

Earnings Guidance and Ex-ante Stock Price Crash Risk^{*}

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Abstract

We study the effect of disclosure on ex-ante stock crash risk by examining how management earnings forecasts affect investors' subjective beliefs about stock price crash risk. Using option-implied skewness as a proxy for ex-ante stock price crash risk, we find that investors' subjective crash risk changes with the content of the managers' forecast. Ex-ante crash risk decreases when firms provide bad news forecasts, where the managerial forecast falls below the analyst consensus, and increases in the short term when firms provide good news forecasts. The decrease following bad news is more pronounced when managers provide quarterly forecasts and when firms have greater information asymmetry. The decrease in crash risk following bad news and the increase following good news are smaller for firms with higher litigation risk.

Keywords: Management guidance; Ex-ante crash risk; Crash risk prediction; Information asymmetry; Litigation risk

JEL Classification: C12; C31; D84; G14

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1. Introduction

Stock price crash risk is a central concern for market participants and regulators. A large literature has identified that stock price crash risk is affected by firms' information environment. Theoretical models show that when managers can withhold firm-specific bad news, the accumulated negative information is eventually released all at once, generating stock price crash (Bleck and Liu 2007; Jin and Myers 2006). Empirical studies support this mechanism by documenting that various attributes of firms' financial reporting quality predict future stock price crashes, including reporting opacity, accounting conservatism, financial statement comparability, and the use of non-GAAP earnings.¹ These studies share a common focus on mandatory disclosure and the quality of financial reporting. How voluntary disclosure shapes crash risk remains largely unexplored.

We examine management earnings guidance to fill this gap. As the single most important channel of voluntary disclosure, management guidance accounts for approximately 55% of accounting-based information in explaining quarterly stock return variance (Beyer, Cohen, Lys and Walther 2010). The effect of guidance on crash risk is *ex ante* ambiguous. On the one hand, management guidance improves firms' information environment by reducing information asymmetry, shaping analyst expectations, and influencing stock price volatility.² Since information transparency is a key determinant of crash risk, management guidance that improves transparency

¹ Hutton, Marcus, and Tehranian (2009) show that opaque financial reports are associated with higher crash risk. Kim, Wang, and Zhang (2019) state that less readable 10-K reports are associated with higher stock price crash risk. DeFond, Hung, Li and Li (2015) show that the adoption of the International Financial Reporting Standards (IFRS) decreases stock crash risk among nonfinancial firms with poor information environment. This decrease in stock crash risk can be attributed to credible changes in local generally accepted accounting principles (GAAP) following IFRS adoption. Hsu, Wang and Whipple (2022) document that non-GAAP disclosure increases future realized stock price crash risk. They attribute this positive relation to the possibility that non-GAAP reporting conveys optimistically biased information about firms' future earnings.

² See, e.g., Collier and Yohn (1997) on bid-ask spreads, Cotter, Tuna, and Wysocki (2006) on analyst expectations, and Billings, Jennings, and Lev (2015) and Rogers, Skinner, and Van Buskirk (2009) on stock price volatility.

is expected to reduce investors' perceived crash risk. On the other hand, the voluntary nature of guidance allows managers to disclose strategically for their own benefit (Cheng and Lo 2006; Rogers and Stocken 2005). Kothari, Shu, and Wysocki (2009) point out that managers face asymmetric payoffs from disclosure, since good news raises compensation and job security while bad news leads to adverse outcomes. This asymmetry gives managers incentives to issue optimistically biased guidance, which may distort investors' perceptions of firm value and increase crash risk. Therefore, the overall effect of management guidance on crash risk is unclear.

The effect of guidance on perceived crash risk likely depends on news content of the disclosure. Managers have incentives to withhold bad news, so the voluntary release of unfavorable forecasts is informative. A manager who chooses to disclose a shortfall relative to the analyst consensus reduces the stock of hidden negative information within the firm, and investors who interpret bad news guidance this way should lower their perceived crash risk. Managers also have documented incentives to issue optimistically biased forecasts to inflate investor expectations, support stock prices, or set beatable analyst benchmarks (Noe 1999; Bergman and Roychowdhury 2008; Cheng and Lo 2006; Rogers and Stocken 2005). Therefore, investors aware of these incentives may treat good news guidance with skepticism.

We measure ex-ante crash risk with option implied skewness. Option prices contain information about future realized skewness and stock crashes, both at the market level (Bates 1991) and at the individual stock level (Conrad, Dittmar, and Ghysels 2013). This measure lets us observe the investors' expected stock crash risk at a daily frequency and over different horizons, and it allows us to isolate the effect of management guidance within a narrow window around each disclosure. Using U.S. option data from 1996 to 2022, we compute ex-ante skewness from out-of-the-money (OTM) options for 30-, 60-, and 91-day maturities following Schneider, Wagner, and

Zechner (2020). We verify that this measure predicts the realized skewness computed from daily stock returns over the corresponding horizons.

We first compare ex-ante crash risk of guidance firms with that of matched non-guiding firms on the same dates. We define bad news (good news) as guidance where the managerial forecast falls below (above) the prevailing analyst consensus. To ensure our results are not confounded by the impact of earnings announcements, we exclude management guidance announcements made in conjunction with earnings announcements.³ We find that treatment and control firms follow parallel trends in implied skewness before the disclosure. Following bad news, the ex-ante skewness of treatment firms rises at the disclosure while that of control firms stays flat, showing a reduction in perceived crash risk. Following good news, the ex-ante skewness of treatment firms declines. For neutral news, the treatment firms drift slightly below the control firms, with no sharp change at the event. The figure provides initial evidence that management guidance shifts investors' subjective crash risk, with bad news lowering and good news raising it.

We then move to the management guidance sample and examine the news content patterns more closely. By regressing changes in implied skewness within a short event window around individual guidance disclosures, we find that ex-ante crash risk decreases significantly following the disclosure of bad news. This result is consistent with the argument that the voluntary release of bad news signals commitment to information transparency, given that managers have inherent incentives to conceal negative information (Jin and Myers 2006). Following good news, ex-ante crash risk increases in the short term, which suggests that investors maintain a degree of skepticism

³ We exclude the earnings announcements because previous studies show that implied volatility tends to increase in the period leading up to the earnings announcement date and decrease thereafter, as earnings announcements follow predetermined schedules (Isakov and Pérignon 2001; Patell and Wolfson 1979; Patell and Wolfson 1981; Rogers, Skinner and Van Buskirk 2009). This pattern of implied volatility change may affect the implied skewness change around the earnings announcements.

toward positive voluntary disclosures, perceiving the disclosure of good news as a possible attempt to mask underlying negative trends or to manage analyst expectations (Cotter, Tuna, and Wysocki 2006).

We next examine whether the decrease in crash risk after bad news reflects improved transparency. We use cross-sectional variations in two dimensions, the informativeness of the guidance itself and the firm's information environment. We proxy informativeness with whether the forecast is quarterly, since quarterly forecasts are more timely and are verified more quickly than annual forecasts. We measure the information environment with analyst coverage and firm size, since firms with lower analyst coverage or smaller market capitalization tend to have greater information asymmetry. If the reduction in crash risk reflects greater transparency, it should be stronger for guidance that is verified more quickly and for firms in more opaque environments. Consistent with these predictions, the decrease in perceived crash risk after bad news is stronger when the forecast is quarterly, and it is stronger for firms with lower analyst coverage and smaller size. Disclosures that are verified more quickly, and disclosures made by more opaque firms, do more to relieve investors' concern about hidden bad news.

We then ask whether the increase in crash risk after good news reflects managerial opportunism. Previous literature suggests that the threat of shareholder litigation disciplines managers and constrains opportunistic disclosure (Skinner 1994; Skinner 1997). Litigation risk serves as a proxy for the cost of withholding negative information. When this cost is high, investors are less skeptical that an optimistic forecast conceals bad news, so the increase in perceived crash risk following good news should be smaller. Similarly, investors are also less concerned that these firms have been accumulating hidden bad news, so the relief from disclosing bad news is smaller and the reduction in perceived crash risk following bad news should also be weaker. Consistent

with both predictions, the increase following good news and the reduction following bad news are each weaker for firms facing high litigation risk. The good news result suggests that the rise in expected crash risk can be partly explained by investors' concern that managers disclose good news opportunistically.

Our paper contributes to the crash risk literature by showing how voluntary disclosure affects investors' crash risk expectations. Existing empirical studies focus predominantly on how mandatory disclosure and financial reporting attributes relate to future realized crash risk. In mandatory settings, firms disclose because they are required to do so by securities regulators, stock exchanges, or accounting standard setters (Healy and Palepu 2001). In voluntary settings, managers choose whether and what to disclose, and this choice itself conveys information about the firm's transparency. Hutton, Miller, and Skinner (2003) find that bad news forecasts are inherently credible and elicit a strong market response, whereas good news forecasts are credible only when managers back them with verifiable forward-looking statements, since investors are naturally skeptical of good news that managers have incentives to disclose. Our measure also provides direct evidence on the effect of disclosure on crash risk than the long horizon realized measures used in most prior work. We observe option implied skewness at a daily frequency and within a short window around each guidance event. Kim and Zhang (2014) also use an option implied measure of expected crash risk, but they average it at the annual level, as in other studies, and they study financial reporting opacity rather than voluntary disclosure.

Prior research documents that management guidance affects analyst expectations, information asymmetry, and stock price volatility. Our paper contributes to this literature by showing the multifaceted effects of management guidance on crash risk. The study most closely related to ours is Hamm, Li, and Ng (2018), who find that more frequent annual guidance is

associated with higher future realized crash risk, driven by optimistically biased forecasts. We complement their work in three ways. First, we provide supporting evidence that management guidance can increase crash risk, but we identify this effect through good news disclosure. Second, we use the change in option implied skewness within a short window around each guidance event, which mitigates the concern that guidance and crash risk are jointly determined by unobserved factors. Third, our ex-ante classification of guidance news avoids the confound between guidance content and subsequent earnings realization.

2. Sample and Measurements

In this section, we discuss our sample selection, data source, and the measures of ex-ante skewness.

2.1 Sample selection

Our sample includes the common equity share class of a U.S. corporation with share codes of 10 and 11 and stocks listed on the New York Stock Exchange, American Stock Exchange, and Nasdaq Stock Market-National Market system with exchange codes of 1, 2, and 3. We exclude the financial services and utility firms with the Standard Industrial Classification (SIC) code between 6000 and 6900 and between 4900 and 4949 respectively, following the industry definition for 48 industry portfolios from Kenneth French's website. The sample period is from January 1996 to December 2022.

To estimate the ex-ante skewness and implied volatility of stocks, we obtain equity options data from OptionMetrics. We obtain financial statement data from Compustat, stock price data from the Center for Research in Security Prices (CRSP), and analyst coverage data from the Institutional Brokers' Estimate System (I/B/E/S). We obtain institutional ownership from 13F

filings. To examine the change in ex-ante skewness around management guidance, we obtain the date on which the management earnings forecast is released from the IBES Management Guidance database (Lu and Skinner 2020; Rogers and Van Buskirk 2013). We include both quarterly and annual management guidance. We require each guidance event to have a single forecast periodicity on a given date and to contain at least one earnings per share forecast, and we use the earnings per share forecast to classify the news content of the event. To rule out the impact from earnings announcements, we exclude the management guidance announced in conjunction with earnings announcements.

2.2 Ex-ante skewness

We estimate the ex-ante skewness as the standardized forward-looking proxy for investors' perceived stock price crash risk using the OTM stock option data following Schneider, Wagner and Zechner (2020). The skewness is calculated as the sum of upper and lower skewness, which captures the positive and negative parts of return distribution respectively, shown in Eq.(1)

$$USK_{t,N} = \frac{6}{p_{t,N}} \left(\int_{F_{t,N}}^{\infty} \log\left(\frac{K}{F_{t,N}}\right) \frac{\sqrt{\frac{K}{F_{t,N}}} C_{t,N}(K)}{K^2} dK - \int_0^{F_{t,N}} \log\left(\frac{F_{t,N}}{K}\right) \frac{\sqrt{\frac{K}{F_{t,N}}} P_{t,N}(K)}{K^2} dK \right), \quad (1)$$

$$VAR_{t,N} = \frac{2}{p_{t,N}} \left(\int_0^{F_{t,N}} \frac{\sqrt{\frac{K}{F_{t,N}}} P_{t,N}(K)}{K^2} dK + \int_{F_{t,N}}^{\infty} \frac{\sqrt{\frac{K}{F_{t,N}}} C_{t,N}(K)}{K^2} dK \right), \quad (2)$$

where $F_{t,N}$ is the forward price of the stock with the contracted date as time t with maturity N . $C_{t,N}(K)$ and $P_{t,N}(K)$ capture the prices of European call and put options with the strike price K , respectively. $p_{t,N}$ is the price of zero-coupon bond with maturity N . The skewness is measured at the stock-day level. We further estimate ex-ante variance shown in Eq. (2). We calculate the ex-ante skewness and ex-ante variance with options of available maturities and interpolate skewness and variance to maturities of 30, 60, 91 days, with $N = 30, 60$, and 91. The ex-ante skewness used

in our empirical analysis is scaled by ex-ante variance, as shown in Eq. (3) below. The sign of $SK_{N,i,t}$ depends on the relative prices of OTM put and OTM call options. A higher $SK_{N,i,t}$, that is, skewness becoming less negative, indicates lower ex-ante crash risk.

$$SK_{N,i,t} = \frac{USK_{N,i,t}}{VAR_{N,i,t}^{\frac{3}{2}}}. \quad (3)$$

To examine the change in skewness around the report date (t) of earnings information, we calculate the change in average skewness from two days before the information report date t to two days after date t , shown in Eq. (4)

$$\Delta SK_{N,i,t} = \frac{SK_{N,i,t+1} + SK_{N,i,t+2}}{2} - \frac{SK_{N,i,t-1} + SK_{N,i,t-2}}{2}, \quad (4)$$

where $\Delta SK_{N,i,t}$ captures the change in skewness around the guidance information disclosed at date t for stock i using the options with maturity N .⁴ $\Delta SK_{N,i,t}$ equal to zero indicates no change in skewness. A positive $\Delta SK_{N,i,t}$ means skewness increases after the disclosure day t , indicating a decrease in expected stock price crash risk.

2.3 Control variables

Following previous literature, we introduce control variables that may affect the stock price crash risk. We control systematic risk and business risk using the market beta (*Beta*) and financial leverage (*Leverage*). Following Fama and French (1992), we estimate the market beta for each stock using its monthly returns over the prior 36 months. Leverage is the ratio of total liabilities over total assets. Firm performance is measured by *ROA*, since Hutton, Marcus and Tehranian (2009) show that operating performance is negatively related to crash risk. Book-to-market ratio

⁴ When calculating the two averages in the equation, if $SK_{i,t+1}$ is missing then $\frac{SK_{i,t+1} + SK_{i,t+2}}{2}$ returns $SK_{i,t+2}$. If both $SK_{i,t+1}$ and $SK_{i,t+2}$ are missing, then $\frac{SK_{i,t+1} + SK_{i,t+2}}{2}$ returns missing.

(B/M), market capitalization ($Size$), stock turnover ($Turnover$) are also controlled, as growth firms, large firms, and stocks with higher turnover are more likely to have stock price crashes (Chen, Hong and Stein 2001; Kim and Zhang 2016). We also control the contemporaneous daily stock return (Ret) in all specifications. The ex-ante skewness is computed from option prices, and option prices respond mechanically to the level of the underlying stock price. Since the guidance itself moves the stock price, the contemporaneous return absorbs this price level effect.

Firm size ($Size$) is computed as the natural logarithm of the market value of equity, calculated in million dollars. B/M is the firm's book equity at the end of the previous fiscal year, divided by the market value of equity at the end of December of the previous year. $Turnover$ is measured as the daily average number of shares traded in a quarter divided by the number of shares outstanding, shown as a percentage. We adjust the number of shares for Nasdaq stocks to address the double counting issue following Gao and Ritter (2010). Following Ang, Hodrick, Xing and Zhang (2006), monthly stock idiosyncratic volatility ($IVOL$) is computed as the standard deviation of the daily residuals in a month from the Fama–French (1993) three-factor model.

We also include analyst coverage and percentage of institutional shareholders to control for the impact from cross-sectional variation in information asymmetry. Analyst coverage ($ACov$) is calculated as the natural logarithm of one plus the average number of analysts covering a stock in each quarter, and institutional holdings ($INST$) is measured as the natural logarithm of one plus a stock's institutional ownership scaled by shares outstanding in each quarter. To analyze the effects of good and bad guidance disclosures, we define good news ($Good$) as a dummy variable equal to one if the forecast exceeds the analyst consensus and zero otherwise. Bad news (Bad) equals one if the forecast falls below the consensus and zero otherwise. Neutral news ($Neutral$) equals one if the consensus falls within the forecast range and zero otherwise.

The summary statistics of the control variables and variables of interest are presented in Table 1. Panel A reports the full sample. Panels B, C, and D report the subsamples of bad news, good news, and neutral news, respectively. In the full sample, the average change in ex-ante skewness around the disclosure is close to zero, as indicated by the mean of ΔSK . The means of ΔSK are 0.00, 0.01, and 0.01 for maturities of 30, 60, and 91 days, respectively. In the full sample, 24% of disclosures are classified as bad news, 16% as good news, and 60% as neutral news⁵. The ex-ante skewness increases on average, with means of ΔSK of 0.26, 0.17, and 0.13 for maturities of 30, 60, and 91 days, respectively, as shown in Panel B. Such increase in skewness indicates that investors lower their ex-ante crash risk expectations on average when managers' earnings forecast is below the analyst consensus.

Panel C reports the changes in ex-ante skewness when managers earnings forecast is above the analyst consensus. Ex-ante skewness decreases on average, with means of ΔSK of -0.21 , -0.11 , and -0.08 for the three maturities. The decrease in skewness indicates that investors raise their ex-ante crash risk expectations on average. Panel D reports the neutral news subsample. The ex-ante skewness also decreases on average, with means of ΔSK of -0.05 , -0.02 , and -0.02 for the three maturities, though the magnitude is smaller than that of good news. We interpret both neutral news and good news as non-bad news, whose disclosure is not expected to decrease the investors' perceived crash risk in the future.

[Insert Table 1 here]

Panel E of Table 1 reports the summary statistics for the control variables in the full sample. On the day of disclosure, the mean stock return is -0.10% . The mean and median of ROA are both 0.02. The average financial leverage and B/M of the firm are 0.19 and 0.48, respectively. The

⁵ We drop the guidance in which the analyst estimations are not available or there is no numeric forecast reported in the management guidance.

natural logarithm of the market value of stocks in million dollars (Size) is 8.21. The mean of turnover is 1.11, indicating that on average 1.11% of the outstanding shares of the firms change hands in a day. The average market beta is 1.22. The mean and median of idiosyncratic volatility are 1.59 and 1.34 per month. The mean institutional ownership is 0.52, indicating that institutional investors hold on average 52% of the shares. The mean of analyst coverage is 2.28. About 39% of the disclosures are quarterly management guidance.

3. Empirical Results

In this section, we examine whether and how investors' beliefs about future stock price crash risk change around the management guidance disclosures.

3.1 Validity check of the ex-ante skewness measure

Before using the option-implied ex-ante skewness as the proxy for investors' subjective stock price crash risk, we first assess the validity of this measure. If option implied skewness contains information about the future return distribution, it should predict realized skewness. We run the following regression model at the daily level in our sample. If option implied skewness is a valid measure for the future realized stock price crashes, β_1 is predicted to be positive.

$$RSK_{N,i,t} = \alpha + \beta_1 \times SK_{N,i,t} + \boldsymbol{\beta} \times \mathbf{X} + FE_i + FE_t. \quad (5)$$

The dependent variable $RSK_{N,i,t}$ is the standard skewness of stock i , estimated using the daily stock return from day t to day $t + N$. The main independent variable is $SK_{N,i,t}$, which is estimated following Eq. (3) using the options of stock i on day t and interpolated to maturities of N days. $\mathbf{X}$ represents the vector of control variable. We also include the firm and day fixed effects for unobserved factors across firm and time. The standard errors are clustered by stock to account for cross-sectional correlation in the residuals.

The regression results are reported in Table 2. We estimate the ex-ante skewness using

options with available maturities and interpolate this skewness to maturities of 30, 60 and 91 days, as shown in the first two, middle two and last two columns from left to the right. Columns (1) and (2) show the results of the regression model in which the independent variable is ex-ante skewness estimated using options with available maturities and interpolated to a maturity of 30 days, and the dependent variable is the realized skewness of daily stock returns over the next 30 days. The results are consistent with our prediction. The coefficients on ex-ante skewness are 0.014 and 0.011, respectively, without and with control variables added, both statistically significant at the 1% level. The coefficient presented in column (1) indicates that a one-standard-deviation increase in ex-ante skewness predicts a 0.03 ($= 0.014 \times 1.82$) increase in ex-post skewness, where 1.82 is the sample standard deviation of the 30-day ex-ante skewness. We find consistent results using ex-ante skewness with maturity of 60 days and 91 days, as shown in columns (3) to (6). All coefficients on ex-ante skewness are significantly positive at the 1% level, supporting the use of the option implied skewness estimated following Eq. (3) as a forward-looking measure of crash risk.

[Insert Table 2 here]

3.2 A matched difference-in-differences design

Before turning to the main analysis, we first ask whether management guidance events shift the ex-ante crash risk of disclosing firms relative to comparable firms that do not issue guidance. We construct a matched sample in which each guidance firm, the treatment firm, is paired with a non-guidance control firm from the same one-digit SIC industry on the same event date, using nearest-neighbor matching on firm size, analyst coverage, book-to-market, and the level of ex-ante skewness measured before the event window. We then plot the mean ex-ante skewness of treatment and control firms over the $[-10, 10]$ trading-day window around the event. A higher (less negative) value of ex-ante skewness implies a lower perceived stock price crash risk. If the two groups follow

similar paths before the event and diverge afterward, the divergence can be attributed to the guidance event rather than to differences in firm characteristics.

Figure 1 presents the results. Each row corresponds to a news category, pooling all events in the first row and then separating bad, good, and neutral news, and each column corresponds to a horizon of 30, 60, and 91 days. Ex-ante skewness is estimated following Eq. (3) as the variance-scaled skewness. Across the pooled sample, treatment and control firms track each other closely before the event, with no sharp divergence afterward. Once events are separated by news content, clear divergence emerges at the event date. The divergence is most pronounced for bad news, where the ex-ante skewness of treatment firms rises at the event while that of control firms remains flat, consistent with a reduction in perceived crash risk when managers earnings forecast is below the analyst consensus. For good news, the ex-ante skewness of treatment firms declines relative to control firms after the event, showing an increase in perceived crash risk. For neutral news, the treatment firms drift slightly below the control firms with no sharp change at the event, and the drift diminishes at the 60-day and 91-day horizons. Taken together, Figure 1 provides initial evidence that management guidance shifts investors' subjective crash risk, with bad news lowering and good news raising perceived crash risk relative to matched non-guidance firms.

[Insert Figure 1 here]

3.3 Ex-ante skewness change within the $[-2, 2]$ window of the management guidance

As presented in Figure 1, ex-ante skewness changes sharply immediately following guidance disclosure. To test this pattern, we restrict our empirical analysis to a narrow $[-2, 2]$ window around guidance. We calculate ΔSK following Eq. (4), which captures the change in ex-ante skewness before and after the disclosure day. A positive ΔSK indicates an increase in ex-ante skewness, corresponding to a decrease in perceived stock price crash risk. To examine this change in ex-ante

skewness, we employ the following regression model.

$$\Delta SK_{N,i,t} = \alpha + \beta_1 \times Bad_{i,t} + \beta_2 \times Good_{i,t} + \boldsymbol{\beta} \times \mathbf{X} + FE_i + FE_{yq}. \quad (6)$$

where *Bad* and *Good* are dummy variables that equal one if the firm discloses bad or good news on the disclosure day, and zero otherwise. The benchmark is the change in ex-ante skewness around guidance disclosures where the analyst consensus falls within the forecast range. The contemporaneous stock return (*Ret*) is included in all specifications, including the columns without other control variables, since option prices respond to the contemporaneous movement of the underlying stock price.

Table 3 reports the regression results, with coefficients expressed in percentages. Columns (1) and (2) report results for the 30-day horizon. In Column (1), the coefficient on *Bad* is 17.01 (*t*-stat = 6.55), indicating that ex-ante skewness increases by 0.17 more than the benchmark following bad news disclosure, about 0.17 standard deviations of ΔSK at the 30-day horizon, consistent with a reduction in investors' perceived crash risk in the short term. The coefficient on *Good* is -5.788 (*t*-stat = -2.03), indicating that ex-ante skewness declines by 0.06 more than the benchmark following good news disclosure, about 0.06 standard deviations of ΔSK , reflecting a corresponding rise in perceived crash risk. The coefficients on bad and good news remain statistically significant after including controls, as shown in column (2).

[Insert Table 3 here]

We find consistent results across longer horizons in the remaining columns. As the maturity of ex-ante skewness increases from 30 to 91 days, the magnitude of the coefficients decreases. The coefficient on *Bad* declines from 17.01 in Column (1) to 11.17 (*t*-stat = 6.24) in Column (3) and further to 8.980 (*t*-stat = 6.63) in Column (5), and the coefficient on *Good* with controls moves from -6.197 in Column (2) to -3.655 in Column (4) and to -2.072 in Column (6). The coefficients

on *Good* are weaker at longer horizons and insignificant at the 91-day horizon. Good news and neutral news are both non-bad news, and they differ in their impact on crash risk only in the short term. Overall, we find that investors' subjective stock price crash risk decreases following the disclosure of bad news forecasts from managers and increases following good news⁶.

Stock price crash risk concerns the left (downside) tail of the return distribution, that is, the probability of a large negative return. To check whether the change in total ex-ante skewness around guidance is driven by the downside tail, we measure the left (lower) component following Eq. (1). We focus on the left component because it is the part of the distribution most directly tied to crash risk. The results are presented in Appendix A. The left component responds to bad news in the same direction as the total measure, with a coefficient of 11.68 (t-stat = 5.47) at the 30-day horizon after controls. The reduction in perceived crash risk following bad news is therefore reflected in the left tail. For good news, the left tail response is not significant.

4. Heterogeneity analysis for the change in ex-ante skewness

4.1 Bad news disclosures and Forecast periodicity

The reduction in ex-ante crash risk following bad news suggests that investors update their beliefs about the likelihood of accumulated hidden negative information. If so, the reduction should be larger when the disclosure is more informative. We proxy for the informativeness of management guidance using the periodicity of the forecast, quarterly versus annual. Quarterly forecasts are more timely and are verified more quickly than annual forecasts, so we expect the reduction in perceived crash risk following bad news to be stronger for quarterly guidance.

Table 4 presents the regression results with periodicity of forecasts. We define *QTR* as an indicator variable that equals one for quarterly forecasts and zero for annual ones, and we interact

⁶ In untabulated tests, we find that the results are robust to controlling for the pre-event level of ex-ante skewness.

QTR with the bad news and good news indicators.

[Insert Table 4 here]

Columns (1) and (2) report regression results for the 30-day horizon. The coefficients on $Bad \times QTR$ are 11.69 (t-stat = 2.27) without controls and 11.58 (t-stat = 2.24) with controls, indicating that the increase in ex-ante skewness following bad news disclosures is higher by about 0.12 for quarterly forecasts than for annual forecasts. The result holds over the next 60 days and 91 days. The coefficients on $Bad \times QTR$ with controls are 5.394 (t-stat = 1.72) in Column (4) and 4.653 (t-stat = 2.09) in Column (6). Quarterly bad news disclosures trigger a stronger reduction in perceived crash risk than annual ones, and the magnitude of this incremental effect diminishes as the horizon lengthens.

4.2 Bad news disclosures and information asymmetry

The agency-based model proposed by Jin and Myers (2006) links stock price crash risk to firms' information opacity. In their model, high information asymmetry allows managers to withhold and accumulate bad news until it reaches a threshold and is released all at once, producing a sudden price collapse. If the reduction in expected crash risk following bad news disclosure reflects the relief of this concern, the reduction should be more pronounced for firms with higher information asymmetry, where the scope for hidden bad news is larger. We proxy for information asymmetry using analyst coverage (*ACov*) and firm size (*Size*), since firms with fewer analysts or smaller size tend to have more opaque information environments.

[Insert Table 5 here]

Table 5 reports the regression results. Panel A uses analyst coverage. The coefficients on $Bad \times ACov$ are negative and statistically significant across all columns, indicating that the increase in ex-ante skewness following the bad news disclosure is smaller for firms with higher

analyst coverage (i.e., lower information asymmetry). For example, in Column (2), the coefficient on $Bad \times ACov$ is -12.69 ($t\text{-stat} = -2.89$), showing that the increase in ex-ante skewness following the bad news is smaller by about 0.07 for a one-standard-deviation increase in analyst coverage. The reduction in perceived crash risk following bad news is therefore weaker in transparent firms, where the scope for hidden negative information is already limited. Panel B shows consistent results with firm size as the alternative proxy for information asymmetry. The coefficients on $Bad \times Size$ are negative and statistically significant across all columns. In Column (2), the coefficient on $Bad \times Size$ is -3.509 ($t\text{-stat} = -2.26$), showing that the increase in ex-ante skewness following bad news is smaller by about 0.06 for a one-standard-deviation increase in firm size.

4.3 Litigation risk

Litigation risk raises the cost of withholding negative information, since firms with higher litigation risk face a greater probability of investor lawsuits following extreme negative stock returns. For bad news, investors are less concerned that a high litigation risk firm has been hiding negative information, so the disclosure of bad news provides less additional relief and the reduction in perceived crash risk is smaller. For good news, the higher cost of concealment makes investors less skeptical that the firm is withholding bad news behind an optimistic forecast, so the increase in perceived crash risk is also smaller. We therefore predict that litigation risk weakens both the reduction in perceived crash risk following bad news and the increase following good news.

To measure litigation risk, we follow the methodology of Kim and Skinner (2012) and Kim, Wang, and Zhang (2019)

$$\begin{aligned}
Litigation_{i,t} = & -7.883 + 0.556 \times FSP_{i,t} + 0.518 \times LnAssets_{i,t-1} \\
& + 0.982 \times Sales\ Growth_{i,t-1} + 0.379 \times Return_{i,t-1} \\
& - 0.108 \times Return\ Skewness_{i,t-1} + 25.635 \times Return\ Std\ Dev_{i,t-1} \\
& + 7 \times 10^{-7} \times Turnover_{i,t-1},
\end{aligned} \tag{7}$$

where *FSP* is a dummy variable that equals one if the firm is in the biotech (SIC codes 2833–2836 and 8731–8734), computer (3570–3577 and 7370–7374), electronics (3600–3674), or retail (5200–5961) industries, and zero otherwise. *LnAssets* is the natural log of total assets at the end of the year. *Sales Growth* is the change in sales scaled by total assets. *Return* is the market-adjusted 12-month cumulative stock returns. *Return Skewness* and *Return Std Dev* are skewness and standard deviation of firms' 12-month returns. *Turnover* is the cumulative trading volume over the 12-month period scaled by total shares outstanding at the beginning of the year. *Litigation* is estimated at the stock-year level. A higher value of *Litigation*_{*i,t*} indicates higher litigation risk for stock *i* in year *t*.

[Insert Table 6 here]

Table 6 shows the regression results. The coefficients on *Bad* × *Litigation* are negative and statistically significant across all columns. In Column (2), the coefficient is −4.791 (*t*-stat = −2.64), indicating that the increase in ex-ante skewness following bad news disclosure is smaller for firms with higher litigation risk. The reduction in perceived crash risk following bad news is therefore weaker when the firm already faces a high cost of withholding negative information, consistent with investors expecting less hidden bad news at these firms to begin with. The coefficients on *Good* × *Litigation* are positive and significant. In Column (2), the coefficient is 4.666 (*t*-stat = 2.70), indicating that the decline in ex-ante skewness following good news disclosure is smaller for firms with higher litigation risk. The increase in perceived crash risk

following good news is therefore weaker when concealment is more costly, consistent with investors being less skeptical of optimistic disclosure at these firms. This effect remains significant on the 91-day horizon, with a coefficient of 2.803 ($t\text{-stat} = 3.13$) in Column (6).

5. Conclusion

In this paper, we investigate whether management guidance disclosures influence investors' expectations of stock price crash risk, using option-implied skewness as a forward-looking and high-frequency measure. By focusing on narrow windows around guidance disclosure dates and isolating guidance events from concurrent earnings announcements, we find that the crash risk response to management guidance depends on the informational content of the disclosure relative to prevailing analyst consensus.

When managers voluntarily disclose bad news, guidance falling below the analyst consensus, expected crash risk declines significantly. We interpret this as investors updating their beliefs about the likelihood of accumulated hidden negative information. Consistent with this transparency mechanism, the effect of bad news is stronger when the forecast is quarterly rather than annual, and it is stronger for firms with higher information asymmetry, that is, firms with lower analyst coverage and smaller size. When managers disclose good news, guidance exceeding the analyst consensus, expected crash risk increases in the short term. We use litigation risk to proxy for the cost of withholding negative information, and we find that the increase following good news and the reduction following bad news are each weaker for firms facing high litigation risk, since this higher cost lowers both investors' skepticism toward optimistic forecasts and their concern about hidden bad news.

Our findings contribute to the crash risk literature by providing forward-looking evidence that voluntary disclosure directly shapes investors' tail-risk expectations, and to the management

guidance literature by demonstrating that investors interpret guidance not only as a signal about expected firm performance, but as information about disclosure credibility and the likelihood of extreme downside outcomes.

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Figure 1

This figure plots the mean ex-ante skewness of treatment and control firms in the trading days surrounding management guidance events. Ex-ante skewness is estimated following Eq. (3). Treatment firms are those issuing guidance. Each treatment firm is matched with a non-guidance firm drawn from the same one-digit SIC industry on the same event date, with nearest-neighbor matching on firm size, analyst coverage, book-to-market, and pre-event skewness measured before the event window. The red line denotes treatment firms and the black line denotes control firms, and shaded areas represent 95% confidence intervals. The vertical dashed line marks the guidance event date, denoted as day 0, and the horizontal axis measures trading days from the event over the window from day -10 to day 10. The first row pools all guidance events, and the remaining rows separate events into bad news, where the managerial forecast falls below the prevailing analyst consensus, good news, where the forecast lies above the consensus, and neutral news, where the consensus falls within the forecast range. Each column corresponds to a horizon of the option-implied skewness measure, computed at 30, 60, and 91 days.

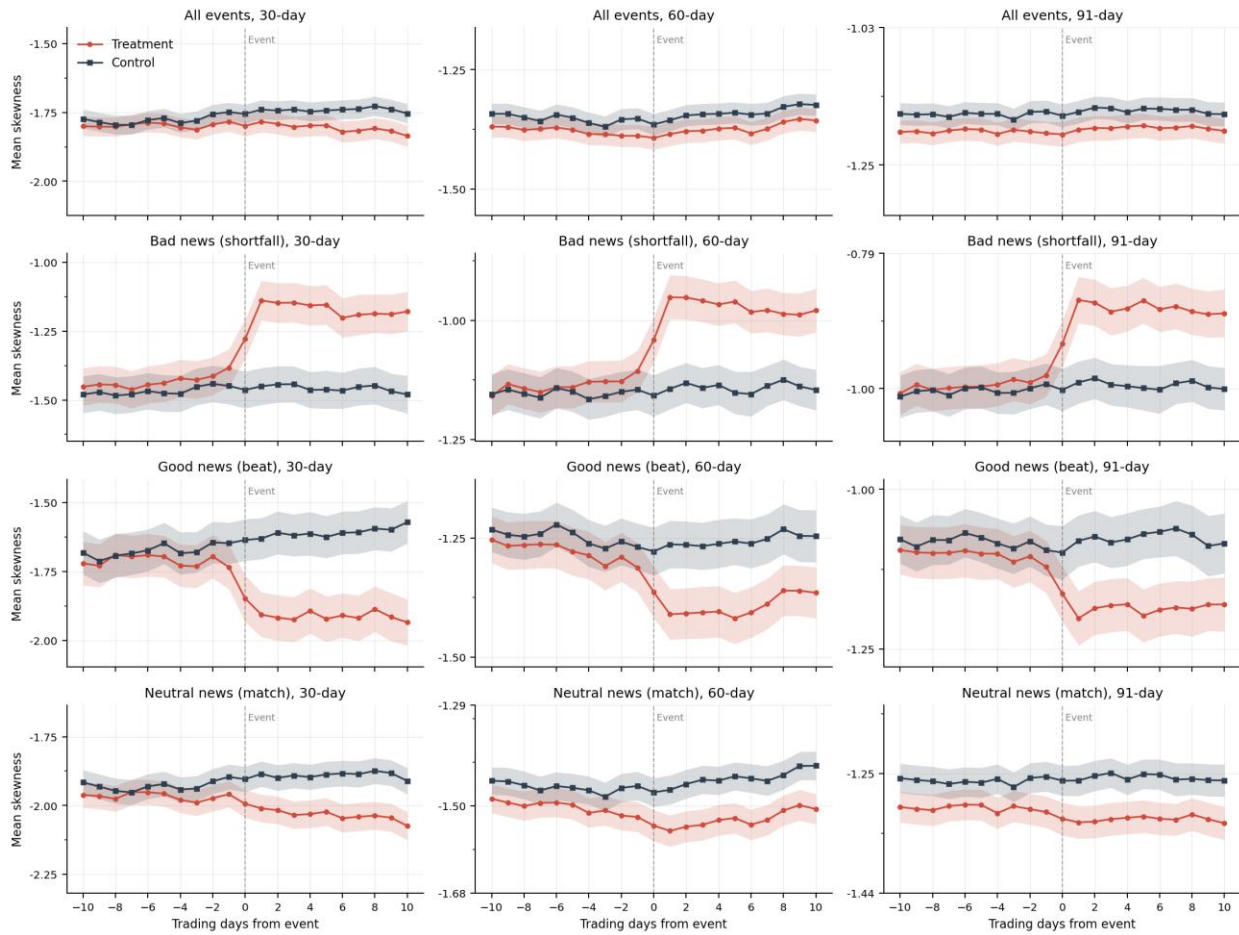


Table 1. Summary statistics

This table reports the summary statistics of the variables used in the empirical analysis, including the mean (Mean), standard deviation (Std Dev), and quartiles (P25, P50, and P75). Panel A shows the main variables in the full sample. Panel B, Panel C, and Panel D show the main variables in the subsamples of bad news, good news, and neutral news, respectively. Panel E shows the control variables in the full sample. $\Delta SK_{N,i,t}$ is the change of ex-ante skewness around the disclosure of management guidance, calculated as Eq. (4). Good is a dummy variable equal to one if the management forecast exceeds the analyst consensus, and zero otherwise. Bad is equal to one if the forecast falls below the consensus, and zero otherwise. Neutral is equal to one if the consensus falls within the forecast range, and zero otherwise. The following are the control variables. *Ret* is the daily stock returns, shown as percentage. *ROA* is calculated as the earnings scaled by total assets. *Leverage* is the ratio of the total liability over the total assets. *B/M* is the natural logarithm of a firm's book equity at the end of the previous fiscal year, divided by the market value of equity at the end of December of the previous year. Firm size (*Size*) is computed as the natural logarithm of the market value of equity, calculated in million dollars. *Turnover* is measured as the daily average number of shares traded in a quarter divided by the number of shares outstanding, shown as a percentage, with the number of shares for Nasdaq stocks adjusted. Market beta (*Beta*) is estimated for each stock using its monthly returns over the prior 36 months. Stock idiosyncratic volatility (*IVOL*) is computed as the standard deviation of the daily residuals in a month from the Fama–French three-factor model. Institutional holdings (*INST*) is measured as the natural logarithm of one plus a stock's institutional ownership scaled by shares outstanding in each quarter. Analyst coverage (*ACov*) is calculated as the natural logarithm of one plus the average number of analysts covering a stock in each quarter. QTR is one if the quarterly forecasts are reported and zero if the annual forecasts are reported. The sample period is from January 1996 to December 2022.

Panel A: Main Variables: Full Sample						
Variable	Mean	SD	P25	P50	P75	N
ΔSK_{30}	0.00	0.99	-0.38	-0.01	0.36	10,636
ΔSK_{60}	0.01	0.63	-0.20	-0.01	0.20	10,636
ΔSK_{91}	0.01	0.47	-0.12	0.00	0.14	10,636
Panel B: Main Variables: Bad news						
Variable	Mean	SD	P25	P50	P75	N
ΔSK_{30}	0.26	1.09	-0.20	0.16	0.66	2,566
ΔSK_{60}	0.17	0.69	-0.11	0.09	0.40	2,566
ΔSK_{91}	0.13	0.51	-0.06	0.07	0.28	2,566
Panel C: Main Variables: Good news						
Variable	Mean	SD	P25	P50	P75	N
ΔSK_{30}	-0.21	0.93	-0.57	-0.17	0.17	1,680
ΔSK_{60}	-0.11	0.59	-0.28	-0.08	0.09	1,680
ΔSK_{91}	-0.08	0.45	-0.19	-0.04	0.06	1,680
Panel D: Main Variables: Neutral news						
Variable	Mean	SD	P25	P50	P75	N
ΔSK_{30}	-0.05	0.93	-0.39	-0.03	0.31	6,390
ΔSK_{60}	-0.02	0.61	-0.21	-0.03	0.17	6,390
ΔSK_{91}	-0.02	0.45	-0.13	-0.01	0.11	6,390
Panel E: Control Variables: Full Sample						
Variable	Mean	SD	P25	P50	P75	N
Ret %	-0.10	5.31	-1.58	0.04	1.72	10,636
ROA	0.02	0.03	0.01	0.02	0.03	10,636
Leverage	0.19	0.16	0.04	0.18	0.30	10,636
B/M	0.48	0.54	0.23	0.38	0.59	10,636

Size	8.21	1.60	7.03	8.09	9.30	10,636
Turnover %	1.11	0.87	0.58	0.87	1.34	10,636
Beta	1.22	0.75	0.74	1.12	1.59	10,636
IVOL	1.59	1.00	0.93	1.34	1.95	10,636
INST	0.52	0.23	0.50	0.59	0.65	10,636
ACov	2.28	0.57	1.91	2.33	2.69	10,636
QTR	0.39	0.49	0.00	0.00	1.00	10,636

Table 2. Ex-ante skewness and realized stock price crash

This table presents the results of the following regression Eq(5). The dependent variable $RSK_{N,i,t}$ is the realized skewness estimated from the daily stock returns from day t to $t + N$. The ex-ante skewness $SK_{N,i,t}$ of N -day returns is calculated using the option prices at the end of day t , with $N=30,60$ and 91 . The definitions of other explanatory variables are described in Table 1. The sample period is from January 1996 to December 2022. Standard errors are clustered at the stock level. The t -statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	N=30		N=60		N=91	
	(1)	(2)	(3)	(4)	(5)	(6)
SK_N	0.014*** (18.22)	0.011*** (14.50)	0.024*** (12.71)	0.017*** (9.32)	0.032*** (10.34)	0.022*** (6.85)
ROA		-0.219*** (-6.08)		-0.306*** (-5.50)		-0.296*** (-4.51)
Leverage		0.007 (0.47)		-0.007 (-0.27)		-0.020 (-0.59)
B/M		0.000 (0.07)		-0.002 (-0.70)		-0.002 (-0.82)
Size		-0.110*** (-28.23)		-0.173*** (-28.12)		-0.218*** (-26.85)
Turnover		0.056 (0.39)		0.051 (0.25)		-0.116 (-0.45)
Beta		-0.004 (-1.55)		-0.008* (-1.78)		-0.012* (-1.91)
IVOL		0.004*** (3.18)		0.001 (0.75)		0.003 (1.57)
INST		-0.029* (-1.92)		-0.043* (-1.72)		-0.043 (-1.27)
ACov		-0.012** (-2.13)		-0.029*** (-3.32)		-0.044*** (-3.81)
Observations	9,273,353	9,273,353	9,535,485	9,535,485	9,535,514	9,535,514
Stock FE	yes	yes	yes	yes	yes	yes
Date FE	yes	yes	yes	yes	yes	yes
Within R ²	0.001	0.005	0.001	0.008	0.001	0.010

Table 3. Ex-ante skewness changes around management guidance

This table presents the results of regressions in which the dependent variable is the change of ex-ante skewness around the management guidance disclosure date ($\Delta SK_{N,i,t}$) of N-day returns, calculated as Eq. (4). We define good news (*Good*) as a dummy variable equal to one if the management forecast exceeds the analyst consensus and zero otherwise. Bad news (*Bad*) is equal to one if the forecast falls below the consensus and zero otherwise. Neutral guidance, where the consensus falls within the forecast range, is the omitted benchmark. The definitions of other explanatory variables are described in Table 1. The coefficients are multiplied by 100. The contemporaneous stock return (*Ret*) is included in all specifications. The sample includes ordinary common stocks of U.S. nonfinancial companies listed on major exchanges (NYSE, Amex, and Nasdaq). The sample period is from January 1996 to December 2022. Standard errors are clustered at the stock and quarter level. The *t*-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	N=30		N=60		N=91	
	(1)	(2)	(3)	(4)	(5)	(6)
Bad	17.01*** (6.55)	16.62*** (6.47)	11.17*** (6.24)	10.47*** (5.83)	8.980*** (6.63)	8.680*** (6.21)
Good	-5.788** (-2.03)	-6.197** (-2.17)	-2.982 (-1.55)	-3.655* (-1.90)	-1.861 (-1.25)	-2.072 (-1.36)
Ret	-4.858*** (-14.57)	-4.855*** (-14.47)	-2.814*** (-13.41)	-2.806*** (-13.29)	-1.992*** (-11.87)	-1.985*** (-11.75)
QTR		3.632 (1.03)		5.991*** (3.14)		3.000** (2.13)
ROA		59.55 (1.57)		8.789 (0.45)		10.41 (0.58)
Leverage		11.18 (0.91)		1.541 (0.18)		0.825 (0.14)
B/M		0.544 (0.26)		0.162 (0.14)		0.535 (0.62)
Size		-0.742 (-0.28)		-1.078 (-0.64)		0.412 (0.33)
Turnover		-1.625 (-0.95)		-0.473 (-0.26)		-1.424 (-0.65)
Beta		1.932 (0.97)		1.330 (1.24)		1.090 (1.39)
IVOL		0.131 (0.08)		-1.087 (-1.11)		-0.729 (-0.96)
INST		-8.456 (-0.86)		-0.923 (-0.14)		-1.931 (-0.45)
ACov		-0.159 (-0.04)		1.186 (0.43)		1.450 (0.74)
Observations	10,224	10,224	10,224	10,224	10,224	10,224
Stock FE	yes	yes	yes	yes	yes	yes
Year-quarter FE	yes	yes	yes	yes	yes	yes
Within R ²	0.083	0.084	0.071	0.072	0.068	0.070

Table 4. Heterogeneity analysis: Bad news disclosure and forecast periodicity

This table presents the regression results in which the dependent variable is the change of ex-ante skewness around the management guidance disclosure date ($\Delta SK_{N,i,t}$) calculated following Eq. (4), with N days maturity of ex-ante skewness. We define good news (*Good*) as a dummy variable equal to one if the management forecast exceeds the analyst consensus and zero otherwise. Bad news (*Bad*) is equal to one if the forecast falls below the consensus and zero otherwise. Neutral guidance, where the consensus falls within the forecast range, is the omitted benchmark. The definitions of other explanatory variables are described in Table 1. The coefficients are multiplied by 100. The contemporaneous stock return (*Ret*) is included in all specifications. The sample includes ordinary common stocks of U.S. nonfinancial companies listed on major exchanges (NYSE, Amex, and Nasdaq). The sample period is from January 1996 to December 2022. Standard errors are clustered at the stock and quarter level. The *t*-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	N=30		N=60		N=91	
	(1)	(2)	(3)	(4)	(5)	(6)
Bad×QTR	11.69** (2.27)	11.58** (2.24)	5.584* (1.77)	5.394* (1.72)	4.740** (2.09)	4.653** (2.09)
Good×QTR	0.584 (0.11)	0.404 (0.07)	-1.846 (-0.51)	-1.974 (-0.54)	-3.023 (-1.08)	-3.091 (-1.10)
Bad	11.37*** (3.24)	11.42*** (3.25)	7.910*** (3.41)	7.955*** (3.43)	6.376*** (3.91)	6.448*** (3.93)
Good	-5.496 (-1.26)	-5.409 (-1.25)	-2.227 (-0.77)	-2.154 (-0.75)	-0.217 (-0.10)	-0.0493 (-0.02)
QTR	0.175 (0.05)	0.266 (0.07)	4.850** (2.24)	4.836** (2.22)	2.298 (1.38)	2.269 (1.35)
Ret	-4.807*** (-14.40)	-4.807*** (-14.36)	-2.779*** (-13.27)	-2.777*** (-13.23)	-1.960*** (-11.79)	-1.956*** (-11.71)
ROA		59.30 (1.57)		8.659 (0.45)		10.29 (0.58)
Leverage		10.86 (0.88)		1.497 (0.18)		0.856 (0.15)
B/M		0.580 (0.27)		0.173 (0.15)		0.541 (0.62)
Size		-0.401 (-0.15)		-0.907 (-0.53)		0.567 (0.45)
Turnover		-1.549 (-0.90)		-0.430 (-0.23)		-1.382 (-0.63)
Beta		1.957 (0.98)		1.350 (1.26)		1.113 (1.43)
IVOL		0.154 (0.10)		-1.083 (-1.10)		-0.730 (-0.96)
INST		-8.521 (-0.87)		-0.960 (-0.15)		-1.967 (-0.46)
ACov		-0.526 (-0.13)		0.997 (0.36)		1.275 (0.65)
Observations	10,224	10,224	10,224	10,224	10,224	10,224
Stock FE	yes	yes	yes	yes	yes	yes
Year-quarter FE	yes	yes	yes	yes	yes	yes
Within R ²	0.084	0.084	0.072	0.072	0.069	0.070

Table 5. Heterogeneity analysis: Bad news disclosure and firms' information asymmetry

This table presents the regression results in which the dependent variable is the change of ex-ante skewness around the management guidance disclosure date ($\Delta SK_{N,i,t}$) calculated following Eq. (4), with N days maturity of ex-ante skewness. We use analyst coverage (ACov) and firm size (Size) as proxies for firms' information asymmetry respectively. Lower analyst coverage and smaller firm size indicate higher information asymmetry. We define good news (*Good*) as a dummy variable equal to one if the management forecast exceeds the analyst consensus and zero otherwise. Bad news (*Bad*) is equal to one if the forecast falls below the consensus and zero otherwise. Neutral guidance, where the consensus falls within the forecast range, is the omitted benchmark. The definitions of other explanatory variables are described in Table 1. The coefficients are multiplied by 100. The contemporaneous stock return (*Ret*) is included in all specifications. Controls refer to the control variables other than *Ret*. The sample includes ordinary common stocks of U.S. nonfinancial companies listed on major exchanges (NYSE, Amex, and Nasdaq). The sample period is from January 1996 to December 2022. Standard errors are clustered at the stock and quarter level. The *t*-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Analyst coverage						
	N=30		N=60		N=91	
	(1)	(2)	(3)	(4)	(5)	(6)
Bad×ACov	-12.93*** (-2.95)	-12.69*** (-2.89)	-11.49*** (-4.01)	-11.23*** (-3.95)	-8.559*** (-3.66)	-8.439*** (-3.63)
Good×ACov	4.519 (1.00)	4.674 (1.03)	-1.382 (-0.50)	-1.273 (-0.46)	-2.416 (-1.03)	-2.346 (-0.99)
Bad	46.25*** (4.32)	45.37*** (4.25)	37.28*** (5.23)	36.02*** (5.09)	28.46*** (4.91)	27.92*** (4.85)
Good	-15.34 (-1.40)	-16.06 (-1.47)	0.604 (0.09)	-0.319 (-0.05)	3.942 (0.68)	3.534 (0.61)
ACov	1.766 (0.45)	1.895 (0.46)	3.623 (1.23)	3.913 (1.32)	3.951* (1.90)	3.733* (1.76)
Ret	-4.831*** (-14.58)	-4.829*** (-14.47)	-2.797*** (-13.46)	-2.790*** (-13.33)	-1.981*** (-11.89)	-1.974*** (-11.77)
Controls	No	Yes	No	Yes	No	Yes
Observations	10,224	10,224	10,224	10,224	10,224	10,224
Stock FE	yes	yes	yes	yes	yes	yes
Year-quarter FE	yes	yes	yes	yes	yes	yes
Within R ²	0.084	0.085	0.072	0.073	0.070	0.071
Panel B: Firm size						
	N=30		N=60		N=91	
	(1)	(2)	(3)	(4)	(5)	(6)
Bad×Size	-3.631** (-2.35)	-3.509** (-2.26)	-3.529*** (-3.71)	-3.404*** (-3.61)	-2.202*** (-2.94)	-2.132*** (-2.86)
Good×Size	3.289* (1.85)	3.296* (1.85)	0.129 (0.13)	0.101 (0.10)	-0.316 (-0.42)	-0.323 (-0.43)
Bad	46.47*** (3.55)	45.15*** (3.44)	40.01*** (5.05)	38.34*** (4.89)	27.04*** (4.24)	26.16*** (4.09)
Good	-31.67** (-2.13)	-32.09** (-2.17)	-3.547 (-0.42)	-3.945 (-0.47)	1.043 (0.16)	0.847 (0.13)
Size	-0.00390 (0.00)	-0.379 (-0.13)	0.362 (0.21)	-0.142 (-0.08)	1.692 (1.46)	1.071 (0.82)
Ret	-4.777***	-4.776***	-2.766***	-2.760***	-1.963***	-1.959***

	(-14.14)	(-14.06)	(-13.13)	(-13.01)	(-11.57)	(-11.49)
Controls	No	Yes	No	Yes	No	Yes
Observations	10,224	10,224	10,224	10,224	10,224	10,224
Stock FE	yes	yes	yes	yes	yes	yes
Year-quarter FE	yes	yes	yes	yes	yes	yes
Within R ²	0.084	0.085	0.072	0.073	0.069	0.070

Table 6. Heterogeneity analysis: The role of litigation risk

This table presents the regression results in which the dependent variable is the change of ex-ante skewness around the management guidance disclosure date ($\Delta SK_{N,i,t}$) calculated following Eq. (4), with N days maturity of ex-ante skewness. We define good news (*Good*) as a dummy variable equal to one if the management forecast exceeds the analyst consensus and zero otherwise. Bad news (*Bad*) is equal to one if the forecast falls below the consensus and zero otherwise. Neutral guidance, where the consensus falls within the forecast range, is the omitted benchmark. Litigation is the litigation risk measure estimated following Eq. (7). The definitions of other explanatory variables are described in Table 1. The coefficients are multiplied by 100. The contemporaneous stock return (*Ret*) is included in all specifications. The sample includes ordinary common stocks of U.S. nonfinancial companies listed on major exchanges (NYSE, Amex, and Nasdaq). The sample period is from January 1996 to December 2022. Standard errors are clustered at the stock and quarter level. The *t*-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	N=30		N=60		N=91	
	(1)	(2)	(3)	(4)	(5)	(6)
Bad×Litigation	-4.861*** (-2.70)	-4.791*** (-2.64)	-4.340*** (-3.76)	-4.255*** (-3.68)	-2.648*** (-3.13)	-2.569*** (-2.99)
Good×Litigation	4.545*** (2.67)	4.666*** (2.70)	2.668*** (2.66)	2.700** (2.54)	2.714*** (3.31)	2.803*** (3.13)
Bad	11.69*** (4.18)	11.46*** (4.15)	6.414*** (3.30)	5.862*** (3.01)	6.067*** (4.07)	5.892*** (3.82)
Good	-2.366 (-0.77)	-2.539 (-0.82)	-1.220 (-0.66)	-1.764 (-0.92)	0.128 (0.09)	0.0702 (0.04)
Litigation	0.0110 (0.01)	-0.385 (-0.33)	1.404* (1.90)	1.450* (1.95)	0.779 (1.30)	0.865 (1.56)
Ret	-4.927*** (-14.78)	-4.923*** (-14.68)	-2.866*** (-13.73)	-2.855*** (-13.59)	-2.034*** (-12.08)	-2.025*** (-11.96)
QTR		3.019 (0.86)		5.557*** (2.89)		2.694* (1.88)
ROA		60.59 (1.58)		8.785 (0.45)		9.930 (0.55)
Leverage		11.45 (0.94)		0.198 (0.02)		-0.183 (-0.03)
B/M		-0.154 (-0.07)		-0.598 (-0.55)		-0.109 (-0.14)
Size		-0.766 (-0.29)		-1.258 (-0.74)		0.271 (0.22)
Turnover		-1.861 (-1.10)		-0.773 (-0.42)		-1.718 (-0.79)
Beta		2.452 (1.18)		1.027 (0.92)		0.785 (0.97)
IVOL		0.388 (0.25)		-1.048 (-1.07)		-0.690 (-0.91)
INST		-7.808 (-0.80)		-0.0233 (0.00)		-1.316 (-0.31)
ACov		-0.101 (-0.03)		1.361 (0.50)		1.586 (0.82)
Observations	10,224	10,224	10,224	10,224	10,224	10,224
Stock FE	yes	yes	yes	yes	yes	yes
Year-quarter FE	yes	yes	yes	yes	yes	yes
Within R ²	0.085	0.086	0.074	0.075	0.071	0.073

Appendix A. Left ex-ante skewness changes around management guidance

This table presents the results of regressions in which the dependent variable is the change of the left ex-ante skewness around the management guidance disclosure date of N-day returns. The left ex-ante skewness is the lower component in Eq. (1). Each component is scaled by ex-ante variance as in Eq. (3), and its change around the disclosure date is calculated following Eq. (4). We define good news (*Good*) as a dummy variable equal to one if the management forecast exceeds the analyst consensus and zero otherwise. Bad news (*Bad*) is equal to one if the forecast falls below the consensus and zero otherwise. Neutral guidance, where the consensus falls within the forecast range, is the omitted benchmark. The definitions of other explanatory variables are described in Table 1. The coefficients are multiplied by 100. The contemporaneous stock return (*Ret*) is included in all specifications. Controls refer to the control variables other than *Ret*. The sample includes ordinary common stocks of U.S. nonfinancial companies listed on major exchanges (NYSE, Amex, and Nasdaq). The sample period is from January 1996 to December 2022. Standard errors are clustered at the stock and quarter level. The *t*-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	N=30		N=60		N=91	
	(1)	(2)	(3)	(4)	(5)	(6)
Bad	11.96*** (5.56)	11.68*** (5.47)	7.727*** (5.31)	7.225*** (4.90)	6.137*** (5.49)	5.982*** (5.13)
Good	-1.890 (-0.77)	-2.149 (-0.88)	-1.610 (-1.00)	-2.076 (-1.28)	-0.942 (-0.75)	-1.004 (-0.78)
Ret	-3.368*** (-13.09)	-3.365*** (-12.99)	-1.983*** (-11.35)	-1.977*** (-11.21)	-1.459*** (-9.71)	-1.453*** (-9.60)
Controls	No	Yes	No	Yes	No	Yes
Observations	10,224	10,224	10,224	10,224	10,224	10,224
Stock FE	yes	yes	yes	yes	yes	yes
Year-quarter FE	yes	yes	yes	yes	yes	yes
Within R ²	0.057	0.058	0.049	0.050	0.049	0.051