from growth to value.

Overall, prices do not appear to fully reflect the predictability in long-term analyst forecast revisions and book-to-market characteristics available from conditioning on the disparity between long-term and short-term forecasted earnings growth. This evidence suggests that investors have limited attention regarding long-term earnings growth and firm-level book-to-market characteristics. Consequently, our results provide empirical support for the limited attention hypothesized by DellaVigna and Pollet (2007) and Peng and Xiong (2006). Consistent with investors having limited attention, order flow imbalances indicate that investors are surprised by predictable revisions in long-term forecasted earnings growth.

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Table 1: Summary Statistics

This table summarizes the analyst forecasts and firm characteristics in our sample over three separate subperiods. Panel A reports on the number of firms with annual ($A1$) and long-term (LTG) analyst forecasts, as well as their distribution across eleven IBES industry sectors. The $A1$ forecasts are dollar-denominated earnings per share figures normalized by realized earnings from the previous year, while LTG represents an annualized percentage. In Panel B, analyst coverage (COVER) as well as $A1$ and LTG and their respective dispersions (DISP) are recorded. In addition, the size (in millions of dollars), book-to-market (BM), and past return characteristics of the firms in our sample are reported. RET12 denotes past returns over the prior year with a one month lag.

Panel A: Sample Size and Industry Sector Distribution

Year	Number of Stocks	Industry Sector Breakdown										
		Consumer Services	Non Durables	Durables	Finance	Technology	Energy	Capital Goods	Health Care	Basic Industrials	Utilities	Transport
1983 to 1989	1879	14.4%	6.3%	7.8%	14.8%	5.5%	5.5%	3.5%	15.1%	8.9%	10.8%	7.6%
1990 to 1999	2764	14.9%	9.5%	5.7%	17.4%	4.7%	4.7%	2.5%	17.2%	7.7%	9.0%	6.6%
2000 to 2006	2768	16.6%	10.0%	4.7%	18.8%	3.6%	4.7%	2.2%	22.3%	5.3%	6.5%	5.1%
All	2507	15.3%	8.7%	6.0%	17.1%	4.6%	5.0%	2.7%	18.1%	7.3%	8.8%	6.5%

Panel B: Sample Characteristics

Year	COVER	A1	LTG	DISP A1	DISP LTG	Size ($MM)	BM	RET12
1983 to 1989	8.9	0.70	15.6	0.277	0.322	952.2	0.84	0.209
1990 to 1999	8.1	1.12	17.4	0.197	0.253	1,939.5	0.67	0.181
2000 to 2006	7.8	1.15	18.2	0.167	0.279	5,007.0	0.65	0.198
All	8.3	1.00	17.1	0.212	0.281	2,546.2	0.71	0.194

Table 2: Trading Strategy

This table reports on the returns from double-sorting stocks each month according to their long-term forecasted earnings growth (LTG_t) and then their implied short-term forecasted earnings growth ($ISTG_t$) in equation (1). Within the eleven IBES industries, a three-by-three sequential double-sort is conducted each month from 1983 to 2006, first according to LTG_t and then $ISTG_t$. This procedure results in nine double-sorted portfolios that aggregate across the eleven industry sectors. For each of the nine double-sorted portfolios, raw and risk-adjusted returns are recorded in Panel A as monthly percentages for the first month after portfolio formation. Risk-adjusted returns are defined relative to the four-factor model and the characteristics-based approach in Daniel, Grinblatt, Titman, and Wermers (1997). The size (in millions of dollars), book-to-market (BM), and past return characteristics of the double-sorted portfolios are summarized in the formation month. RET12 denotes past returns over the prior year with a one month lag, while ERROR equals LTG_t minus realized earnings growth over the three-to-five-year forecasting horizon. In Panel B, the post-formation risk-adjusted returns from a trading strategy that buys low LTG_t / high $ISTG_t$ stocks and sells high LTG_t/ low $ISTG_t$ stocks are reported over a six-month holding period. All t-statistics (in italics) are Newey-West adjusted with 12 lags.

Panel A: Portfolio Characteristics and Returns

LTG_t /		Stock Characteristics at Portfolio Formation						First-Month Returns (%)				
$ISTG_t$	N	LTG_t (%)	$ISTG_t$ (%)	Error (%)	Size ($MM)	BM	RET12	Raw	Four-Factor		Characteristics	
								Return	alpha	t-stat.	alpha	t-stat.
High/High	213	25.78	189.30	6.97	1,322.7	0.58	0.520	1.32	0.16	*1.53*	0.20	*1.98*
High/Med	221	22.26	22.58	9.60	2,410.4	0.50	0.340	1.13	-0.04	*-0.39*	0.09	*0.95*
High/Low	217	22.37	-37.26	20.35	1,705.8	0.55	0.122	0.84	-0.27	*-2.73*	-0.22	*-2.05*
Med/High	216	14.83	140.99	-1.12	2,195.4	0.71	0.332	1.45	0.22	*2.39*	0.07	*0.99*
Med/Med	223	14.62	11.73	5.66	3,959.1	0.60	0.224	1.21	0.07	*0.70*	0.01	*0.10*
Med/Low	220	14.56	-32.95	16.16	2,408.4	0.68	0.060	1.06	-0.05	*-0.55*	-0.04	*-0.51*
Low/High	215	10.20	141.52	-1.26	2,654.1	0.86	0.262	1.44	0.21	*2.39*	0.21	*2.75*
Low/Med	222	10.23	7.82	5.27	5,169.3	0.72	0.176	1.33	0.18	*2.08*	0.02	*0.26*
Low/Low	219	9.79	-43.64	13.00	3,367.7	0.83	0.050	1.14	0.00	*0.04*	-0.14	*-1.84*

Panel B: Risk-Adjusted Returns after Portfolio Formation

Post-Formation Month		Four-Factor Model					Characteristics
		alpha (%)	MKT	HML	SMB	UMD	alpha (%)
One	coeff.	0.48	-0.166	0.319	-0.318	0.135	0.43
	t-stat.	*5.08*	*-6.89*	*9.02*	*-10.82*	*6.42*	*4.08*
Two	coeff.	0.36	-0.167	0.336	-0.295	0.142	0.28
	t-stat.	*3.51*	*-6.45*	*8.81*	*-9.30*	*6.27*	*2.71*
Three	coeff.	0.32	-0.164	0.324	-0.299	0.160	0.19
	t-stat.	*3.17*	*-6.36*	*8.55*	*-9.49*	*7.13*	*2.00*
Four	coeff.	0.27	-0.179	0.328	-0.280	0.155	0.08
	t-stat.	*2.60*	*-6.64*	*8.30*	*-8.54*	*6.63*	*0.78*
Five	coeff.	0.25	-0.172	0.324	-0.284	0.182	0.10
	t-stat.	*2.44*	*-6.59*	*8.48*	*-8.91*	*8.04*	*1.01*
Six	coeff.	0.22	-0.151	0.321	-0.310	0.167	0.05
	t-stat.	*2.11*	*-5.82*	*8.37*	*-9.71*	*7.39*	*0.56*

Table 3: Robustness Tests

This table first reports on the returns from LaPorta (1996)'s trading strategy that focuses exclusively on long-term analyst forecasts. Each month from January 1983 to December 2006, stocks are sorted into nine portfolios according to their long-term forecasted earnings growth (LTG_t). Raw and risk-adjusted returns from the four-factor model are also reported for our trading strategy based on double-sorting stocks each month according to LTG_t and implied short-term forecasted earnings growth ($ISTG_t$) in equation (1). Within the eleven IBES industries, this three-by-three sequential double-sort results in nine double-sorted portfolios that aggregate across the eleven industry sectors. Several robustness tests are conducted on our trading strategy that buys low LTG_t / high $ISTG_t$ stocks and sells high LTG_t / low $ISTG_t$ stocks. The first robustness test examines a subsample that excludes stocks with the highest and lowest earnings surprises in the prior quarter (SUE). The highest and lowest thresholds are defined as the top and bottom quintiles from a monthly cross-sectional sort, respectively. A similar robustness test excludes stocks with the highest and lowest revisions in annual forecasts over the prior six months (FREV). Another robustness test divides the sample period into three subperiods: 1983 to 1994, 1995 to 2006, and September 2001 to 2006, with the most recent subperiod coinciding with SEC's fair disclosure regulation (Reg FD). An additional robustness test does not impose the $A0_t > 0$ filter when inferring $ISTG_t$ while the final robustness test replaces $ISTG_t$ with the current year's return on book-equity (ROE_t) in equation (2). All t-statistics (in italics) are Newey-West adjusted with 12 lags.

Portfolio		LaPorta (1996)	After Removing Extreme		Subperiods			$ISTG_t$ Alternatives	
			Prior SUE	Prior FREV	1983-1994	1995-2006	2001-2006	Without $A0_t > 0$	ROE_t
Long	raw return (%)	1.36	1.69	1.54	1.41	1.47	1.43	1.40	1.38
	alpha (%)	0.19	0.92	0.76	0.34	0.22	0.33	0.15	0.24
	t-stat.	*2.41*	*8.47*	*7.46*	*4.01*	*1.80*	*2.61*	*1.90*	*2.57*
Short	raw return (%)	0.74	0.70	0.74	0.80	0.89	0.08	0.69	0.85
	alpha (%)	-0.07	0.10	0.12	-0.09	-0.40	-0.19	-0.32	-0.20
	t-stat.	*-0.45*	*0.88*	*1.06*	*-0.85*	*-2.77*	*-0.94*	*-3.62*	*-2.18*
Long - Short	raw return (%)	0.62	0.99	0.80	0.60	0.58	0.63	0.70	0.53
	alpha (%)	0.26	0.81	0.63	0.43	0.62	0.52	0.47	0.44
	t-stat.	*1.44*	*6.21*	*5.04*	*3.68*	*4.26*	*2.55*	*3.96*	*3.52*

Table 4: Firm and Analyst Characteristics

Double-sorted portfolios are defined by classifying stocks according to their long-term forecasted earnings growth (LTG_t) and then their implied short-term forecasted earnings growth ($ISTG_t$) in equation (1). Within the eleven IBES industries, a three-by-three sequential double-sort is conducted each month from 1983 to 2006, first according to LTG_t and then $ISTG_t$. This procedure results in nine double-sorted portfolios that aggregate across the eleven industry sectors. Panel A reports on the firm characteristics of each double-sorted portfolio. RETP and RET2P denote the prior returns from non-overlapping six-month horizons, respectively, while RET denotes the return from the prior month. Turnover (TURN) supplements these return characteristics. Other characteristics include analyst coverage (COVER), analyst forecast dispersion (DISP) for annual ($A1$) and long-term forecasts (LTG), revisions in annual consensus forecasts over the past six months normalized by price (FREV), standardized unexpected earnings (SUE), the consensus buy/sell recommendation of analysts (REC), and revisions in these recommendations (REC REV). Accounting variables such as a firm's earnings-to-price ratio (EP), total accruals to total assets (TA), capital expenditures to total assets (CAPEX), and sales growth (SG) are also examined as well as idiosyncratic volatility (IVOL) and institutional ownership (IO). Panel B provides the results from the regression specifications in equation (3), $r_{t+1} = \beta_1\,\text{Disparity}^R_t + \beta_2\,\text{BM}_t + \beta_3\,\text{Size}_t + \beta_4\,\text{RET12}_t + \beta_5\,\text{RET}_t + \beta_6\,\text{DISP-}A1_t + \beta_7\,\text{DISP-}LTG_t + \beta_8\,\text{REC}_t + \beta_9\,\text{REC-REV}_t + \beta_{10}\,\text{FREV}_t + \beta_{11}\,\text{SUE}_t + \beta_{12}\,\text{LTG}_t + \beta_{13}\,\text{ISTG}_t + \gamma\cdot X_t + \epsilon_{t+1}$, involving individual stocks returns. After sorting stocks into $ISTG$ and LTG deciles, from 1 to 10 in descending order within each of the eleven IBES industries, Disparity^R_t is defined a firm's $ISTG_t$ ranking minus its LTG_t ranking. The other independent variables in this cross-sectional regression include the firm characteristics in Panel A as well as book-to-market (BM), size, and past return (RET12) characteristics. RET12 equals the return from the prior year with a one month lag. The X vector contains the characteristics in Panel A, except those reported separately. Analyst buy/sell recommendations and their revisions are available from 1994, while the other specifications begin in 1983. The t-statistics (in italics) reported below the regression coefficients are Newey-West adjusted with 12 lags.

Panel A: Characteristics of Double-Sorted Portfolios

LTG_t /	Returns and Turnover				Analyst-Related Variables							Accounting Variables				Others	
$ISTG_t$	RET	RETP	RET2P	TURN	COVER	DISP A1	DISP LTG	FREV	SUE	REC	REC REV	EP	TA	CAPEX	SG	IVOL	IO
High/High	0.020	0.124	0.127	0.681	6.304	0.179	0.268	0.014	0.674	1.856	0.005	0.017	0.011	0.076	1.432	0.263	0.414
High/Med	0.016	0.069	0.109	0.649	8.040	0.070	0.205	0.006	1.142	1.881	0.009	0.045	0.016	0.077	1.346	0.202	0.447
High/Low	0.010	-0.036	0.023	0.651	7.229	0.147	0.234	-0.006	0.288	2.069	0.023	0.039	0.011	0.080	1.311	0.239	0.401
Med/High	0.020	0.087	0.063	0.609	8.538	0.137	0.262	0.011	0.512	2.066	0.003	0.034	-0.003	0.058	1.178	0.191	0.446
Med/Med	0.015	0.037	0.051	0.568	10.379	0.052	0.206	0.005	0.872	2.064	0.007	0.065	0.004	0.062	1.167	0.141	0.462
Med/Low	0.012	-0.049	-0.022	0.596	9.115	0.140	0.242	-0.007	0.075	2.277	0.021	0.061	0.000	0.064	1.144	0.181	0.425
Low/High	0.020	0.068	0.024	0.583	8.339	0.198	0.327	0.012	0.277	2.315	-0.002	0.018	-0.015	0.047	1.093	0.171	0.428
Low/Med	0.015	0.022	0.019	0.523	10.504	0.066	0.262	0.003	0.518	2.322	0.005	0.067	-0.009	0.050	1.095	0.114	0.446
Low/Low	0.013	-0.045	-0.038	0.565	9.099	0.164	0.310	-0.011	-0.157	2.514	0.015	0.062	-0.009	0.051	1.079	0.152	0.413

Panel B: Cross-sectional Regressions

N	Disparity^R	BM	Size	RET12	RET	DISP A1	DISP LTG	REC	REC REV	FREV	SUE	LTG	ISTG	X	Adj. R^2
1671	-0.0010	0.0021	0.0002	0.0031										No	0.041
	-2.97	*2.38*	*0.32*	*3.42*											
1671	-0.0011	0.0020	0.0000	0.0030	-0.0035									No	0.050
	-3.04	*2.33*	*0.06*	*3.26*	*-6.00*										
1671		0.0018	0.0000	0.0032	-0.0036							-0.0010	0.0003	No	0.058
		3.04	*-0.06*	*3.92*	*-6.43*							*-1.04*	*1.46*		
1300	-0.0010	0.0020	-0.0003	0.0024	-0.0037	-0.0014	-0.0002							No	0.062
	-2.81	*2.02*	*-0.39*	*2.33*	*-6.16*	*-2.81*	*-0.47*								
1533	-0.0012	0.0017	-0.0008	0.0017	-0.0039	-0.0008	-0.0004	0.0004	-0.0021					No	0.067
(1994-2006)	*-2.48*	*1.44*	*-0.71*	*1.30*	*-3.83*	*-1.27*	*-0.86*	*0.66*	*-6.00*						
678	-0.0015	0.0010	-0.0008	0.0023	-0.0042	-0.0006	0.0003			-0.0005	0.0010	0.0007	-0.0009	Yes	0.106
	-2.72	*1.57*	*-0.84*	*2.20*	*-5.95*	*-1.40*	*0.63*			*-1.16*	*3.33*	*0.60*	*-0.81*		

Table 5: Post-Formation Forecast Revisions

Panel A of this table reports on the magnitude and direction of revisions in long-term forecasted earnings growth across the double-sorted LTG_t / $ISTG_t$ portfolios. Within the eleven IBES industries, a three-by-three sequential double-sort is conducted each month from 1983 to 2006, first according to LTG_t and then $ISTG_t$. This procedure results in nine double-sorted portfolios that aggregate across the eleven industry sectors. Revisions in long-term analyst forecasts during the month of portfolio formation as well as the subsequent six months after their formation are reported for each double-sorted portfolio. Post-formation revisions are cumulative as they are computed based on prevailing forecasts during the month of portfolio formation (month t). The percentage of upward and downward revisions in long-term analyst forecasts are also reported. "High Diff." refers to the high LTG_t / low $ISTG_t$ (short) portfolio minus the high LTG_t / high $ISTG_t$ benchmark portfolio, while "Low Diff." refers to the low LTG_t / high $ISTG_t$ (long) portfolio minus the low LTG_t / low $ISTG_t$ benchmark portfolio. The t-statistics (in italics) reported in Panel B are Newey-West adjusted with 12 lags. Panel C reports on the post-formation returns across three different subportfolios within the long portfolio and short portfolio of our trading strategy. These subportfolios are defined by post-formation revisions in long-term forecasts that are upward, downward, and unchanged. Both raw and risk-adjusted returns under the characteristics-based approach in Daniel, Grinblatt, Titman, and Wermers (1997) are reported.

Panel A: Revisions in Long-Term Analyst Forecasts

LTG_t /	Month	Revisions in Long-Term Forecasts (%) Months After Portfolio Formation						Upward Revisions in Long-Term Forecasts (%) Months After Portfolio Formation						Downward Revisions in Long-Term Forecasts (%) Months After Portfolio Formation					
$ISTG_t$	t	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
High/High	-0.07	-0.13	-0.27	-0.37	-0.44	-0.66	-0.75	7.51	11.18	13.22	14.41	15.13	15.40	11.66	19.23	24.31	28.06	31.45	34.08
High/Med	-0.01	-0.11	-0.30	-0.50	-0.66	-0.79	-0.99	7.03	10.47	12.47	13.55	14.12	14.22	12.78	20.60	25.97	29.97	33.40	35.79
High/Low	0.07	-0.17	-0.52	-0.82	-1.07	-1.32	-1.60	6.02	8.92	10.56	11.64	12.30	12.62	14.32	22.65	28.43	32.84	36.32	38.84
Med/High	-0.08	0.09	0.04	-0.01	0.08	0.03	0.03	9.50	14.86	18.02	20.05	21.52	22.37	9.09	14.30	18.03	20.89	23.14	24.91
Med/Med	-0.10	0.00	-0.03	-0.08	-0.14	-0.15	-0.17	8.42	12.68	15.23	16.84	18.15	18.68	11.09	17.62	22.15	25.44	28.05	29.59
Med/Low	-0.13	0.02	-0.06	-0.08	-0.14	-0.18	-0.26	7.44	11.29	13.56	15.23	16.34	17.03	12.28	19.29	24.03	27.73	30.34	32.24
Low/High	-0.07	0.14	0.18	0.31	0.37	0.36	0.44	11.02	17.69	22.21	25.06	27.19	28.52	6.97	10.78	13.31	15.18	16.70	17.64
Low/Med	-0.11	0.10	0.22	0.24	0.22	0.29	0.33	10.05	15.54	19.26	21.82	23.88	25.05	8.46	13.11	16.23	18.47	20.18	21.36
Low/Low	-0.20	0.10	0.08	0.14	0.17	0.16	0.19	9.47	14.58	18.18	20.69	22.69	24.11	8.95	13.76	17.08	19.35	21.02	22.10
High Diff.	0.14	-0.04	-0.25	-0.45	-0.64	-0.66	-0.84	-1.49	-2.26	-2.66	-2.78	-2.83	-2.78	2.65	3.41	4.12	4.77	4.86	4.76
t-stat.	*1.51*	*-0.74*	*-3.20*	*-5.45*	*-6.84*	*-6.92*	*-9.04*	*-8.63*	*-10.59*	*-11.28*	*-11.15*	*-11.27*	*-11.35*	*11.81*	*12.58*	*13.55*	*14.36*	*14.58*	*13.96*
Low Diff.	0.12	0.04	0.10	0.18	0.19	0.20	0.25	1.55	3.11	4.02	4.37	4.49	4.41	-1.98	-2.98	-3.78	-4.17	-4.32	-4.45
t-stat.	*3.55*	*1.66*	*3.27*	*5.58*	*5.48*	*5.45*	*6.14*	*6.91*	*11.51*	*13.83*	*14.17*	*14.15*	*13.55*	*-9.83*	*-12.02*	*-13.60*	*-14.10*	*-13.89*	*-13.64*

Panel B: Post-Formation Returns and Long-Term Forecast Revisions

			Raw Returns			Characteristic-Adjusted Returns		
Portfolio	Revisions	N	1 month	3 months	6 months	1 month	3 months	6 months
	downward	45	0.42	1.45	4.11	-0.75	-2.03	-2.87
Long	unchanged	101	1.28	3.70	7.39	0.01	-0.13	-0.25
	upward	70	2.27	6.43	11.87	1.00	2.45	4.07
	downward	98	0.02	0.45	2.01	-0.93	-2.25	-3.15
Short	unchanged	87	1.20	3.52	6.63	0.31	0.51	0.72
	upward	33	2.48	6.68	11.45	1.50	3.65	5.51

Table 6: Return Sensitivity to Analyst Forecast Revisions

This table reports on the sensitivity of monthly returns to contemporaneous revisions in long-term and short-term analyst forecasts. The results in Panel A correspond to the coefficients (× 100) of the regression, $r_t = \beta_0 + \beta_1$ A1 Revision$_t + \beta_2$ LTG Revision$_t + \epsilon_t$, in equation (4). The independent variables correspond to monthly revisions in analyst forecasts for earnings in the current year and long-term earnings growth, respectively. Panel B contains the results from regressing cumulative revisions in long-term forecasted earnings growth over a six-month horizon on our disparity variable, LTG Revision$_{t+6,t}$ $= \gamma_0 + \gamma_1$ Disparity$_t^R$ $+ \gamma_2$ LTG$_t$ $+ \gamma_3$ RET12$_t$ $+ \gamma_4$ FREV$_t$ $+ \gamma_5$ SUE$_t$ $+ \epsilon_t$. After sorting stocks into $ISTG_t$ and LTG_t deciles, from 1 to 10 in descending order within each of the eleven IBES industries, Disparity$_t^R$ is defined as a firm's $ISTG_t$ ranking minus its LTG_t ranking in month t. RET12 refers to stock returns over the past twelve months (after a one-month delay), while FREV and SUE refer to past revisions in annual earnings forecasts and past earnings surprises, respectively. The t-statistics (in italics) below each regression coefficient are Newey-West adjusted with 12 lags.

Panel A: Return Sensitivity to Revisions

N	intercept	*A1* Revision	*LTG* Revision	Adj. R^2
1671	1.196	0.247	0.680	0.129
	3.74	*4.84*	*2.99*	

Panel B: Predictability in Long-Term Forecast Revisions

N	intercept	Disparity^R	LTG	RET12	FREV	SUE	Adj. R^2
1054	0.0159	-0.0004	-0.1402	0.0083	-0.0083	0.0004	0.133
	11.49	*-5.74*	*-13.16*	*13.15*	*-1.59*	*3.80*	

Table 7: Book-to-Market Migrations and Order Flow Imbalances

This table first reports on the post-formation book-to-market characteristics of the firms in the low LTG_t / high $ISTG_t$ portfolio and high LTG_t/ low $ISTG_t$ portfolio. Double-sorted portfolios are formed each month according to long-term forecasted earnings growth (LTG_t) and then implied short-term forecasted earnings growth ($ISTG_t$), as defined in equation (1) where month t denotes the time of portfolio formation. Within the eleven IBES industries, a three-by-three sequential double-sort is conducted each month from 1983 to 2006, first according to LTG_t and then $ISTG_t$. This procedure results in nine double-sorted portfolios that aggregate across the eleven industry sectors. Book-to-market ratios are then computed six, twelve, eighteen, and twenty-four months after each portfolio's formation and reported in Panel A. Book-to-market ratios are reported for the short portfolio and long portfolio underlying our trading strategy as well as control portfolios with similar analyst forecasts for long-term earnings growth but different forecasts for short-term earnings growth. "High Diff." refers to the high LTG_t / low $ISTG_t$ (short) portfolio minus the high LTG_t / high $ISTG_t$ control portfolio, while "Low Diff." refers to the low LTG_t / high $ISTG_t$ (long) portfolio minus the low LTG_t / low $ISTG_t$ control portfolio. The "Change" column denotes the difference between a portfolio's book-to-market ratio in month $t + 24$ minus this ratio in month t. Panel B contains the results from the regression specifications in equation (6) that examine the relationship between average order flow imbalances (OIMB) and contemporaneous revisions in long-term analyst forecasts over a six-month horizon $\text{OIMB}_{t+6,t} = \gamma_0 + \gamma_1 \text{LTG Revision}_{t+6,t} + \gamma_2 \text{BM}_t + \gamma_3 \text{Size}_t + \gamma_4 \text{RET12}_t + \gamma_5 \text{FREV}_t + \gamma_6 \text{SUE}_t + \epsilon_t$. This regression is conducted on stocks in the long portfolio and short portfolio of our trading strategy that have the largest cross-sectional disparities between LTG_t and $ISTG_t$. OIMB is defined in equation (7) as (# of buyer-initiated shares traded - # of seller-initiated shares traded) / (# of buyer-initiated shares traded + # of seller-initiated shares traded). RET12 refers to stock returns over the past twelve months (after a one-month delay), while FREV and SUE refer to past revisions in annual earnings forecasts and past earnings surprises, respectively. The t-statistics (in italics) are Newey-West adjusted with 12 lags.

Panel A: Post-Formation Migrations

LTG_t /	Book-to-Market Characteristics						
$ISTG_t$	t	t+6	t+12	t+18	t+24	Change	t-stat.
High/High	0.579	0.534	0.519	0.544	0.596	0.005	*0.49*
High/Low	0.550	0.567	0.613	0.645	0.679	0.117	*12.13*
High Diff.	-0.029	0.033	0.094	0.102	0.083		
t-stat.	*-5.12*	*5.69*	*15.95*	*16.55*	*13.99*		
Low/High	0.862	0.833	0.811	0.813	0.816	-0.069	*-6.42*
Low/Low	0.827	0.868	0.911	0.909	0.914	0.068	*5.78*
Low Diff.	0.035	-0.035	-0.099	-0.095	-0.098		
t-stat.	*5.00*	*-4.98*	*-13.55*	*-12.41*	*-13.48*		

Panel B: Sensitivity of Order Flow Imbalances to Revisions in Long-Term Forecasts

N	intercept	LTG Revision	BM	Size	RET12	FREV	SUE	Adj. R^2
353	-0.0169	0.1720						0.009
	-2.97	*7.35*						
353	-0.1940	0.1089	0.0122	0.0298	0.0290			0.146
	-16.84	*6.07*	*6.77*	*22.90*	*9.65*			
273	-0.1817	0.1295	0.0135	0.0285	0.0295	0.0379	-0.0013	0.158
	-15.68	*7.01*	*7.85*	*21.93*	*8.06*	*1.84*	*-2.22*	

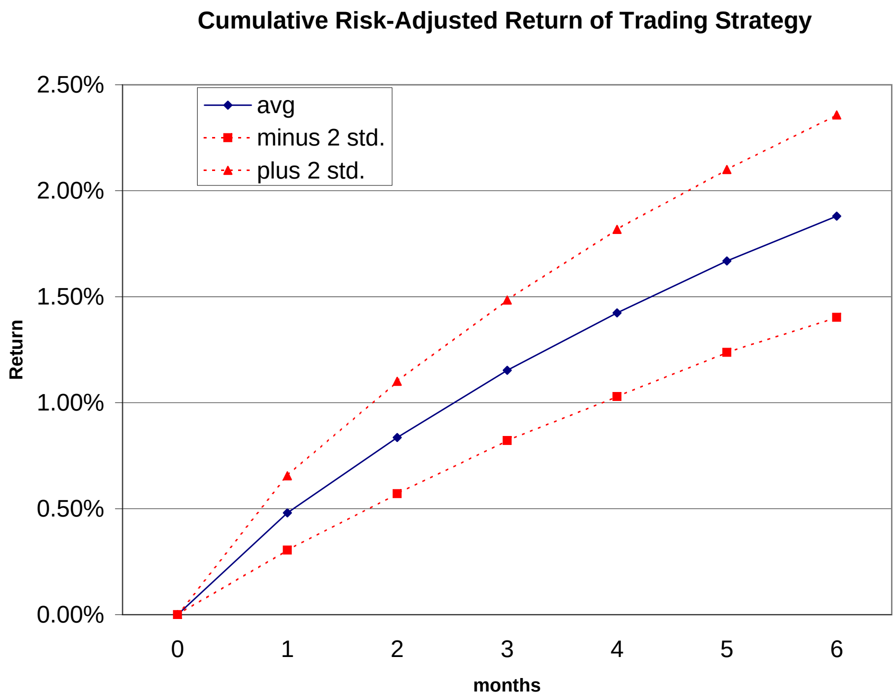

Figure 1: This figure plots the cumulative risk-adjusted returns from our trading strategy that buys low LTG_t / high $ISTG_t$ stocks and sells high LTG_t/ low $ISTG_t$ stocks. Within the eleven IBES industries, a three-by-three sequential double-sort is conducted each month from 1983 to 2006, first according to LTG_t and then $ISTG_t$. This procedure results in nine double-sorted portfolios that aggregate across the eleven industry sectors. Implied short-term forecasted earnings growth, $ISTG_t$, is computed according to equation (1) using annual consensus earnings forecasts and realized earnings, while LTG_t denotes long-term analyst forecasts for earnings growth. A holding period from one to six months after portfolio formation is considered. The cumulative risk-adjusted returns over this six-month horizon, which equals 190bp, are graphed along with a confidence interval defined by (plus and minus) two standard deviations.

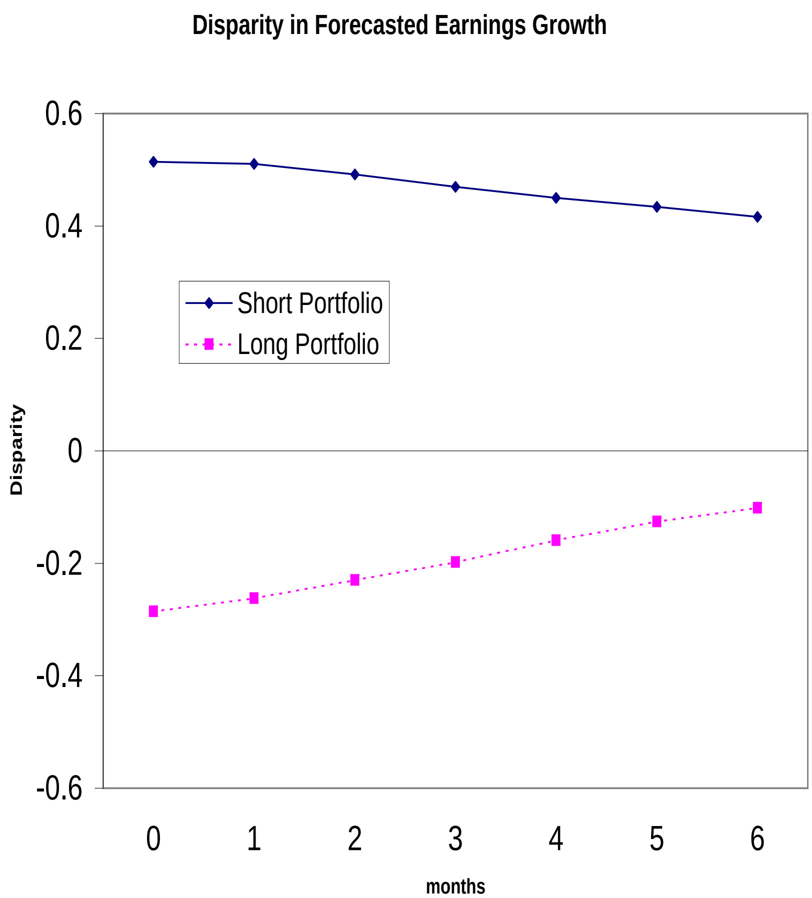

Figure 2: This figure plots the difference, $LTG_t - ISTG_t$, for the long portfolio and short portfolio underlying our trading strategy, starting in the month of portfolio formation (month t) until six months afterwards. Within the eleven IBES industries, a three-by-three sequential double-sort is conducted according to LTG_t and then $ISTG_t$. This procedure results in nine double-sorted portfolios that aggregate across the eleven industry sectors. The long portfolio contains low LTG_t / high $ISTG_t$ stocks while the short portfolio contains high LTG_t / low $ISTG_t$ stocks. Implied short-term forecasted earnings growth, $ISTG_t$, is computed at the portfolio-level according to equation (1) using a portfolio's aggregate annual earnings forecast and its aggregate realized earnings. LTG_t denotes a portfolio's aggregate long-term analyst forecast for earnings growth.

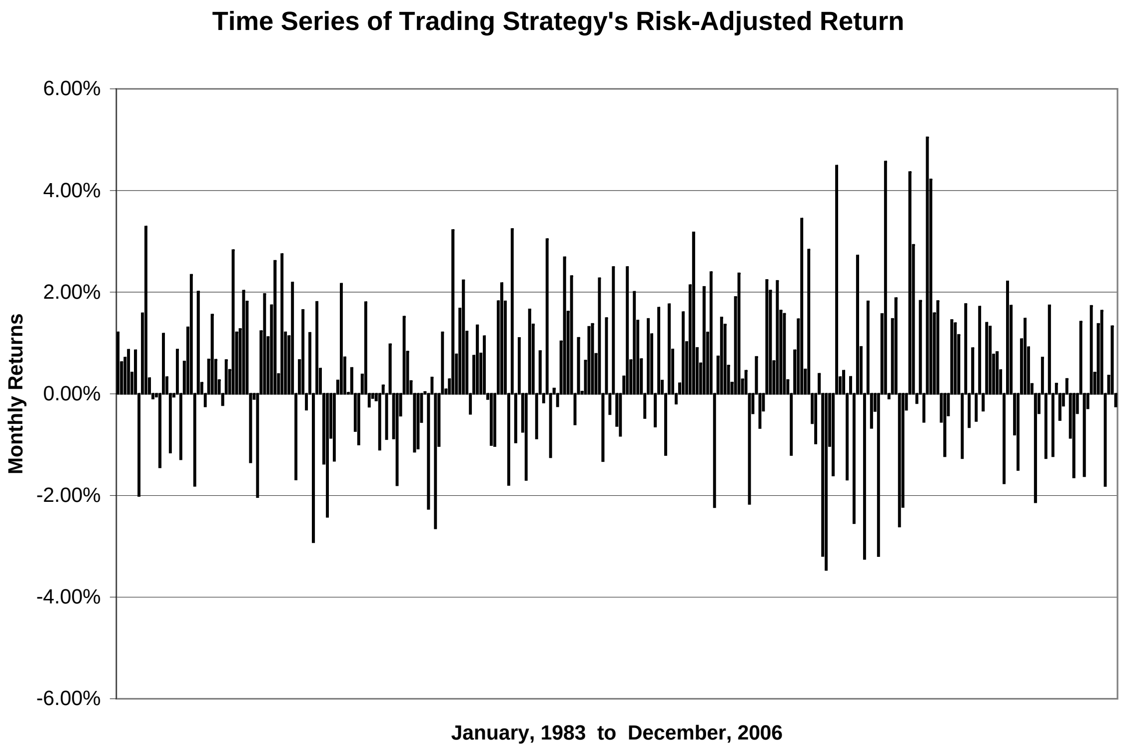

Figure 3: This figure plots the risk-adjusted returns from our trading strategy, which buys stocks with low LTG_t / high $ISTG_t$ and sells stocks with high LTG_t/ low $ISTG_t$ over the 1983 to 2006 period. Within the eleven IBES industries, a three-by-three sequential double-sort is conducted each month according to LTG_t and then $ISTG_t$. This procedure results in nine double-sorted portfolios that aggregate across the eleven industry sectors. Implied short-term forecasted earnings growth, $ISTG_t$, is computed according to equation (1) using annual earnings forecasts and realized earnings, while LTG_t denotes long-term analyst forecasts for earnings growth. The risk-adjusted returns are computed in the first month after the long portfolio and short portfolio are formed.