Dispersion in Analysts' Target Prices and Stock Returns

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Abstract

We propose the dispersion in analysts' target prices as a new measure of disagreement among stock analysts. We document a significant positive relation between the target price dispersion and future stock returns for horizons up to 24 months. The next-month return spread between the highest and lowest deciles sorted on the measures of target price dispersion can be more than 2%. Our findings cannot be explained by the standard risk factors and stock characteristics including the target price revision and the dispersion in analysts' earnings forecasts. Supporting the risk hypothesis, we show that the target price dispersion is positively related to future stock risk.

JEL Classification: G12, G14, G24

Keyword: Analyst, target price, dispersion, stock return, risk

1 Introduction

A growing body of literature on stock analysts has shown that analysts' target prices contain useful information to the market.[1] Previous studies have focused on target price levels and revisions. In this paper, we investigate the dispersion in analysts' target prices, or the disagreement among analysts in their target price forecasts. We propose four measures of target price dispersion by taking into account the unique data features of target price forecasts. We document a significantly positive relation between the dispersion in analysts' target prices and future stock returns. In some cases, the next-month return spreads between the highest and lowest decile portfolios sorted on the target price dispersion are over 2%. The findings cannot be explained by existing risk factors and return predictors including the target price revision and earnings dispersion.

Our investigation is, in spirit, parallel to the line of research on the dispersion in analysts' earnings forecasts. But the main empirical evidence in that literature is opposite to the positive return predictability for the target price dispersion documented in this paper. For example, Diether, Malloy, and Scherbina (2002) show, for their sample period, that the dispersion in analysts' earnings forecasts negatively predicts cross-sectional stock returns. In more recent sample period, the dispersion in analysts' earnings forecasts is insignificant in predicting returns. Diether, Malloy, and Scherbina argue that their findings are consistent with the view that the dispersion in analysts' earnings forecasts is a proxy for differences in opinion but inconsistent with the view that it is a proxy for risk.[2]

[1]On one hand, a number of researchers show that target prices are noisy and biased measures of firm values (e.g., Bonini, Zanetti, Bianchini, and Salvi (2010), Kanne, Klobucnik, Kreutzmann, and Sievers (2012), Bradshaw, Brown, and Huang (2013), and Dechow and You (2013)). On the other hand, Barber, Lehavy, McNichols, and Trueman (2001) and Brav and Lehavy (2003) find that target price revisions are associated with significant and immediate market reactions. Asquith, Mikhail, and Au (2005) further demonstrate that target price revisions contain information beyond that in earnings forecasts and stock recommendations. Moreover, Da and Schaumburg (2011) present a profitable intra-sector trading strategy based on target price implied relative valuations.

[2]Earlier papers examining the earnings forecast dispersion include Ackert and Athanassakos (1997) and Gebhardt, Lee, and Swaminathan (2001). In addition to the argument of differences in opinion, other

The stark contrast between the results for the target price dispersion and earnings forecast dispersion clearly indicates that the information contents of the two dispersions are different. Intuitively, analysts' earnings forecasts are about firm accounting performance in the near future while analysts' target prices are their expectations of future stock valuations which incorporate many factors including their earnings forecasts.[3] Consequently, the target price dispersion is a more direct measure of disagreement across analysts in their expected stock returns. It is also a potential proxy of risk given its positive relation with future stock returns.

Consistent with the risk hypothesis, we show that the target price dispersion positively predicts returns not only for the next month but also for long horizons up to 24 months. The results are not driven by the short-run market responses to target price revisions (e.g., Barber, Lehavy, McNichols, and Trueman (2001) and Brav and Lehavy (2003)) as we follow the approach of Da and Schaumburg (2011) to circumvent this problem. The long-run evidence is also difficult to be explained by behavioral stories such as underreaction. The evidence is, in particular, unrelated to the dispersion in analysts' earnings forecasts. We find more supporting evidence that the target price dispersion is a measure of risk. Specifically, it positively predicts future stock risks, which are measured by the loadings of the four-factor model and idiosyncratic and total volatilities.

Our paper contributes to the literature on stock analysts in a couple of dimensions. First, we propose using the dispersion in analysts' target prices to proxy the analysts' disagreement about stock valuations. We construct alternative dispersion measures and analyze their in-

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researchers have provided alternative interpretations of the evidence (e.g., Imhoff and Lobo (1992), Johnson (2004), and Doukas, Kim, and Pantzalis (2006)). Despite different explanations of the evidence, the negative return predictability is still the focus of recent studies (e.g., Sadka and Scherbina (2007), Berkman, Dimitrov, Jain, Koch, and Tice (2009), and Barinov (2013)). Liu (2014), however, argues that the negative return predictability evidence may be the result of biases in analysts' earnings forecasts.

[3] According to the basic stock valuation equation (e.g., Vuolteenaho (2002) and Fama and French (2006)), the expected earning growth rate is positively related to the expected stock return if everything else if fixed. Unfortunately, there is no theory or empirical evidence for a clear relationship between the dispersion in analysts' earnings forecasts and the expected earnings growth rate, and therefore the expected stock return.

formation contents. Second, our empirical findings suggest valuable information in the target price dispersion to the market. Of the alternative measures of target price dispersion, the measures that exploit the changes of analysts' target prices over time are most significant in predicting future returns and risks. However, the measures that incorporate contemporaneous differences across analysts also contain useful information. The long-short trading strategies based on the target price dispersion are particularly profitable for small stocks, stocks with low book-to-market ratios, extreme past winners or losers, or stocks with high idiosyncratic volatility. Our findings, together with the existing evidence in the literature, provide a possible answer to the debate of whether the disagreement among analysts is a proxy of risk or differences in opinion: For earnings forecasts, it is probably a measure of differences in opinion as argued by Diether, Malloy, and Scherbina (2002); but for target prices, it is likely a proxy of risk.

The rest of the paper is organized as following. Section 2 describes the data and construction of different dispersion measures. We discuss the empirical evidence in Section 3. Section 4 concludes.

2 Data Descriptions

The analysts' target price forecasts for the period of January 1999 to December 2013 are obtained from the Institutional Brokers Estimate System (I/B/E/S) Detail History database. The sample period is much shorter than that for the analysts' earnings forecasts which starts from 1976. We only consider target prices that are identified as "12-month" forecasts, which are most common forecasts.

One major problem with the target price data is that analysts do not issue forecasts as frequently as for earnings. Ideally, we would like to follow Diether, Malloy, and Scherbina (2002) to construct the dispersion in analysts' target prices as the standard deviation of analysts' forecasts made during the current month.[4] But many stocks do not have more than one target price forecast made in a month so that the standard deviation can be calculated. Because target prices are long-term forecasts, discarding forecasts made in previous months by other analysts who do not issue forecasts in the current month may throw away potentially useful information. Therefore, we consider not only forecasts made in this month, but also forecasts made in the previous 11 months. We follow Da and Schaumburg (2011) to exclude forecasts issued during the last five calendar days of the current month to make sure that our results are not affected by the short-term market reaction to forecast announcements. Specifically, at the end of month t, we consider all forecasts made during months $t-11$, ..., t except the last five days of month t although not all observations will be used to construct a specific dispersion measure.[5] We construct four different measures of target price dispersion.

The first measure, $STPN$, only uses the target prices issued during month t.[6] If a specific analyst issues more than one forecast in month t, only the last forecast is used. If there are at least two valid forecasts, $STPN$ is defined as the standard deviation of all forecasts scaled by the average forecast. Otherwise, $STPN$ is not defined. $STPN$ measures how dispersed the most recent forecasts are.

The second measure, STP, involves all target prices issued during months $t-11$, ..., t. Again, we only keep the last forecast made by a specific analyst. Although we use a 12-month window, almost all forecasts used in computing STP are issued during the last 6 months. STP is then defined as the standard deviation of all forecasts scaled by the average forecast. STP measures the disagreement across all different analysts including those who

[4]In Diether, Malloy, and Scherbina (2002), if an earnings forecast is issued before month t but has a revision date in month t, then it is also used in computing mean and standard deviation for the months up to t.

[5]We have also consider 6-month and 9-month windows and obtained similar results. Including the last five days of month t does not change the results in any significant ways.

[6]The names of the variables are chosen as follows: STP stands for standard deviation of target prices; $STPN$ is similar to STP but only using new target prices; ΔTP stands for change of target price; and RV stands for revision of target price.

have issued forecast in the last year but not in month t.

The third measure, $|\Delta TP|$, is the absolute percentage change of target price and involves all the forecasts that are used in constructing STP. Specifically, ΔTP is the difference between the average of target prices issued in month t and the average of target prices issued in months $t-11$, ..., $t-1$ scaled by the later. $|\Delta TP|$ measures the disagreement between the new forecasts and previous forecasts.[7]

The last measure, $|RV|$, is the absolute average percentage target price revision. It uses target prices issued in month t and the last valid target prices issued by the same analysts in months $t-11$, ..., $t-1$. The percentage revision of each analyst is the difference between her target price in month t and her last target price in months $t-11$, ..., $t-1$ scaled by the later. RV is the average percentage revision of all analysts who have issued forecasts in month t. In contrast to $|\Delta TP|$ which considers different analysts, $|RV|$ measures the time-series variation of target prices for the same group of analysts. Although target price revisions have been examined in previous studies, we are the first to analyze the absolute target revisions.

All the dispersion measures except STP requires valid forecasts issued in month t. To be consistent across different measures, we require STP to be well defined only when there are valid forecasts issued in month t. This is also the approach of Da and Schaumburg (2011) when they examine target price revisions. Because some stocks do not have forecasts issued in certain months, the sample of eligible stocks in the portfolio and regression analysis varies over time.

[7] We can also define $STPO$ to be the standard deviation of target prices issued before month t. Intuitively, $STPN$, $STPO$, and $|\Delta TP|$ are like the three components of STP where $STPN$ is the variation across the new target prices, $STPO$ is the variation across the old target prices, and $|\Delta TP|$ is the time-variation between the new and old target prices. For illustration purpose, we can write $STP^2 \approx STPN^2 + STPO^2 + \Delta TP^2$, where we have ignored the proper weights of the components for simplicity. This is like decomposing the variance of a full sample into the variances of two sub-samples. If the two sub-samples are centered around different means, then the difference between the two means also contributes to the total variance of the full sample.

In all four dispersion measures, we scale the standard deviation or change of forecast by the average forecast or lagged forecast. Alternatively, we can scale them by current or lagged stock prices, which have been used in previous studies (e.g., Da and Schaumburg (2011)). One problem of using stock prices to scale is that it leads to return predictability by construction. Using the average forecast or lagged forecast to scale solves this problem and creates a pure scaler measure.

For comparison purpose and robustness check, we construct the dispersion in analysts' earnings forecasts, DPE, in the same way as Diether, Malloy, and Scherbina (2002). To be consistent with our definition of target price dispersion, DPE is the standard deviation of earnings forecasts made five days before the end of month t scaled by the absolute value of the mean earnings forecasts.[8] In unreported results, the average correlations between DPE and the measures of target price dispersion are close to zero, indicating that the two dispersions are almost orthogonal to each other. Therefore, it is not surprising, as we will find later, that the two dispersions do not predict stock returns in the same way.

Stock return and accounting data are obtained from the CRSP and COMPUSTAT. Following the convention of the literature, we exclude stocks with share prices less than \$5 at the end of a month when we construct the dispersion measures. This ensures that our results are not driven by penny stocks. We follow Fama and French (2008) to define MC, the market capitalization; B/M, the ratio of the book value of equity to the market value of equity; and Mom, the 11-month cumulative return up to one month ago.[9] The monthly data of the four factors (MKT, SMB, HML, and UMD) are downloaded from Kenneth French's web site. We estimate the loadings of the four-factor model (e.g., Carhart (1997)) using the prior 24 monthly returns and then define $Idvol$, the idiosyncratic volatility, to be the standard deviation of the regression residuals. Some researchers use daily returns

[8]Diether, Malloy, and Scherbina (2002) use forecasts until the third Thursday of the month. We do not find any significant changes to our results if we use their convention.

[9]We have also considered the stock β, estimated from a market model with historical return data, as a control variable, but it is insignificant and therefore not reported for brevity.

to estimate idiosyncratic volatility (e.g., Ang, Hodrick, Xing, and Zhang (2006)). We use monthly returns to estimate $Idvol$ to be consistent with the frequencies of other variables. The 24 month window also ensures our idiosyncratic volatility measure is not influenced by the short-term market microstructure effects. Using Mom and $Idvol$ as control variable is particularly important because target price forecasts are likely correlated with the past stock returns and the variation of target price forecasts is probably correlated with the return volatility. We winsorize the dispersion measures and the control variables at the 0.5% and 99.5% levels to mitigate the outlier problem in regressions. We have repeated our empirical analysis using the 1%-99% thresholds and obtained similar results.

Panel A of Table 1 reports the summary statistics of the dispersion data. The stocks in our sample are large companies as the mean market capitalization is close to or above $4 billions in all years. The total number of stocks increases from 960 in 1999 to 1963 in 2013. For each month, the average number of stocks with valid STP rises from 185 to 1131 during the same period. Because 1999 is the first year of the sample and has the least number of stocks, we have repeated our empirical analysis by excluding 1999 from the sample. The results are very similar to those for the whole sample and therefore unreported. The average number of target prices used to construct STP increase from about 7 in 2000 to over 12 in 2013.

For all four dispersion measures, the standard deviation is about the same magnitude of the mean, suggesting large variations of target price dispersion across stocks. Of the four measures, $STPN$ has the lowest mean, suggesting less dispersion across most recent forecasts. Among the remaining three measures, $|RV|$ has the highest overall mean followed by STP. The dispersion measures seem to vary over time with higher values around the internet bubble period and the sub-prime mortgage crisis, indicating wider disagreement in stock valuation among analysts during market crises.

Panel B of Table 1 shows the average cross-sectional correlations of the four dispersion measures as well as ΔTP and RV. It is not surprising that the correlation of $|\Delta TP|$ and ΔTP and the correlation of $|RV|$ and RV are high (0.738 and 0.676, respectively).[10] However, $|\Delta TP|$ and $|RV|$ are not highly correlated with the correlation coefficient of only 0.242. STP and $STPN$, the two dispersion measures based on standard deviations are correlated with correlation coefficient of 0.59 but they are not very much correlated with the two measures based on changes of target prices. The relatively low correlations among the dispersion measures suggest that they contain different information. It is interesting to see if they are also different in predicting stock returns.

3 Empirical Results

In this section, we present the evidence that the target price dispersion is positively related to future stock returns. Then we check the robustness of the evidence and explore possible explanations.

3.1 Single Portfolio Sorts

We first examine the relation between the target price dispersion and future stock returns using the portfolio sort approach. We rank stocks by one of the dispersion measures and form the decile portfolios. Then we consider the properties of future value-weighted portfolio returns.[11] We also examine the H-L spread, which is the difference between the returns of the highest and lowest deciles. For the decile portfolios and H-L spread, we estimate the intercept, also denoted as the risk-adjusted return, and factor loadings of the four-factor

[10] These correlation coefficients also indicate that changes of target prices, no matter from different analysts or same analysts, tend to be positive on average.

[11] Results of equal-weighted portfolio returns are very similar and available upon requests.

model.[12] The t-statistics are computed using the Newey-West standard errors to adjust for serial autocorrelations.

3.1.1 One-Month Performance

Table 2 shows the next-month returns of the decile portfolios. In addition to the four dispersion measures, we present the results for ΔTP and RV. When stocks are ranked on $|\Delta TP|$ as shown in Panel A, the average raw portfolio return increases from 1.09% for decile 1 to 3.09% for decile 10. The pattern, although not strictly monotonic overall, is mostly increasing, particularly strong for the top 5 deciles. This is consistent with the corresponding significantly higher values of $|\Delta TP|$ for the top deciles. The average raw H-L spread is 2.00% per month with a t-statistic of 5.86. The risk-adjusted portfolio returns are lower than the raw returns but still show an increasing pattern. The risk-adjusted H-L spread is 1.31% and highly significant ($t = 4.81$). The factor loadings of the decile portfolios display interesting patterns. As $|\Delta TP|$ rises, the loadings on MKT and SMB increase while the loadings on HML and UMD decrease. As a result, the H-L strategy has positive loadings on MKT and SMB but negative loadings on HML and UMD. The evidence suggests a profitable trading (H-L) strategy by buying high-$|\Delta TP|$ stocks and selling low-$|\Delta TP|$ stocks, the return of which is not explained by the four-factor model. Later in this section, we will examine the risk profile of the H-L strategy in detail.[13]

As shown in Panel B, the results for $|RV|$ are similar to those for $|\Delta TP|$. The average raw and risk-adjusted H-L spreads are 2.04% and 1.37%, respectively, both of which are highly significant. It seems that the absolute revisions of same analysts are same as the absolute changes of target prices by different analysts over time in predicting stock returns.

[12] The results are similar if we use the three-factor model of Fama and French (1996).

[13] The strategy is profitable even after taking into account of transaction costs. As shown in Da and Schaumburg (2011), the total transaction cost of their intra-sector long-short strategy is about 55 basis points. Because our sample of stocks are similar to those of Da and Schaumburg (2011), the transaction costs of our H-L strategy should not be much higher, if not lower, than theirs.

However, we should keep in mind the relatively low correlation between the two measures. As another hint, the pattern of risk-adjusted portfolio returns for $|RV|$ is slightly different from that for $|\Delta TP|$. We will investigate the differences between the two measures directly when we estimate the Fama-MacBeth regressions later.

The results for STP shown in Panel C are qualitatively similar to those for $|\Delta TP|$ and $|RV|$. Quantitatively, the return predictability of STP is less spectacular but remains economically and statistically significant. The average raw H-L spread is 1.55% and the risk-adjusted spread is 0.73%. The results for $STPN$ shown in Panel D indicate very weak return predictability if there is any. Neither the raw portfolio returns or the risk-adjusted portfolios returns exhibit an increasing patten. The average raw H-L spread is 0.62% and significant at the 5% level ($t = 1.98$) but the risk-adjusted spread is negative and statistically insignificant (-0.08 and $t = -0.34$).

As we discussed earlier in a footnote, $|\Delta TP|$ and $STPN$ can be regarded as two components of STP. The third component, $STPO$, is the standard deviation of analysts' forecasts made in the previous 11 months. Unreported in the paper, we have sorted stocks on $STPO$ and find positive return predictability but much less significant than $|\Delta TP|$. Combining these results, we can argue that $|\Delta TP|$ is the primary driver that makes STP predict returns.

Given the significant evidence for $|\Delta TP|$ and $|RV|$, it is interesting to see if ΔTP and RV can predict returns. Panels E and F show the results of portfolio sorts for these two measures of target price changes. In both cases, the portfolio returns, raw and risk-adjusted, exhibit a U-shape pattern instead of a monotonic pattern. The highest returns occur for the lowest and highest deciles, consistent with the return predictability evidence for $|\Delta TP|$ and $|RV|$. That is, the stocks with the most negative and positive revisions, compared across time either by the same analysts or different analysts, have the highest returns in the next month. Our results also confirm the findings of previous studies that target price revisions (not absolute values) do not predict returns (e.g., Da and Schaumburg (2011)).

3.1.2 Long-Run Performance

Because analysts' target prices are 12-month forecasts, it is natural to investigate if the target price dispersion can predict returns beyond one month. We extend the holding period of the decile portfolios to 24 months. Table 3 reports the raw cumulative returns of the decile portfolios for horizons of 3, 6, 9, 12, and 24 months. It also shows the raw and risk-adjusted H-L spreads. To make risk adjustment, we first estimate the intercepts of the four-factor model for the monthly raw H-L spreads for the future 24 months and then accumulate the estimated monthly intercepts up to the desired horizons. The t-statistics of the average raw H-L spreads are computed using the Newey-West standard errors while the t-statistics of the risk-adjusted H-L spreads are the averages of the t-statistics from the monthly regressions of the four-factor model.

As shown in Panel A, for the decile portfolios formed on $|\Delta TP|$, both the average raw and risk-adjusted H-L spreads increase with the holding period. The raw spread is 3.02% at 3-month horizon and becomes 22.85% at 24-month horizon. The risk-adjusted spreads are smaller as expected, 1.66% for 3-month horizon and 13.41% for 24-month horizon. All H-L spreads are statistically significant at the 10% level. The evidence shows that $|\Delta TP|$ can predict stock returns in the long run, even after controlling for risks. In contrast, previous research does not find target price revisions have long-run return predictability. For example, Da and Schaumburg (2011) show that their inter-sector H-L strategy based on revisions is only profitable for the first few weeks following the portfolio formation.

The results for $|RV|$ in Panel B are similar to those for $|\Delta TP|$. The average raw H-L spread increases from 4.33% at 3-month horizon to 26.24% at 24-month horizon while the risk-adjusted H-L spread increases from 3.07% to 15.93% between the two horizons. All H-L spreads but one are statistically significant.

The results for STP are much weaker than those for $|\Delta TP|$ and $|RV|$. The average raw H-L spread still remains positive and increases with the horizon but is statistically insignificant for horizons of 3, 6, and 9 months. The risk-adjusted H-L spread is actually negative for 3-month horizon albeit insignificant. Beyond 9 months, the risk-adjusted spread becomes statistically significant.

As seen from Panel D, $STPN$ does not have any return predictability in the long run. Although the average H-L spread is positive for all horizons but it is never statistically significant. Most risk-adjusted H-L spreads are actually negative albeit insignificant.

Taken together, the results show that $|\Delta TP|$ and $|RV|$ can predict long-run returns. While STP has some long-run predictability, $STPN$ has no power in forecasting future long-run returns. The evidence further indicates the differences in the information contents of alternative dispersion measures.

3.2 Fama-MacBeth Regressions

Analysts' target price forecasts are clearly influenced by many factors. It is therefore critical to investigate whether our previous results are driven by other return predictors. One standard approach in the literature is estimating the Fama and MacBeth (1973) cross-sectional regressions. This approach allows us to examine the marginal predictive power of the target price dispersion in the presence of multiple control variables. For brevity, we only examine five control variables: MC, B/M, Mom, $Idvol$, and DPE. The choice of DPE is particularly interesting because it measures the disagreement of analysts in their earning forecasts and is potentially related to their disagreement in target prices forecasts. Another benefit of the Fama-MacBeth regressions is that we can compare the relative explanatory power of different dispersion measures by including them in one regression.

Using the next-month return as the dependent variable, Table 4 shows the estimation results of the cross-sectional regressions for seven model specifications. For each regression specification, we report the average estimated coefficients with corresponding Newey-West t-statistics as well as the average adjusted R^2. The control variables are included in all models. In the first four models each of which uses only one dispersion measure, the estimated coefficients on the dispersion measures are all positive and significant at the 1% level except for $STPN$. These results are consistent with those of the portfolio sorts in Table 2.

The estimates of model (5) indicate that $|\Delta TP|$ dominates $|RV|$ when both are explanatory variables. The coefficient on $|\Delta TP|$ is 0.019 ($t = 2.93$) but the coefficient on $|RV|$ is only 0.011 ($t = 1.66$). The estimates of model (6) which contains STP and $STPN$ at the same time show that STP remains significant while $STPN$ remains insignificant in predicting next-month returns. The last model (7) contains all four dispersion measures. The coefficient on $|\Delta TP|$ is the largest and most significant (0.022 and $t = 2.90$) while the other three coefficients are much smaller and about the same magnitude (0.010, 0.012, and 0.011, respectively). The coefficients on $|RV|$ and STP are significant at the 10% level while the coefficient on $STPN$ is insignificant. The adjusted R^2 of model (7) is the highest of all models, indicating the benefit of including multiple dispersion measures in explaining the variations of stock returns. The Fama-MacBeth regression results confirm that the target price dispersion positively predict stock returns. Moreover, the evidence suggests that among the four dispersion measures $|\Delta TP|$ has the strongest return predictability but $|RV|$ and STP also contain information about future returns beyond that in $|\Delta TP|$.

Among the control variables, only the coefficient on MC is always statistically significant (and negative), indicating a size effect for our sample. The coefficients on the other control variables are mostly insignificant. In particular, DPE, the dispersion in analysts' earnings forecasts, is insignificant in all model specifications. This contrasts the significant negative estimates documented in Diether, Malloy, and Scherbina (2002) but is consistent with the insignificant evidence shown in Liu (2014) for the recent sample period.

3.3 Double Portfolio Sorts

One concern with the regression approach is the assumption of linear relationship among the variables. To further analyze whether the predictability of the target price dispersion can be explained by other return predictors, we next apply the double portfolio sorts. To ensure enough number of stocks in each portfolio, we use 5×5 double sorts. Specifically, we first assign stocks to five quintiles by ranking them on a control variable and then further divide the stocks in each quintile into five quintiles by ranking them on a measure of target price dispersion. The sequential sort in this way allows us to evaluate the effect of the control variable on the return predictability of the target price dispersion.

Table 5 shows the results of double sorts for the four control variables: MC, B/M, Mom, and $Idvol$. We don't report the results for DPE because they are not significant. In addition to the average value-weighted portfolio returns, we report the raw and risk-adjusted H-L spreads as well as corresponding t-statistics. The columns correspond to the quintiles by sorting on the control variable and the first five rows correspond to the quintiles by sorting on the target price dispersion.

First, consider the results for $|\Delta TP|$ in Panel A. In double sorts with MC, the return predictability is stronger for small stocks as the raw and risk-adjusted H-L spreads are larger and more significant for lower size quintiles. But the spreads are still significant at the 10% level for the highest size quintile, indicating that our results are not a small stock phenomenon. When B/M is the control variable, the return predictability is strongest in low book-to-market quintiles. But again the H-L spreads are significant across all B/M quintiles. The stronger evidence for low-MC and low-B/M stocks seems intuitive as these stocks tend to be less transparent, having more growth opportunities, and therefore more difficult to value. A higher value of dispersion for these stocks really reflects strong disagreement across analysts.

For Mom, we observe a U-shape pattern in the H-L spreads as they are higher in the extreme loser and winner stocks, particularly so for the losers. The results for $Idvol$ are different from the other control variables. The H-L spreads are higher and more significant for high-$Idvol$ stocks. The H-L spreads for the lowest $Idvol$ quintile are insignificant. The evidence for $Idvol$ is consistent with that for Mom because high-$Idvol$ stocks tend to be extreme losers or winners. Note that high-$Idvol$ stocks and recent big mover stocks are also difficult-to-analyze stocks because they have experienced significant recent firm-specific changes. Overall, the results of the double sorts show that the return predictability of $|\Delta TP|$ is not explained by the control variables. The results also suggest refined and more profitable H-L trading strategies by focusing on difficult-to-analyze stocks.

The results for $|RV|$ in Panel B are similar to those for $|\Delta TP|$. The return predictability of $|RV|$ is stronger for small, low-B/M, loser and winner, and high-$Idvol$ stocks. But there are instances where the predictability of $|RV|$ is weaker than that of $|\Delta TP|$. Some risk-adjusted H-L spreads are insignificant in Panel B but significant in Panel A. This is consistent with our finding in the Fama-MacBeth regressions (models (5) and (7)) that $|\Delta TP|$ dominates $|RV|$ in terms of the return explanatory power.

The double sort results for STP are shown in Panel C. Given the evidence from the single portfolio sorts, it is not surprising to see that the predictability of STP is weaker than that of $|\Delta TP|$ and $|RV|$. Overall, the patterns in the H-L spreads for STP are consistent with those for $|\Delta TP|$ and $|RV|$. That is, the predictability of STP is stronger for small, low-B/M, loser and winner, and high-$Idvol$ stocks. The H-L spreads for these stocks are statistically significant, suggesting that the predictability cannot be explained by the control variables.

Panel D shows the results for $STPN$. As expected, there is weak evidence that high-$STPN$ stocks outperform low-$STPN$ stocks. While the raw H-L spreads are positive and in some cases significant, the risk-adjusted H-L spreads are rarely significant and in many cases negative. The exception is in the low-B/M quintiles (1 and 2) and extreme Mom quintiles (1 and 5) where both raw and risk-adjusted H-L spreads are significant at the 10% level.

In summary, the results of double portfolio sorts confirm what we learned from the single portfolio sorts and Fama-MacBeth regressions that there is a positive relation between the target price dispersion measures except $STPN$ and next-month stock returns and it cannot be explained by size, book-to-market, momentum, and idiosyncratic volatility.

3.4 Explanations

3.4.1 Underreaction Hypothesis

One explanation of the positive relation between the target price dispersion and future stock returns is the underreaction story in which investors do not fully incorporate the information in the dispersion of analysts' target prices in stock valuations.

To analyze the validity of this explanation, we take $|RV|$ as the dispersion measure for a stock although $|\Delta TP|$ and STP can also be used. The dispersion of a stock is high when RV is either very negative or very positive. In other words, analysts have significantly either downgraded or upgraded the stock recently. As shown in the previous studies such as Brav and Lehavy (2003), the market reacts immediately to analysts' revisions in the same direction of the revisions. Our finding that the next-month stock return is high for both large negative and positive revisions implies that the market has overreacted to downgrades but underreacted to upgrades around the time of target price announcements.

One obvious problem of this explanation is that the asymmetric reaction by investors to analysts' target price announcements is difficult to test. Another more serious problem is that the proposed asymmetry is against the typical proposed asymmetry in the literature. Following Diether, Malloy, and Scherbina (2002) who use the heterogenous investor argument of Miller (1977), the market should overreact to upgrades but underreact to downgrades because optimistic investors dominate pessimistic investors in setting stock prices due to the short-sale constraint.

The underreaction explanation also hinges on the premise that investors take analysts' target prices seriously in forming their expectations. To the extent that overwhelming empirical evidence shows that target prices are noisy and biased, investors are unlikely to choose target prices over other information contents of analysts' reports such as earnings forecasts and buy/sell recommendations to guide their trades.

Even if underreaction is the cause of the return predictability of $|RV|$, then we should expect the effect to diminish over time as the information is gradually incorporated into the stock price. Given the publicity of analysts' forecasts, one would expect the convergence of stock price to take place quickly, say within a few months. But the long-run results reported in Table 3 suggest that the positive relation is significant for up to 24 months. This is even longer than the 1-year window for the momentum effect. In sum, the evidence seems inconsistent with the underreaction explanation.

3.4.2 Risk Hypothesis

The positive relation between the target price dispersion and future stock returns is consistent with the hypothesis that the target price dispersion is a measure of risk. The long-run evidence particularly supports the risk explanation. However, the results of portfolio sorts and Fama-MacBeth regressions indicate that the target price dispersion cannot be explained by the existing risk factors. One possible reason for this is that analysts' target prices are forward-looking forecasts. Therefore we should relate the target price dispersion to future not contemporaneous stock risks.

To pursue this explanation, we investigate whether the target price dispersion can predict some future risk measures. To proxy future stock risk, we consider the factor loadings of the four-factor model, total volatility, and idiosyncratic volatility. All risk measures are estimated using the future 24 monthly returns. The 24-month window is consistent with our estimation of lagged idiosyncratic volatility. It is further motivated by the long-run return predictability shown in Table 3. We use Fama-MacBeth regressions where the dependent variable in each regression is one of the six future risk measures. In addition to the target price dispersion, we include the lagged risk measure and four controls MC, B/M, Mom, and $Idvol$ as explanatory variables. Note that when $Idvol$ is the dependent variable, the lagged $Idvol$ is already an independent variable in the regression. Again, the dispersion of earnings forecasts, DPE, is not used because it is insignificant.[14]

Table 6 presents the estimates of the Fama-MacBeth regressions for the four target price dispersions. Panel A shows the results where only $|\Delta TP|$ is the predictor. The average coefficient on $|\Delta TP|$ for all factor loadings except β_{UMD} are positive and significant. The average coefficients for total and idiosyncratic volatilities are also positive and significant.

The estimates for $|RV|$ in Panel B are similar to those for $|\Delta TP|$ as the coefficients of all risk measures except UMD are positive and significant. The results for STP and $STPN$ in Panels C and D, respectively, are also similar. All four dispersion measures are positively related to future stock risks. This is even true for $STPN$ which is the weakest return predictor among the four dispersion measures.

To compare the relative explanatory power of the four dispersion measures, we include them in a single regression and show the estimates in Panel E. The coefficients on all risk measures except β_{UMD} are positive as before although their magnitudes are smaller than those of individual estimates. Some coefficients on the factor loadings are not as significant as before. But the coefficients on the two volatilities are all significant.

[14] We have also estimated regressions without the lagged dependent variable or the controls. Our inferences do not change in any significant ways with these alternative regression specifications.

The evidence that the target price dispersion positively predicts the future idiosyncratic risk is particularly important. To the extent that the standard risk model cannot explain the return predictability, the target price dispersion must be related to the idiosyncratic volatility. Uncovering the underlying mechanism is an interesting topic of future research.

A puzzle from the evidence in previous sections is why the four dispersion measures have different return predictability powers. One possible explanation is that they are proxies of distinct risk sources and difference risks require different risk premia. The evidence in Panel E supports the view that the four dispersion measures likely capture different components of stock risk. Again, identifying the nature of the different risk sources is left to future research.

3.5 Subperiod Results

One concern about the evidence documented in this paper is the stability over time. For robustness, we divide our sample into two subperiods: 1999-2006 and 2007-2013 and examine the results of the portfolio sorts and Fama-MacBeth regressions for the subperiods. The results of single and double portfolio sorts are also consistent with those for the whole sample period and not reported for brevity.

Table 7 shows the estimates of the Fama-MacBeth regressions. The results for the subperiods are similar to those for the whole period. The dispersion measures are mostly positively related to next-month stock returns. The exception is that for 1999-2006, $STPN$ is insignificant in predicting returns by itself or when other dispersion measures are included. However, for 2007-2013, the estimated coefficient on $STPN$ is significant at the 10% even in the presence of other dispersion measures. The evidence not only shows the robustness of the positive relation between the target price dispersion and stock returns but also indicates the usefulness of all four dispersion measures in capturing the information contained in the disagreement among analysts.

4 Conclusions

In this paper, we propose the dispersion in analysts' target prices as a new proxy of disagreement among analysts. We construct four different measures of target price dispersion. In contrast to the negative relation between the dispersion in analysts' earnings forecasts and stock returns in the literature, we show that the target price dispersion positively predicts stock returns. The evidence is robust to alternative measures of target price dispersion and holds for long horizons up to 24 months. The results cannot be explained by the standard risk factors and stock characteristics including the analysts' dispersion in earnings forecasts.

The positive relation between the target price dispersion and stock returns is consistent with the risk hypothesis. Indeed, we find that stocks with higher target price dispersions have higher future risks, proxied by factor loadings of the four-factor model, and total and idiosyncratic volatilities.

Of the four target price dispersion measures, the two measures based on the changes of analysts' forecasts over time have the strongest predictive power on stock returns and risks. The four measures appear to capture different aspects of the disagreement among analysts, and are helpful to investors. Further research is required to completely understand the information content of these dispersion measures.

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Table 1: Data Descriptions

Panel A reports the summary statistics of the dispersion in analysts' target prices data. Analysts' target prices that are identified as "12-month" forecasts in the I/B/E/S Detail History database for the period of January 1999 to December 2013 are used to construct the four dispersion measures: $|\Delta TP|$, $|RV|$, STP, and $STPN$. For each month t, only the stocks that have new forecasts issued five days before the end of month are regarded as eligible stocks. $STPN$ is the standard deviation of all non-duplicate forecasts in month t scaled by the average target price. STP is the standard deviation of all non-duplicate forecasts during months $t-11$, ..., t scaled by the average target price. $|\Delta TP|$ is the absolute percentage change of target price where ΔTP is the difference between the average target price of month t and the average target price of the previous 11 months scaled by the later. $|RV|$ is the absolute percentage of average target price revision where RV is the average percentage revision of all analysts who have issued forecasts in month t. For each year, we report the mean market capitalization and the total number of firms in the sample of STP, which is the largest among the four dispersion measures. We also report the average number of stocks per month and average number of target prices used to construct STP. Panel B reports the average cross-sectional correlations of the four dispersion measures as well as ΔTP and RV.

Panel A: Summary Statistics

	Mean	Num.	Num.	Num.	$\lvert\Delta TP\rvert$		$\lvert RV\rvert$		STP		$STPN$	
	Mkt-Cap	of	of Stocks	of Target		Std.		Std.		Std.		Std.
Year	(mil. $)	Stocks	per Mon.	Prices	Mean	Dev.	Mean	Dev.	Mean	Dev.	Mean	Dev.
1999	5351	960	185	2.58	0.17	0.24	0.15	0.72	0.24	0.15	0.12	0.10
2000	5056	1181	357	7.03	0.13	0.27	0.22	0.21	0.23	0.10	0.10	0.17
2001	4613	1062	473	8.33	0.19	0.20	0.25	0.27	0.21	0.17	0.13	0.12
2002	3843	1272	634	9.79	0.21	0.17	0.23	0.22	0.20	0.19	0.14	0.14
2003	3925	1323	711	10.13	0.18	0.40	0.22	0.27	0.18	0.14	0.13	0.11
2004	4553	1568	800	8.77	0.14	0.16	0.20	0.20	0.15	0.10	0.11	0.09
2005	4803	1574	750	8.96	0.13	0.13	0.17	0.21	0.14	0.10	0.10	0.09
2006	5134	1725	859	8.94	0.22	0.23	0.16	0.19	0.14	0.10	0.10	0.09
2007	5455	1725	848	8.97	0.13	0.15	0.16	0.15	0.13	0.09	0.10	0.09
2008	4459	1806	997	9.38	0.19	0.18	0.23	0.21	0.20	0.15	0.16	0.13
2009	3945	1757	1055	10.01	0.19	0.27	0.29	0.31	0.22	0.16	0.15	0.13
2010	4996	1806	1074	10.67	0.13	0.15	0.19	0.26	0.15	0.10	0.11	0.09
2011	5255	1927	1132	12.05	0.13	0.13	0.17	0.17	0.14	0.10	0.11	0.09
2012	5470	1897	1083	12.60	0.12	0.13	0.16	0.29	0.15	0.11	0.11	0.10
2013	6614	1963	1131	12.36	0.12	0.25	0.18	0.33	0.14	0.10	0.10	0.09

Panel B: Correlations

	$\lvert\Delta TP\rvert$	ΔTP	$\lvert RV\rvert$	RV	STP
ΔTP	0.738				
$\lvert RV\rvert$	0.242	0.094			
RV	0.059	0.367	0.676		
STP	0.047	0.005	0.277	-0.182	
$STPN$	0.152	-0.081	0.147	-0.159	0.590

Table 2: Single Portfolio Sorts

This table reports the next-month return performance of the value-weighted decile portfolios formed by sorting stocks on the four measures of target price dispersion as well as ΔTP and RV. We also show the H-L spread which is formed by buying decile 10 and selling decile 1. The raw returns are average unadjusted returns, and the adjusted returns are the estimated intercepts of the four-factor model. The data of the four factors (MKT, SMB, HML, and UMD) are obtained from Ken French's website. In addition to the estimated factor loadings, we report the adjusted R^2 for each regression. The Newey-West t-statistics are shown in the parentheses. Panels A–F correspond to $|\Delta TP|$, $|RV|$, STP, $STPN$, ΔTP, and RV, respectively. The returns are shown in percentage.

Rank	Dispersion Value	Raw Ret.	Adj. Ret.	β_{MKT}	β_{SMB}	β_{HML}	β_{UMD}	$\bar{R}^2$
			Panel A: $\lvert\Delta TP\rvert$					
Low	0.01	1.09	0.18	1.00	0.39	0.12	0.05	0.94
		(2.93)	(1.75)	(36.30)	(8.66)	(2.76)	(2.25)	
2	0.03	1.11	0.22	0.99	0.39	0.05	0.02	0.95
		(2.99)	(2.28)	(38.49)	(9.23)	(1.29)	(0.82)	
3	0.05	1.09	0.30	1.01	0.39	0.09	0.04	0.95
		(2.92)	(2.98)	(38.38)	(8.96)	(2.28)	(2.00)	
4	0.07	1.23	0.30	1.00	0.45	0.10	-0.02	0.95
		(3.18)	(2.99)	(36.95)	(10.13)	(2.33)	(-0.87)	
5	0.09	1.21	0.25	0.99	0.58	0.04	-0.07	0.94
		(3.01)	(2.33)	(34.35)	(12.33)	(1.00)	(-2.95)	
6	0.12	1.30	0.32	1.07	0.53	-0.02	-0.07	0.95
		(3.07)	(2.88)	(36.79)	(11.13)	(-0.37)	(-3.10)	
7	0.15	1.34	0.35	1.14	0.70	-0.06	-0.19	0.95
		(2.76)	(2.96)	(33.87)	(12.63)	(-1.24)	(-6.94)	
8	0.20	1.67	0.49	1.16	0.84	-0.07	-0.27	0.94
		(3.16)	(3.28)	(29.10)	(12.77)	(-1.06)	(-8.42)	
9	0.27	1.99	0.74	1.24	0.95	-0.18	-0.44	0.93
		(3.28)	(4.04)	(25.56)	(11.97)	(-2.42)	(-11.29)	
High	0.59	3.09	1.62	1.38	1.31	-0.33	-0.80	0.88
		(3.86)	(5.11)	(16.41)	(9.47)	(-2.55)	(-11.73)	
H-L		2.00	1.31	0.39	0.92	-0.45	-0.85	0.78
t-stat.		(5.86)	(4.81)	(4.22)	(6.15)	(-3.20)	(-11.52)	

Table 2 – Continued

Rank	Dispersion Value	Raw Ret.	Adj. Ret.	β_{MKT}	β_{SMB}	β_{HML}	β_{UMD}	$\bar{R}^2$
				Panel B: $\|RV\|$				
Low	0.01	1.16	0.25	1.01	0.42	0.07	0.05	0.93
		(3.07)	(2.19)	(33.37)	(8.40)	(1.53)	(2.12)	
2	0.04	1.06	0.17	0.96	0.39	0.07	0.01	0.94
		(2.94)	(1.75)	(35.96)	(8.94)	(1.75)	(0.4)	
3	0.07	1.19	0.29	1.00	0.39	0.08	0.03	0.93
		(3.15)	(2.45)	(32.41)	(7.61)	(1.66)	(1.21)	
4	0.10	1.22	0.30	0.98	0.46	0.08	-0.01	0.93
		(3.19)	(2.68)	(32.57)	(9.30)	(1.63)	(-0.32)	
5	0.13	1.27	0.29	1.00	0.60	0.02	-0.06	0.94
		(3.12)	(2.66)	(34.28)	(12.61)	(0.45)	(-2.71)	
6	0.16	1.25	0.26	1.08	0.54	0.01	-0.10	0.94
		(2.86)	(2.09)	(32.63)	(9.96)	(0.25)	(-3.8)	
7	0.21	1.30	0.21	1.15	0.68	-0.03	-0.20	0.95
		(2.66)	(1.65)	(33.38)	(12.03)	(-0.63)	(-7.04)	
8	0.26	1.63	0.49	1.18	0.80	-0.17	-0.33	0.92
		(3.00)	(2.89)	(25.93)	(10.79)	(-2.37)	(-9.10)	
9	0.35	2.02	0.77	1.25	0.93	-0.13	-0.53	0.90
		(3.16)	(3.32)	(20.17)	(9.12)	(-1.31)	(-10.64)	
High	0.63	3.20	1.75	1.44	1.24	-0.44	-0.74	0.87
		(4.02)	(5.32)	(16.45)	(8.63)	(-3.23)	(-10.43)	
H-L		2.04	1.37	0.44	0.83	-0.51	-0.79	0.65
t-stat.		(4.72)	(3.81)	(4.54)	(5.26)	(-3.44)	(-10.20)	
				Panel C: STP				
Low	0.04	1.17	0.25	0.84	0.41	0.13	0.12	0.91
		(3.71)	(2.79)	(29.80)	(8.88)	(2.98)	(5.30)	
2	0.07	1.08	0.29	0.84	0.36	0.13	0.09	0.93
		(3.46)	(3.08)	(33.88)	(8.77)	(3.44)	(4.36)	
3	0.09	1.13	0.27	0.96	0.37	0.09	0.05	0.96
		(3.20)	(3.14)	(42.81)	(10.07)	(2.50)	(2.60)	
4	0.11	1.19	0.25	1.01	0.49	0.13	-0.01	0.95
		(3.02)	(2.36)	(36.47)	(10.71)	(3.09)	(-0.49)	
5	0.12	1.17	0.21	1.09	0.47	-0.01	-0.03	0.95
		(2.84)	(1.99)	(39.54)	(10.5)	(-0.27)	(-1.14)	
6	0.14	1.45	0.42	1.10	0.63	-0.07	-0.09	0.94
		(3.25)	(3.54)	(34.78)	(12.12)	(-1.50)	(-3.36)	
7	0.17	1.54	0.41	1.17	0.71	-0.03	-0.20	0.94
		(3.07)	(3.08)	(32.99)	(12.24)	(-0.52)	(-7.13)	
8	0.20	1.56	0.37	1.28	0.72	-0.04	-0.27	0.94
		(2.82)	(2.49)	(32.18)	(11.06)	(-0.60)	(-8.34)	
9	0.25	1.96	0.66	1.32	0.99	-0.25	-0.51	0.94
		(3.04)	(3.58)	(26.75)	(12.33)	(-3.24)	(-12.82)	
High	0.43	2.71	1.19	1.43	1.30	-0.27	-0.84	0.90
		(3.31)	(3.98)	(18.06)	(9.99)	(-2.19)	(-13.11)	
H-L		1.55	0.73	0.60	0.90	-0.40	-0.96	0.76
t-stat.		(3.29)	(2.67)	(6.90)	(6.30)	(-2.98)	(-13.75)	

Table 2 – Continued

Rank	Dispersion Value	Raw Ret.	Adj. Ret.	β_{MKT}	β_{SMB}	β_{HML}	β_{UMD}	$\bar{R}^2$
				Panel D: $STPN$				
Low	0.01	1.52	0.51	0.98	0.37	0.06	-0.02	0.93
		(4.20)	(4.59)	(31.26)	(6.70)	(1.11)	(-0.76)	
2	0.04	1.18	0.19	1.01	0.27	-0.02	0.01	0.92
		(3.31)	(1.50)	(28.71)	(4.45)	(-0.31)	(0.36)	
3	0.05	1.30	0.30	1.00	0.37	-0.04	0.05	0.91
		(3.58)	(2.31)	(27.53)	(5.77)	(-0.59)	(1.71)	
4	0.07	1.32	0.27	1.06	0.33	-0.05	-0.08	0.90
		(3.33)	(1.76)	(24.94)	(4.46)	(-0.76)	(-2.27)	
5	0.08	1.50	0.37	1.13	0.37	-0.09	-0.11	0.90
		(3.55)	(2.34)	(25.36)	(4.75)	(-1.19)	(-3.13)	
6	0.10	1.66	0.48	1.17	0.44	-0.06	-0.09	0.92
		(3.79)	(3.10)	(27.11)	(5.84)	(-0.82)	(-2.48)	
7	0.12	1.43	0.22	1.21	0.48	-0.11	-0.09	0.89
		(3.11)	(1.24)	(23.98)	(5.38)	(-1.27)	(-2.21)	
8	0.15	1.75	0.48	1.15	0.74	-0.09	-0.24	0.92
		(3.58)	(2.86)	(24.1)	(8.88)	(-1.12)	(-6.40)	
9	0.19	1.75	0.39	1.29	0.66	-0.14	-0.33	0.93
		(3.28)	(2.26)	(26.38)	(7.67)	(-1.68)	(-8.63)	
High	0.33	2.14	0.55	1.28	1.21	-0.08	-0.66	0.89
		(3.16)	(2.08)	(17.06)	(9.20)	(-0.64)	(-11.07)	
H-L		0.62	-0.08	0.31	0.85	-0.14	-0.64	0.73
t-stat.		(1.98)	(-0.34)	(4.43)	(6.99)	(-1.24)	(-11.69)	
				Panel E: ΔTP				
Low	-0.34	2.53	1.09	1.37	1.29	-0.46	-0.97	0.90
		(3.05)	(3.61)	(17.03)	(9.82)	(-3.73)	(-14.89)	
2	-0.16	1.47	0.30	1.22	0.80	-0.21	-0.53	0.94
		(2.45)	(1.85)	(28.02)	(11.24)	(-3.15)	(-15.19)	
3	-0.10	1.43	0.37	1.12	0.67	-0.12	-0.38	0.94
		(2.76)	(2.67)	(29.93)	(10.93)	(-2.04)	(-12.65)	
4	-0.05	1.22	0.22	1.10	0.49	0.03	-0.22	0.95
		(2.65)	(1.87)	(34.97)	(9.44)	(0.65)	(-8.59)	
5	-0.01	1.30	0.38	1.01	0.45	0.02	-0.09	0.94
		(3.22)	(3.33)	(32.88)	(9.04)	(0.35)	(-3.83)	
6	0.02	1.20	0.30	0.95	0.47	0.10	-0.04	0.95
		(3.19)	(3.05)	(35.79)	(10.72)	(2.37)	(-1.95)	
7	0.06	1.24	0.31	1.04	0.41	0.12	0.07	0.94
		(3.25)	(3.00)	(37.87)	(9.14)	(2.74)	(3.07)	
8	0.10	1.34	0.37	1.01	0.55	0.09	0.08	0.94
		(3.46)	(3.35)	(34.92)	(11.54)	(2.02)	(3.58)	
9	0.16	1.44	0.42	1.06	0.59	0.05	0.16	0.92
		(3.59)	(3.26)	(30.97)	(10.53)	(1.03)	(5.92)	
High	0.46	2.18	1.02	1.15	0.80	0.00	0.13	0.87
		(4.67)	(5.40)	(22.92)	(9.73)	(0.02)	(3.29)	
H-L		-0.35	-0.20	-0.21	-0.49	0.47	1.10	0.69
t-stat.		(-0.78)	(-0.56)	(-2.27)	(-3.15)	(3.17)	(14.42)	

Table 2 – Continued

Rank	Dispersion Value	Raw Ret.	Adj. Ret.	β_{MKT}	β_{SMB}	β_{HML}	β_{UMD}	$\bar{R}^2$
				Panel F: *RV*				
Low	-0.37	2.38	1.01	1.31	1.23	-0.45	-1.01	0.90
		(2.91)	(3.42)	(16.67)	(9.57)	(-3.71)	(-15.94)	
2	-0.18	1.58	0.43	1.24	0.75	-0.28	-0.67	0.93
		(2.45)	(2.18)	(23.89)	(8.82)	(-3.43)	(-15.9)	
3	-0.10	1.23	0.16	1.14	0.59	-0.02	-0.40	0.93
		(2.32)	(1.03)	(27.27)	(8.69)	(-0.25)	(-12.03)	
4	-0.04	1.39	0.41	1.06	0.50	0.04	-0.28	0.95
		(3.01)	(3.38)	(32.78)	(9.42)	(0.70)	(-10.81)	
5	0.01	1.33	0.39	1.01	0.50	0.03	-0.13	0.94
		(3.21)	(3.5)	(34.09)	(10.21)	(0.74)	(-5.45)	
6	0.05	1.31	0.37	1.01	0.48	0.05	-0.01	0.94
		(3.33)	(3.45)	(35.23)	(10.26)	(1.12)	(-0.59)	
7	0.10	1.38	0.46	0.97	0.51	0.09	0.05	0.92
		(3.64)	(3.85)	(30.41)	(9.62)	(1.77)	(2.08)	
8	0.15	1.22	0.26	1.02	0.52	0.09	0.13	0.91
		(3.17)	(2.00)	(29.56)	(9.23)	(1.69)	(4.72)	
9	0.23	1.36	0.37	1.01	0.59	0.06	0.21	0.89
		(3.52)	(2.50)	(25.68)	(9.23)	(1.06)	(6.47)	
High	0.52	2.12	0.92	1.27	0.77	-0.04	0.23	0.85
		(4.25)	(4.13)	(21.5)	(7.99)	(-0.39)	(4.91)	
H-L		-0.26	-0.22	-0.03	-0.45	0.41	1.24	0.71
t-stat.		(-0.56)	(-0.62)	(-0.36)	(-2.94)	(2.84)	(16.38)	

Table 3: Long-Run Portfolio Performance

This table reports the average future cumulative raw returns of the value-weighted decile portfolios formed by sorting stocks on the four target price dispersion. Panels A–D correspond to $|\Delta TP|$, $|RV|$, STP, and $STPN$, respectively. We consider 3-, 6-, 9-, 12-, 18-, and 24-month horizons. We also examine the H-L spread strategy formed by buying decile 10 and selling decile 1. The t-statistics of the average raw H-L spreads are computed using the Newey-West standard errors. To find the risk-adjusted H-L spreads, we first estimate the intercepts of the four-factor model for the monthly raw H-L spreads for the future 24 months and then accumulate the estimated monthly intercepts up to the desired horizons. The t-statistics of the adjusted H-L spreads are the averages of the t-statistics from the monthly regressions of the four-factor model. The returns are shown in percentage.

	Dispersion	Cumulative Return					
Rank	Value	3-mon.	6-mon.	9-mon.	12-mon.	18-mon.	24-mon.
			Panel A: $\lvert\Delta TP\rvert$				
Low	0.01	3.39	6.27	9.14	12.76	20.49	29.02
2	0.03	3.25	6.08	8.86	12.29	20.10	28.58
3	0.05	3.24	6.39	9.35	12.69	20.57	29.83
4	0.07	3.49	6.69	9.67	13.16	21.24	30.06
5	0.09	3.46	6.56	9.35	13.02	21.84	31.45
6	0.12	4.04	7.13	9.91	14.34	23.20	32.25
7	0.15	4.11	7.39	10.29	14.72	23.41	33.10
8	0.20	4.11	7.65	10.97	15.39	25.39	36.13
9	0.27	4.60	8.46	12.50	17.09	28.46	39.97
High	0.59	6.41	11.40	16.11	22.31	36.77	51.88
H-L		3.02	5.12	6.97	9.56	16.28	22.85
t-stat.		(2.86)	(1.92)	(1.71)	(1.66)	(1.84)	(2.72)
Adj. H-L		1.66	3.91	5.79	7.19	10.87	13.41
t-stat.		(1.94)	(3.25)	(3.14)	(3.70)	(4.37)	(4.24)
			Panel B: $\lvert RV\rvert$				
Low	0.01	3.06	5.83	8.78	11.78	19.39	27.85
2	0.04	2.91	5.65	8.68	12.03	20.11	28.17
3	0.07	3.14	6.03	8.81	12.07	19.88	28.26
4	0.10	3.54	6.60	9.49	13.39	21.49	30.31
5	0.13	3.39	6.35	9.04	13.14	21.66	30.78
6	0.16	3.74	7.02	9.71	13.87	22.87	31.79
7	0.21	3.92	7.40	10.55	14.69	24.17	34.37
8	0.26	4.33	7.79	11.35	16.07	25.74	35.76
9	0.35	4.72	8.88	12.65	17.70	29.26	40.75
High	0.63	7.40	12.59	16.59	23.68	37.75	54.10
H-L		4.33	6.76	7.81	11.90	18.36	26.24
t-stat.		(3.12)	(2.32)	(1.56)	(2.12)	(2.19)	(2.99)
Adj. H-L		3.07	5.49	6.68	9.27	12.60	15.93
t-stat.		(3.68)	(4.24)	(3.48)	(4.69)	(2.82)	(4.40)

Table 3 – Continued

Rank	Dispersion Value	Cumulative Return 3-mon.	6-mon.	9-mon.	12-mon.	18-mon.	24-mon.
				Panel C: STP			
Low	0.04	3.87	7.05	9.70	14.02	21.37	30.49
2	0.07	3.61	6.47	8.94	12.67	20.21	29.34
3	0.09	3.63	6.65	9.13	12.78	20.38	29.06
4	0.11	3.66	6.87	9.70	13.42	21.48	30.46
5	0.12	3.73	6.78	9.45	13.53	21.93	30.65
6	0.14	4.04	7.29	10.13	14.16	23.23	32.5
7	0.17	4.25	7.53	10.81	15.36	24.52	34.49
8	0.20	4.58	8.32	11.83	16.20	26.19	36.91
9	0.25	4.32	8.00	11.96	16.19	27.49	38.65
High	0.43	4.30	8.98	14.59	19.15	34.68	49.15
H-L		0.43	1.93	4.89	5.14	13.31	18.65
t-stat.		(0.26)	(0.53)	(0.92)	(2.84)	(1.97)	(2.68)
Adj. H-L		-0.93	0.87	3.87	3.54	8.49	10.41
t-stat.		(-1.00)	(0.55)	(1.77)	(1.82)	(3.13)	(4.04)
				Panel D: $STPN$			
Low	0.01	3.97	7.93	10.97	14.57	21.50	29.02
2	0.04	3.42	6.82	10.46	14.01	20.35	27.93
3	0.05	3.92	7.62	11.19	14.55	21.11	28.71
4	0.07	3.82	7.44	10.94	14.05	21.38	28.39
5	0.08	3.94	8.01	11.93	15.65	23.04	30.85
6	0.10	4.46	8.65	12.24	15.86	22.94	30.54
7	0.12	3.80	7.87	11.69	14.96	22.76	30.97
8	0.15	4.32	9.03	12.43	15.71	21.71	29.31
9	0.19	4.53	8.92	12.14	15.93	22.97	31.10
High	0.33	4.41	8.74	12.49	15.45	24.63	36.08
H-L		0.44	0.81	1.52	0.88	3.13	7.05
t-stat.		(0.33)	(0.31)	(0.41)	(0.19)	(0.53)	(1.00)
Adj. H-L		-1.15	-0.87	-0.09	-1.05	-0.17	2.08
t-stat.		(-1.55)	(-0.76)	(-0.06)	(-0.64)	(-0.09)	(0.99)

Table 4: Fama-MacBeth Regressions

This table reports the estimation results of Fama-MacBeth cross-sectional regressions of next-month stock returns on the four dispersion measures and five control variables: MC, B/M, Mom, $Idvol$, and DPE. MC is the market capitalization; B/M is the ratio of the book value of equity to the market value of equity; Mom is the 11-month cumulative return up to one month ago; $Idvol$ is the standard deviation of the regression residuals of the four-factor model estimated using the returns of the prior 24 months; and DPE is the dispersion in analysts' earnings forecasts of Diether, Malloy, and Scherbina (2002). For each model specification, we report the average estimated regression coefficients with corresponding Newey-West t-statistics in parentheses and the average adjusted R^2. The estimated intercepts are not reported.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\lvert\Delta TP\rvert$	0.025				0.019		0.022
	(3.78)				(2.93)		(2.90)
$\lvert RV\rvert$		0.022			0.011		0.010
		(3.54)			(1.66)		(1.78)
STP			0.025			0.026	0.012
			(2.78)			(2.49)	(1.67)
$STPN$				0.012		0.006	0.011
				(1.48)		(0.86)	(1.46)
MC	-0.001	-0.001	-0.001	-0.002	-0.001	-0.002	-0.001
	(-2.39)	(-2.28)	(-2.86)	(-3.39)	(-2.13)	(-3.35)	(-2.56)
B/M	-0.002	-0.002	-0.001	-0.001	-0.002	-0.001	-0.001
	(-1.79)	(-1.62)	(-1.38)	(-0.97)	(-1.64)	(-1.07)	(-0.93)
Mom	-0.013	-0.026	-0.010	-0.024	-0.019	0.001	-0.011
	(-0.38)	(-0.77)	(-0.33)	(-0.62)	(-0.56)	(0.03)	(-0.32)
$Idvol$	0.050	0.047	0.046	0.032	0.039	0.021	0.006
	(1.77)	(1.58)	(1.74)	(1.06)	(1.35)	(0.77)	(0.22)
DPE	0.001	0.001	0.001	0.001	0.001	0.001	0.002
	(0.47)	(0.66)	(0.53)	(0.83)	(0.62)	(0.57)	(1.07)
Mean $\bar{R}^2(\%)$	5.91	6.61	5.93	7.5	7.05	8.28	9.75

Table 5: Double Portfolio Sorts

This table reports the results of the value-weighted portfolios formed by sorting stocks on DPP and other predictors. Panels A–E correspond to the five predictors MC, B/M, Mom, $Idvol$, and DPE, respectively. MC is the market capitalization; B/M is the ratio of the book value of equity to the market value of equity; Mom is the 11-month cumulative return up to one month ago; $Idvol$ is the standard deviation of the regression residuals of the four-factor model estimated using the returns of the prior 24 months; and DPE is the dispersion in analysts' earnings forecasts of Diether, Malloy, and Scherbina (2002). For each predictor, stocks are initially assigned into five quintiles by ranking them on the predictor and then stocks in a quintile are further divided into five quintiles by ranking them on DPP. In each panel, the left-hand side shows the average next-month portfolio returns, and unadjusted and risk-adjusted H-L spreads, while the right-hand side shows the values of DPP. The numerated five columns correspond to the quintiles formed on the control predictor, and the five rows correspond to the quintiles formed on DPP. The risk adjusted returns are the estimated intercepts of the four-factor model for the raw monthly portfolio returns. The corresponding Newey-West t-statistics are shown in the parentheses for the H-L spreads.

Panel A: $|\Delta TP|$

MC	1	2	3	4	5	B/M	1	2	3	4	5
Low	1.62	1.16	1.25	1.12	0.87	Low	0.89	1.27	1.14	1.04	1.22
2	1.62	1.49	1.23	1.03	0.81	2	1.04	1.01	1.30	1.19	1.25
3	1.72	1.41	1.42	1.28	0.84	3	1.44	1.33	1.20	1.15	1.41
4	2.03	1.82	1.37	1.43	1.14	4	1.85	1.54	1.52	1.31	1.56
High	3.29	2.79	2.50	2.18	1.77	High	3.43	2.56	2.47	1.95	2.29
H-L	1.66	1.62	1.25	1.06	0.90	H-L	2.54	1.28	1.33	0.91	1.07
t-stat.	(5.05)	(4.47)	(3.36)	(2.65)	(2.35)	t-stat.	(4.95)	(3.62)	(3.81)	(2.87)	(3.56)
Adj. H-L	1.17	1.22	0.70	0.52	0.44	Adj. H-L	1.91	0.72	0.71	0.37	0.46
t-stat.	(3.47)	(3.68)	(2.34)	(1.67)	(1.79)	t-stat.	(4.11)	(2.47)	(2.45)	(1.66)	(1.77)
Mom	1	2	3	4	5	$Idvol$	1	2	3	4	5
Low	1.22	1.19	1.03	1.22	1.26	Low	0.99	1.15	1.03	1.24	1.42
2	1.50	1.29	0.99	1.05	1.36	2	1.05	1.13	1.00	1.50	1.83
3	1.53	1.36	1.07	1.19	1.20	3	0.99	1.17	1.37	1.47	1.68
4	2.20	1.51	1.47	1.45	1.57	4	0.95	1.31	1.61	1.83	2.53
High	3.42	1.94	1.94	1.78	2.60	High	1.12	1.59	1.81	2.72	4.33
H-L	2.21	0.75	0.91	0.56	1.35	H-L	0.13	0.44	0.78	1.48	2.91
t-stat.	(4.50)	(2.79)	(4.28)	(2.70)	(4.95)	t-stat.	(0.77)	(2.14)	(2.73)	(4.77)	(5.73)
Adj. H-L	1.63	0.49	0.44	0.61	0.87	Adj. H-L	-0.22	0.11	0.46	1.08	2.41
t-stat.	(3.36)	(1.79)	(2.48)	(2.67)	(2.71)	t-stat.	(-1.44)	(0.51)	(1.69)	(3.60)	(4.58)

Table 5 – Continued

Panel B: $|RV|$

MC	1	2	3	4	5	B/M	1	2	3	4	5
Low	1.45	1.42	1.16	1.10	0.89	Low	1.14	1.13	1.07	1.05	1.10
2	1.61	1.38	1.20	1.17	0.81	2	1.10	1.24	1.18	1.08	1.44
3	1.58	1.72	1.36	1.05	1.01	3	1.32	1.33	1.35	1.18	1.30
4	1.97	1.65	1.51	1.53	0.99	4	1.60	1.54	1.60	1.12	1.54
High	3.47	2.67	2.58	2.46	1.84	High	3.36	2.47	2.48	2.23	2.24
H-L	2.02	1.26	1.42	1.36	0.95	H-L	2.22	1.34	1.42	1.18	1.14
t-stat.	(5.28)	(3.13)	(3.51)	(3.42)	(2.38)	t-stat.	(4.54)	(3.76)	(3.88)	(3.17)	(3.35)
Adj. H-L	1.55	0.81	0.89	0.86	0.47	Adj. H-L	1.66	0.87	0.84	0.61	0.54
t-stat.	(3.62)	(2.06)	(2.62)	(2.44)	(1.27)	t-stat.	(3.61)	(2.62)	(2.49)	(2.03)	(1.59)
MOM	1	2	3	4	5	$Idvol$	1	2	3	4	5
Low	1.42	1.20	1.07	1.19	1.06	Low	0.94	0.95	1.02	1.36	1.65
2	1.31	1.25	1.05	1.36	1.22	2	0.91	1.24	1.14	1.60	1.65
3	1.66	1.62	1.19	1.20	1.17	3	1.05	1.15	1.26	1.49	1.65
4	2.08	1.37	1.42	1.36	1.74	4	1.02	1.26	1.35	1.82	2.59
High	3.06	1.91	1.76	1.66	2.75	High	1.20	1.75	2.07	2.72	4.24
H-L	1.64	0.71	0.69	0.47	1.69	H-L	0.26	0.80	1.05	1.35	2.59
t-stat.	(3.59)	(2.43)	(3.36)	(2.21)	(6.28)	t-stat.	(1.32)	(3.47)	(3.43)	(3.89)	(5.56)
Adj. H-L	1.09	0.18	0.35	0.06	1.34	Adj. H-L	-0.11	0.50	0.70	0.94	2.21
t-stat.	(2.46)	(0.68)	(1.78)	(0.3)	(4.04)	t-stat.	(-0.55)	(2.08)	(2.28)	(2.6)	(4.89)

Panel C: STP

MC	1	2	3	4	5	B/M	1	2	3	4	5
Low	1.47	1.42	1.13	0.96	0.74	Low	1.06	1.23	1.17	1.18	1.01
2	1.76	1.32	1.27	1.08	0.99	2	1.11	1.14	1.30	1.02	1.33
3	2.01	1.50	1.27	1.36	0.90	3	1.44	1.20	1.47	1.23	1.37
4	2.07	1.68	1.85	1.44	1.19	4	1.90	1.57	1.54	1.42	1.68
High	2.80	2.66	2.25	2.16	1.62	High	3.00	2.46	2.12	1.93	2.22
H-L	1.33	1.24	1.13	1.20	0.88	H-L	1.94	1.23	0.95	0.75	1.21
t-stat.	(4.11)	(3.06)	(2.46)	(2.56)	(1.83)	t-stat.	(3.56)	(3.07)	(2.30)	(1.86)	(3.31)
Adj H-L	0.79	0.64	0.31	0.51	0.21	Adj H-L	1.16	0.56	0.23	-0.04	0.41
t-stat.	(2.74)	(1.99)	(1.80)	(1.91)	(0.60)	t-stat.	(2.66)	(2.90)	(0.75)	(-0.16)	(1.90)
MOM	1	2	3	4	5	$Idvol$	1	2	3	4	5
Low	1.53	1.30	1.13	1.10	1.21	Low	1.04	1.12	1.21	1.42	1.85
2	1.43	1.21	1.04	1.16	1.42	2	0.89	1.14	1.01	1.35	1.79
3	1.72	1.24	1.10	1.30	1.30	3	0.89	1.26	1.32	1.57	2.02
4	1.96	1.51	1.49	1.43	1.52	4	1.08	1.32	1.56	1.88	2.55
High	3.05	2.02	1.79	1.71	2.51	High	1.16	1.46	1.71	2.47	3.41
H-L	1.51	0.72	0.66	0.61	1.30	H-L	0.12	0.33	0.50	1.05	1.56
t-stat.	(3.09)	(2.30)	(2.51)	(2.31)	(4.81)	t-stat.	(0.56)	(1.38)	(1.68)	(2.89)	(3.21)
Adj H-L	0.86	0.53	0.46	-0.01	0.78	Adj H-L	-0.30	-0.06	0.11	0.50	1.10
t-stat.	(2.83)	(1.93)	(1.66)	(-0.03)	(2.96)	t-stat.	(-1.29)	(-0.31)	(0.46)	(2.17)	(2.93)

Table 5 – Continued

Panel D: $STPN$

MC	1	2	3	4	5	B/M	1	2	3	4	5
Low	2.01	1.41	1.31	1.2	0.92	Low	1.16	1.29	1.32	1.34	1.23
2	1.91	1.56	1.15	1.23	0.92	2	1.46	0.91	1.20	1.03	1.37
3	2.02	2.03	1.59	1.41	1.07	3	1.41	1.27	1.49	1.43	1.69
4	2.39	1.74	1.78	1.7	1.09	4	1.89	1.51	1.56	1.43	1.72
High	2.44	1.91	2.10	1.87	1.54	High	2.04	2.32	2.01	1.67	1.69
H-L	0.44	0.49	0.80	0.67	0.61	H-L	0.88	1.02	0.68	0.33	0.46
t-stat.	(1.06)	(1.27)	(2.21)	(2.11)	(1.78)	t-stat.	(2.27)	(2.96)	(1.89)	(1.01)	(1.44)
Adj H-L	-0.03	0.03	-0.23	0.17	0.05	Adj H-L	0.47	0.62	0.05	-0.30	-0.07
t-stat.	(-0.07)	(0.09)	(-0.59)	(0.58)	(0.22)	t-stat.	(1.96)	(2.11)	(0.16)	(-1.01)	(-0.24)
MOM	1	2	3	4	5	$Idvol$	1	2	3	4	5
Low	1.64	1.26	1.20	1.20	1.44	Low	1.01	1.13	1.24	1.85	1.66
2	1.46	1.32	1.09	1.16	1.17	2	0.89	1.18	1.37	1.74	1.88
3	1.47	1.47	1.40	1.38	1.54	3	1.10	1.15	1.23	1.78	2.09
4	1.86	1.54	1.29	1.38	1.79	4	1.22	1.43	1.42	1.91	2.68
High	2.68	1.88	1.38	1.51	2.23	High	1.06	1.57	1.40	2.32	2.75
H-L	1.04	0.62	0.18	0.31	0.78	H-L	0.05	0.44	0.16	0.47	1.09
t-stat.	(2.67)	(2.03)	(0.76)	(0.99)	(2.64)	t-stat.	(0.27)	(1.96)	(0.61)	(1.36)	(2.46)
Adj H-L	0.47	0.13	-0.27	-0.26	0.42	Adj H-L	-0.28	0.15	-0.14	0.01	-0.28
t-stat.	(1.72)	(0.46)	(-1.12)	(-0.84)	(1.70)	t-stat.	(-1.52)	(0.64)	(-0.55)	(0.03)	(-0.01)

Table 6: Relation between Target Price Dispersion and Future Stock Risk

This table reports the estimation results of Fama-MacBeth cross-sectional regressions of future stock risks on DPP. The stock risk measures are the estimated factor loadings of the four-factor model, the total volatility, and idiosyncratic volatility. All the risk measures are estimated using the stock returns of future 24 months. The four control variables are MC, B/M, Mom, and $Idvol$. Each column of the table shows, for a particular risk measure, the average estimated regression coefficients of DPP and control variables with corresponding Newey-West t-statistics in parentheses and the average adjusted R^2. The estimated intercepts are not reported.

	β_{MKT}	β_{SMB}	β_{HML}	β_{UMD}	$Idvol$	$Totalvol$
Panel A: $\lvert\Delta TP\rvert$						
$\lvert\Delta TP\rvert$	0.432	0.352	0.628	-0.041	0.052	0.055
	(3.95)	(4.67)	(7.12)	(-0.19)	(5.99)	(8.30)
Lagged y	0.171	0.049	0.101	0.103		0.360
	(4.42)	(3.01)	(2.68)	(1.90)		(2.73)
MC	0.032	-0.192	-0.050	0.018	-0.005	-0.003
	(3.77)	(-10.00)	(-4.94)	(1.46)	(-10.94)	(-3.23)
B/M	0.077	-0.182	0.119	0.067	-0.003	-0.001
	(6.95)	(-5.48)	(1.80)	(2.40)	(-3.80)	(-1.54)
Mom	0.939	-2.642	-1.227	5.437	-0.221	-0.171
	(1.09)	(-1.65)	(-0.53)	(8.18)	(-3.52)	(-1.82)
$Idvol$	2.890	1.683	-4.183	0.687	0.503	0.401
	(5.28)	(1.06)	(-2.34)	(0.51)	(8.79)	(16.03)
Mean $\bar{R}^2$(%)	12.1	14.9	12.6	13.2	44.3	55.1
Panel B: $\lvert RV\rvert$						
$\lvert RV\rvert$	0.296	0.398	0.495	-0.035	0.043	0.039
	(3.82)	(6.49)	(3.07)	(-0.21)	(5.19)	(5.70)
Lagged y	0.170	0.050	0.113	0.112		0.366
	(4.41)	(3.05)	(3.01)	(1.92)		(2.84)
MC	0.029	-0.192	-0.045	0.019	-0.006	-0.003
	(3.92)	(-9.16)	(-4.88)	(1.38)	(-10.18)	(-3.33)
B/M	0.075	-0.174	0.133	0.070	-0.002	-0.001
	(6.87)	(-4.79)	(1.94)	(2.28)	(-3.18)	(-1.21)
Mom	0.718	-2.894	-1.568	5.631	-0.253	-0.194
	(0.80)	(-2.04)	(-0.69)	(9.11)	(-3.71)	(-2.03)
$Idvol$	2.914	1.500	-4.423	0.808	0.499	0.400
	(5.49)	(0.88)	(-2.64)	(0.58)	(9.15)	(14.92)
Mean $\bar{R}^2$(%)	12.3	15.5	13.5	14.2	45.1	54.8

Table 6–Continued

	β_{MKT}	β_{SMB}	β_{HML}	β_{UMD}	$Idvol$	$Totalvol$
			Panel C: STP			
STP	0.598	0.486	0.987	0.184	0.087	0.081
	(3.76)	(2.40)	(4.88)	(0.44)	(5.85)	(7.61)
Lagged y	0.171	0.047	0.097	0.101		0.348
	(4.37)	(3.08)	(2.52)	(1.86)		(2.74)
MC	0.027	-0.196	-0.058	0.019	-0.006	-0.003
	(3.77)	(-10.17)	(-5.59)	(1.52)	(-10.11)	(-4.21)
B/M	0.076	-0.182	0.113	0.069	-0.003	-0.001
	(7.25)	(-5.54)	(1.74)	(2.63)	(-4.35)	(-2.22)
Mom	1.216	-2.535	-1.085	5.374	-0.184	-0.142
	(1.44)	(-1.59)	(-0.49)	(7.38)	(-3.31)	(-1.60)
$Idvol$	2.583	1.582	-4.619	0.583	0.458	0.367
	(4.25)	(1.00)	(-2.56)	(0.52)	(10.09)	(12.78)
Mean $\bar{R}^2$(%)	12.1	14.7	12.0	13.3	45.0	55.3
			Panel D: $STPN$			
$STPN$	0.515	0.498	0.621	0.125	0.061	0.054
	(3.82)	(2.63)	(4.17)	(0.49)	(6.60)	(7.55)
Lagged y	0.159	0.053	0.121	0.125		0.380
	(3.68)	(2.98)	(2.93)	(1.90)		(3.05)
MC	0.029	-0.196	-0.048	0.025	-0.006	-0.003
	(3.82)	(-8.47)	(-5.49)	(1.89)	(-11.21)	(-3.08)
B/M	0.070	-0.160	0.157	0.078	-0.002	-0.001
	(4.78)	(-4.02)	(1.93)	(2.45)	(-1.47)	(-0.92)
Mom	0.975	-2.319	-0.403	6.326	-0.205	-0.155
	(0.89)	(-1.56)	(-0.16)	(5.56)	(-3.05)	(-1.47)
$Idvol$	2.881	1.488	-4.976	0.911	0.501	0.397
	(4.88)	(0.79)	(-2.85)	(0.65)	(8.18)	(15.56)
Mean $\bar{R}^2$(%)	13.0	16.5	16.1	16.3	43.9	55.2

Table 6–Continued

	β_{MKT}	β_{SMB}	β_{HML}	β_{UMD}	$Idvol$	$Totalvol$
	Panel E: All Four Dispersion Measures					
$\|\Delta TP\|$	0.217	0.385	0.354	-0.334	0.023	0.034
	(1.84)	(2.36)	(1.89)	(-3.52)	(3.87)	(3.97)
$\|RV\|$	0.102	0.312	0.229	0.021	0.024	0.018
	(1.94)	(5.60)	(0.89)	(0.20)	(5.45)	(6.31)
STP	0.365	0.063	0.395	0.553	0.070	0.052
	(1.20)	(0.30)	(1.94)	(1.13)	(5.25)	(9.10)
$STPN$	0.305	0.323	0.335	-0.026	0.020	0.022
	(4.29)	(2.08)	(2.69)	(-0.20)	(6.94)	(4.30)
Lagged y	0.157	0.050	0.120	0.124		0.355
	(3.67)	(3.09)	(3.05)	(1.85)		(3.02)
MC	0.029	-0.195	-0.044	0.022	-0.006	-0.003
	(3.89)	(-8.85)	(-4.88)	(1.72)	(-10.05)	(-3.08)
B/M	0.065	-0.159	0.153	0.075	0.409	-0.001
	(5.08)	(-4.35)	(1.91)	(2.53)	(9.80)	(-1.71)
Mom	1.424	-2.466	-0.576	5.939	-0.171	-0.119
	(1.71)	(-1.96)	(-0.27)	(5.59)	(-3.26)	(-1.43)
$Idvol$	2.333	0.989	-5.738	0.891	0.409	0.321
	(3.19)	(0.54)	(-3.38)	(0.89)	(9.80)	(11.25)
Mean $\bar{R}^2$(%)	15.7	18.9	19.2	19.5	48.1	58.9

Table 7: Fama-MacBeth Regressions for Subperiods

This table reports, for the subperiods of 1999-2006 and 2007-2013, the estimation results of Fama-MacBeth cross-sectional regressions of next-month stock returns on the four dispersion measures and five control variables: MC, B/M, Mom, $Idvol$, and DPE. All details are same as those of Table 4 for the whole sample period.

Panel A: 1999-2006

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\|\Delta TP\|$	0.023				0.019		0.036
	(2.73)				(2.27)		(3.63)
$\|RV\|$		0.024			0.015		0.012
		(2.95)			(2.29)		(1.63)
STP			0.024			0.020	0.015
			(2.11)			(2.13)	(1.71)
$STPN$				0.007		-0.001	0.005
				(0.59)		(-0.14)	(0.51)
MC	-0.001	-0.001	-0.001	-0.002	-0.001	-0.002	-0.001
	(-1.61)	(-1.36)	(-1.69)	(-2.25)	(-1.28)	(-2.26)	(-1.58)
B/M	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002
	(-0.9)	(-0.49)	(-0.55)	(-0.3)	(-0.52)	(-0.39)	(-0.28)
Mom	-0.001	-0.024	-0.002	-0.038	-0.016	-0.001	-0.031
	(-0.01)	(-0.56)	(-0.04)	(-0.78)	(-0.4)	(-0.14)	(-0.7)
$Idvol$	0.026	0.024	0.027	0.027	0.015	0.015	-0.001
	(0.75)	(0.66)	(0.83)	(0.68)	(0.45)	(0.43)	(-0.03)
DPE	0.001	0.002	0.002	0.003	0.001	0.003	0.003
	(0.73)	(0.91)	(1.03)	(1.48)	(0.84)	(1.37)	(1.58)
Mean $\bar{R}^2$	6.21	7.07	6.24	8.12	7.50	8.95	10.35

Panel B: 2007-2013

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\|\Delta TP\|$	0.027				0.018		0.016
	(2.61)				(1.84)		(1.82)
$\|RV\|$		0.020			0.014		0.025
		(1.98)			(1.47)		(2.50)
STP			0.026			0.019	-0.005
			(2.79)			(1.76)	(-0.30)
$STPN$				0.020		0.017	0.019
				(1.77)		(1.67)	(1.83)
MC	-0.001	-0.002	-0.002	-0.002	-0.001	-0.002	-0.002
	(-1.83)	(-1.96)	(-2.48)	(-2.64)	(-1.82)	(-2.54)	(-2.16)
B/M	-0.003	-0.003	-0.002	-0.002	-0.003	-0.002	-0.002
	(-1.63)	(-1.88)	(-1.44)	(-1.29)	(-1.86)	(-1.33)	(-1.27)
Mom	-0.031	-0.029	-0.024	-0.003	-0.022	0.017	0.019
	(-0.52)	(-0.52)	(-0.43)	(-0.05)	(-0.4)	(1.67)	(0.35)
$Idvol$	0.086	0.081	0.074	0.039	0.073	0.028	0.016
	(1.77)	(1.58)	(1.68)	(0.84)	(1.46)	(0.7)	(0.37)
DPE	-0.001	-0.001	-0.001	0.002	-0.001	0.002	0.003
	(-0.23)	(-0.60)	(-0.64)	(1.10)	(-0.50)	(1.16)	(1.38)
Mean $\bar{R}^2$	5.55	5.95	5.49	6.95	6.36	7.31	8.83