Do Insurers Listen to Earnings Conference Calls? Evidence from the Corporate Bond Market[†]

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Abstract

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Abstract

We find that insurance companies decrease their holdings of a bond if the tone of the bond issuer's earnings conference call is more negative. The net negative tone of conference calls significantly predicts the issuer's default risk, which is a central concern for insurance companies. By creating a novel default-related dictionary, we further confirm that insurance companies react to the tone related to default information in conference calls. Bonds issued by firms with more negative conference calls and largely held by insurance companies experience lower returns after the calls. The aggregate selling of insurance companies triggered by negative conference calls would spill over to private industry peers and lead to liquidity risk in the underlying corporate bond market.

Keywords: Corporate bonds, insurance companies, earnings conference calls, linguistic tone, default risks

JEL Classifications: G14, G22, M40, D83

1. Introduction

How information affects investor trading behavior and asset prices is an important research question that sheds light on market efficiency. A growing literature has expanded the information set from structured to unstructured data, such as the texts, and analyzed impacts of textual information on the equity market (Tetlock, Saar-Tsechansky, and Macskassy (2008), Engelberg and Parsons (2011), and Huang, Tan, and Wermers (2020)). It is, however, less known whether investors in the corporate bond market react to the information embedded in texts.

In this paper, we investigate whether insurance companies, one of the major institutions in the corporate bond market, react to the linguistic tone of earnings conference calls. Different from the equity market, the corporate bond market is very illiquid due to the over-the-counter (OTC) feature (Bao, Pan, and Wang (2011)). As insurance companies are the largest institutional investors of corporate bonds, their trading patterns are essential to the stability of the bond market. For instance, fire sales by insurance companies due to bond downgrades lead to non-negligible fragility and price pressure (Ellul, Jotikasthira, and Lundblad (2011), and Nanda, Wu, and Zhou (2019)). We focus on earnings conference calls as they are important channels through which managers discuss and disseminate the latest financial and other information to investors and analysts.[1] There is ample evidence that earnings conference calls contain information orthogonal to that conveyed in corporate filings and press releases.[2]

With a comprehensive sample of corporate bonds from 2002 to 2020, we find that insurance companies decrease their holdings of bonds when the tone of issuing firms' conference calls is more negative after controlling for a set of firm and bond characteristics. We further demonstrate that insurance companies respond to the linguistic tone of conference calls because of the default-related information. The observation is consistent with the regulatory capital constraints on

[1] Compared to the static nature of formal firm documents and filings, the information environment for conference calls is more spontaneous and dynamic (Frankel, Jennings, and Lee (2022)). The interactive nature of the conference calls can lead to additional pertinent information about the firm (Blau, Delisle, and Price (2015)), while the muted market response to 10-K reports suggests that much of the information in the 10-K is redundant to previously released information and is thus less informative to investors (Li and Ramesh (2009)).

[2] For example, Bagnoli and Watts (2005), and Chapman and Steenburgh (2011) find that the level of accounting conservatism and intent of earnings management are revealed in earnings conference calls. Matsumoto, Pronks, and Roelofsen (2011) also find that both the presentation and discussion segments in conference calls have incremental information content over the accompanying press release, and the discussion periods are relatively more informative than presentation periods.

insurance companies of holding limited risky bonds implemented by the National Association of Insurance Commissioners (NAIC).

We analyze the relation between the change in insurance company ownership and conference call tone by running bond-quarter panel regressions with a set of control variables, firm, and quarter fixed effects. We measure the qualitative information of conference calls with the net negative tone, defined as the sentiment measure in Hassan, Hollander, Lent, and Tahoun (2019) multiplied by -1. We find that when the tone of the issuer's earnings conference calls is more negative, the holding of the underlying bond by insurance companies significantly reduces in the subsequent quarter. A one-standard-deviation increase in the net negative tone of the issuer's conference call is associated with a decrease of 14 basis points in the insurance ownership of the bonds. The effect of net negative conference call tone on bond insurance ownership changes is robust to bond and stock controls and cannot be absorbed by the text-based risk measure in Hassan et al. (2019), and tone measures of mandate reports like 10-Q, 10-K, and general news.[3] As trading of corporate bonds by insurance companies is correlated (Cai, Han, Li, and Li (2019)), we also examine the herding measure and find that insurance companies in the next quarter collectively sell bonds issued by firms with more negative conference calls.

Do other bond market players have a similar trading pattern to insurers? We find that bond mutual funds increase their holdings of the bonds issued by firms with more negative conference calls. Such patterns are consistent with that bond mutual funds are less regulatory constrained than insurance companies, and they act as liquidity providers. In addition, the linguistic tone is insignificantly associated with the aggregate dealer net buy amounts, suggesting that dealers do not have the tendency to buy or sell bonds according to issuers' conference call tone.

The sharp contrast with mutual funds indicates that bond insurance companies are sensitive to the linguistic tone of earnings conference calls, possibly because of regulatory capital constraints. We further verify the possibility by focusing on bonds with BBB^{-} ratings, which are investment-level bonds but only one notch from being downgraded to high-yield. We find insurance companies are much more likely to decrease their holdings of the bond on the margin when the tone of its issuer's conference call is more negative. Consistently, we also show that the

[3] Consistent with the muted effects of mandatory reports on stock markets (Li and Ramesh (2009)), we find that insurance companies do not significantly respond to text-based information in 10-K and 10-Q files as well.

response of insurers to the conference call tone is much stronger among bonds with higher downside risks measured by Value-at-Risk (VaR) and Expected Shortfall (ES).

If the linguistic tone of earnings conference calls indeed reflects incremental information of default risk, the tone should predict future default events. We show corroborating evidence that the bonds issued by firms with more negative conference calls are more likely to be downgraded, and the issuers have a higher expected default frequency in the subsequent quarter. Moreover, the probability of future defaults increases among bonds issued by firms with more negative conference calls.

Though we mainly use the net negative tone measure to study our research question, we take a step further to understand the specific information in the linguistic tone to which insurance companies respond. We construct a default-topic word dictionary from documents including textbooks and annual reports from credit rating companies. We then manually select the default-related words based on the word frequency and topic relevance, and then calculate default- and non-default-related net negative tone measures following the method in Hassan et al. (2019) for each conference call transcript. We demonstrate that insurance ownership change is only sensitive to the default-related tone.

Our findings also depend on the cross-sectional heterogeneity among bonds and insurers. First, insurers' responses to the tone of conference calls are stronger for bonds with smaller firm size, higher stock and bond idiosyncratic volatility, and higher bond illiquidity. As information asymmetry is higher for such bonds, the additional information is more valuable for outside investors such as insurers. Second, the effects of the conference call tone on insurance company ownership are more pronounced among insurers who hold a larger percentage of downgraded and high-yield bonds, and hold more of the negative-tone bond in their portfolios.

Given that insurers tend to sell the bonds issued by firms with more negative conference calls, it is important to examine the effects on the underlying corporate bond market. First, we show that bonds issued by firms with more negative conference calls and largely held by insurance companies experience lower monthly returns after the calls. Second, the negative effect of conference call tone on bond insurance ownership changes would spill over to bonds issued by private industry peers. At last, we provide evidence that insurers would pose non-negligible liquidity risk to the corporate bond market through their aggregate selling of bonds with high regulatory constraints and more negative earnings conference calls.

Our paper makes several contributions to the literature. First, we show that earnings conference calls are utilized by insurance companies on their investment of corporate bonds. The existing literature stresses investors' attention to conference calls in the equity market. For example, conference calls are accompanied with unusually large trading volume (Frankel, Johnson, and Skinner (1999)). In addition, Huang and Wermers (2022) study how institutional investors trade on conference call sentiment to facilitate price discovery in the equity market. To the best of our knowledge, our paper is the first to study how insurance companies react to the linguistic tone of conference calls in the corporate bond market.

Second, we identify the specific information, i.e., the tone related to default risks, in earnings conference calls that is valuable to insurance companies. Donovan, Jennings, Koharki, and Lee (2021) document that the qualitative information contained in earnings conference calls can explain variations in firms' credit risk. We extend their findings and show that the linguistic tone related to default risks matters to insurance companies. Last but not the least, we document that the aggregate selling by insurance companies triggered by the negative information in conference calls would spill over to private industry peers and even lead to non-negligible liquidity risk in the underlying corporate bond market.

A related paper by Huang, Wermers, and Xue (2022) focuses on the corporate bond mutual funds' trading around corporate news by social media and finds these institutions tend to buy on negative news and provide liquidity to the other market participants. The liquidity provision role of bond mutual funds is also identified in our paper. Our paper differs from theirs in three ways. First, we concentrate on earnings conference calls which directly reflect managers' emotional sentiments and their interactions with investors and financial analysts. Second, we examine the reactions from insurance companies, who differ from mutual funds in regulatory constraints. At last, we identify the default-related information in earnings conference calls which matters to insurance companies.

The rest of the paper is structured as follows. Section 2 describes our data and sample. Section 3 examines the relationship between the net negative tone of earnings conference calls and ownership changes for major players in the corporate bond market including insurance companies, mutual funds, and dealers. Section 4 investigates the specific information contained in the earnings conferences that are valuable to bond insurers, and conducts cross-sectional tests to understand the

channel. Section 5 studies the pricing impact of the conference call tone and insurance companies' ownership after earnings conference calls. Section 6 concludes.

2. Data, Variables Construction, and Summary Statistics

2.1. Data and Sample

Our study combines data from several sources, and assembles a comprehensive panel data from 2002Q2 to 2020Q4. Our primary linguistic tone measure of earnings conference calls is based on the sentiment measure in Hassan et al. (2019).[4] Specifically, they construct an overall sentiment measure by analyzing the entire conference call transcript, including a beginning presentation by management, and a followed question-and-answer (Q&A) session with call participants. Thus, an earnings call transcript contains both voluntary disclosure information and interactions between the senior management and market participants. Specifically, the sentiment measure is the frequency of mentions of positive words deducting the frequency of mentions of negative words based on Loughran and McDonald (LM, 2011) sentiment dictionary, divided by the length of the transcript.[5] The sentiment of the conference call for firm j in quarter t is as follows:

$$Sentiment_{j,t} = \frac{\sum_{b=1}^{B_{j,t}} S(b)}{B_{j,t}}, \quad (1)$$

where $S(b)$ is an indicator function that assigns a value of +1 (-1) if the word b is associated with positive (negative) sentiment, and zero otherwise. We define the net negative tone (Neg_net) as the sentiment measure multiplied by -1. The higher the value, the more negative tone of earnings conference call. Following Hassan et al. (2019), we standardize the tone measure to one-unit standard deviation and zero mean in the full sample, and cap it at the 1st and 99th percentiles each quarter.

We obtain corporate bond transaction data from the Enhanced Trade Reporting and Compliance Engine (TRACE) database. We follow the procedures in Dick-Nielsen (2014) to minimize data reporting errors by removing all transactions marked as cancellations, corrections,

[4] The data has been widely used in recent studies, such as Ho, Kagkadis, and Wang (2022) on the equity option market and Gad et al. (2022) on credit markets.

[5] We thank the authors for providing the overall sentiment data online: https://www.firmlevelrisk.com/download. The method of summing-up across positive and negative sentiment words rather than simply conditioning on their presence to allows multiple positive words to outweigh the use of one negative word, and vice versa.

or reversals, as well as their matched original trades. Agency transactions that may raise concerns of double counting are also deleted. For intraday data, bond transactions that (i) are labeled as when-issued, locked-in, or have special sales conditions, (ii) are with more than 2-day settlement, or (iii) have a trading dollar volume smaller than $10,000 are eliminated.

We supplement the bond data with Mergent Fixed Income Securities Database (FISD), which contains both bond issue- and issuer-specific information, such as coupon rate, interest payment frequency, issue date, maturity date, issue size, and bond rating. We focus on fixed-rate bonds and exclude bonds that are puttable, convertible, or perpetual. We also exclude mortgage-backed, asset-backed, agency-backed and equity-linked securities, Yankees, Canadians, structured notes, issues denominated in foreign currency, and issues offered globally. Furthermore, following the existing literature, we exclude newly-issued or about-to-mature bonds (i.e., with age or time-to-maturity of less than six months), as their trading patterns are likely to be driven by mechanical factors. We also obtain firm-level equity information from CRSP and COMPUSTAT databases.

Corporate bond holdings by insurance companies and other institutions are extracted from Thomson Reuters Lipper eMAXX, which is survivorship-bias free and contains quarter-end security-level corporate bond holdings of about 20,000 institutional investors, including insurance companies, mutual funds, pension funds, and so on. The eMAXX data on corporate bond holdings by insurance companies are nearly complete as they are based on insurance companies' regulatory disclosure to the NAIC. Thomson Reuters Lipper eMAXX is widely used in academic studies, such as Manconi, Rossi, and Yasuda (2012), and Cai et al. (2019), among others. Following Huang and Wermers (2022), we first calculate the insurance ownership ($Ins_{i,t}$) for each bond i at the end of quarter t, defined as the total par amount held by insurance companies divided by the issuing amount of the bond. Then we define the quarterly change in insurance ownership of bond i in quarter t as the following equation:

$$\Delta Ins_{i,t} = Ins_{i,t} - Ins_{i,t-1}. \quad (2)$$

After matching the bond holding data with the net negative tone of conference calls and common firm and bond characteristics, there are 15,441 unique bonds issued by 1,169 public firms, and our final sample contains 34,424 earnings calls.[6]

[6] About 61% the eMAXX sample could be matched with the net negative tone measure. Compared with the whole eMAXX sample, bonds with non-missing conference call tones have similar average total insurance ownership, size,

2.2. Summary Statistics

Table 1 presents summary statistics for the time-series average of cross-sectional variables in our sample. Panel A (B) is based on bond-quarter (firm-quarter) observations.

[Insert Table 1 about here]

Our sample bonds on average have a rating of 8 (equivalently, nearly BBB+ for S&P or Baa1 for Moody's), a time-to-maturity of 10 years, a time-since-issuance of 7 years. The time-series average of the median of cross-sectional bond issuing size is about $207 million. In general, insurance companies hold nearly 35% of the bonds in our sample. The average distribution of insurance ownership is right skewed with a larger mean than the median. On the other hand, the distribution of insurance ownership change is left skewed, with a median of negative 2 basis points on average.

The key independent variable, the net negative tone measure of earnings conference calls, is relatively evenly distributed. The issuers on average are large firms with a high stock institutional ownership (approximately 75%) and are followed by 14 financial analysts. The standardized unexpected earnings (SUE), defined as the net income of the quarter minus that of four quarters ago divided by the standard deviation of quarterly net income over the past four years, is left skewed with a heavily negative tail.

3. The Effects of Conference Call Tone on the Insurance Ownership Changes

We aim to understand whether bond insurance companies react to the ample information in earnings conference calls. Unlike mandatory disclosures, the conference calls allow managers to release information with different tones. For example, managers may inflate good news (or mitigate bad news) when they read the prepared script during the beginning of the presentation. The subsequent unscripted discussion component provides an important opportunity for management and analysts to express their opinions about firm recent performance and future potential in a spontaneous way, and creates an additional layer of information. Indeed, previous literature has shown that conference calls contain more information than mandatory disclosures (Frankel, Johnson, and Skinner (1999), Brown, Hillegeist, and Lo (2004), and Price et al. (2012)).

coupon rate, time-to-maturity, rating, and illiquidity. Hence, the matched sample is representative for the whole bond universe.

The insurance industry has experienced a technology revolution over the past decade. Emerging capabilities such as telematics, artificial intelligence, big data, aerial imaging, and claims automation have become more prevalent as insurers have doubled down on using technology for optimization of both cost and processes.[7] Text mining has been an important tool for insurer investments and partnerships. Therefore, it is reasonable to hypothesize that insurance companies listen to conference calls, analyze the transcript, and respond accordingly.

3.1. Baseline Results

We investigate the relationship between bond insurance ownership change and the tone of firms' conference calls by running the following bond-quarter panel regression:

$$\Delta Ins_{i,t} = \alpha + \beta \times Neg\_net_{j,t-1} + \delta \times controls_{i,t-1} + \vartheta_j + \mu_t + \epsilon_{i,t}, \quad (3)$$

where $\Delta Ins_{i,t}$ is the change in insurance ownership of bond i from quarter $t-1$ to quarter t, reflecting the aggregate trading of the bond by the holding insurers during the quarter.[8] $Neg\_net_{j,t-1}$ is the net negative tone of issuer j's conference call taking place in quarter $t-1$.

In Equation (3), we include firm and quarter fixed effects. We control for bond and stock characteristics of the issuer in later specifications. Bond level controls include bond rating, time to maturity, age, coupon rate, and the logarithm of bond issuing size (Ln(bond size)). One may concern that the tone of conference calls is another proxy for the degree of firm earnings surprise. According to Nozawa, Qiu, and Xiong (2022), there is a significant post-earnings announcement drift (PEAD) in the corporate bond market. Therefore, the earnings surprise may confound our findings. We control for SUE in quarter $t-1$, defined as the net income of the quarter minus that four quarters ago divided by the standard deviation of quarterly net income over the past four years. Other firm level controls include the logarithm of firm size (Ln(stock size)), the logarithm of book-to-market ratio (Ln(BM)), the stock institutional ownership (IO), and the number of analysts (Analyst) following that stock.[9] Standard errors are calculated using two-way clustering at the bond and quarter levels. The results are reported in Table 2.

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[7] Source: https://www.mckinsey.com/industries/financial-services/our-insights/insurance-blog/insurtechs-are-increasingly-ripe-for-insurer-investments-and-partnerships.

[8] We do not align $\Delta Ins_{i,t-1}$ with the conference call held in quarter $t-1$, as it can be due to trading before, on, or after the conference call, and thus we cannot ensure that the trading takes place after the conference call.

[9] Please refer to Appendix A for detailed definitions of all the variables.

[Insert Table 2 about here]

With firm and quarter fixed effects in Column (1), the tone measure is significantly and negatively related with the change in bond insurance ownership in the quarter following issuer's conference calls, indicating that insurers decrease their holdings of bonds issued by firms whose conference calls are more negative. In Column (2), after including bond controls, a one-standard-deviation increase in the net negative tone leads to a decrease of nearly 14-basis points in the change of bond insurance ownership, much larger than the average cross-sectional median of bond insurance ownership change which is 2-bps in the absolute magnitude. Given that the average cross-sectional median of bond market capitalization is $207 million in our sample, 14-bps translates into a quarterly dollar impact of $290K in insurance trading. Our results remain unchanged after controlling for stock characteristics including SUE.[10]

To address the concern that the tone measure may be potentially correlated with other non-observable bond characteristics, which might confound the relationship between insurance ownership change and net negative tone, we include bond fixed effects in Columns (4) to (6).[11] The negative effect of the conference call tone on insurance ownership changes remains significant, both statistically and economically. The magnitudes of the coefficients are comparable to those with firm and time fixed effects, further relieving the concern of a factitious relationship between the linguistic tone and insurance ownership changes due to time-invariant bond characteristics.[12]

In the main analysis, we use the insurance ownership change from end of quarter $t-1$ to quarter t, i.e., $\Delta Ins_{i,t}$, as the dependent variable. Even if we use $\Delta Ins_{i,t-1}$ as the dependent variable, coefficients on the tone measure are significantly negative with smaller magnitudes than

[10] A further concern is that the earnings surprises of the issuing firms may indirectly affect the response by insurance companies through the interaction with the earnings conference call tone. For example, a negative SUE may enhance insurers' reaction to the negative tone of the subsequent earnings conference calls. Alternatively, insurers may react more strongly to the negative tone following a positive SUE to correct market over-reactions. As a consequence, we split the sample into firms with negative or positive SUE, and re-run the baseline regressions for the two subsamples separately. The negative coefficients on the conference call tone are robust for both subsamples. Hence, there is no supporting evidence for the interaction effect of SUE and the earnings conference call tone.

[11] Note that the inclusion of bond fixed effects renders the coupon and logarithm of bond issuing size redundant in our regression.

[12] Besides, it is possible that insurers with bond investments concentrating on different industries vary in the sensitivity to the conference call tone. For example, insurers with the investment focusing on bonds from the technology industry may be more skilled at dealing with the unstructured information and conducting the textual analysis for conference calls. We further include industry fixed effects in the regressions, and the results remain unchanged.

those in Table 2,[13] indicating that it takes time for bond insurers to incorporate information from conference calls into their investment portfolios. In the equity market, Huang and Wermers (2022) find that the earnings conference call tone affects institutional trading throughout the life of the call until the arrival of the next call, in line with the informativeness and comprehensiveness of the textual information in conference calls. In the bond market, we expect the impact of conference call tone on insures to be longer, as the corporate bond market is less liquid than the stock market and insurers are generally holding-to-maturity investors in this market.

3.2. Robustness

3.2.1 Alternative Dependent Variables

In the above analysis, we use the change of insurance ownership from quarter $t-1$ to quarter t as the dependent variable. As a robustness test, following Huang and Wermers (2022), we investigate an alternative dependent variable, the change in the number of insurers holding bond i in quarter t ($\Delta N\_Ins_{i,t}$), defined as the sign of ($N\_Ins_{i,t} - N\_Ins_{i,t-1}$) times $\log[abs(N\_Ins_{i,t} - N\_Ins_{i,t-1}) + 1]$, where $N\_Ins_{i,t}$ is the number of insurers holding bond i in quarter t. In addition, we examine the collective trading behaviors of bond insurers (Nanda, Wu, and Zhou (2019) and Cai et al. (2019)).[14] Specifically, we follow Cai et al. (2019) to construct the sell and buy herding measures of bond insurance companies, which capture whether a disproportionate number of insurers are selling or buying a certain security beyond the market-wide selling or buying intensity in a given period. We first calculate the herding measure of bond i in quarter t using the following equation: [15]

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[13] Besides, we also control for $\Delta Ins_{i,t-1}$ in the main regressions to examine whether it is the lagged insurance ownership change that leads to future insurance ownership changes. Coefficients on the net negative tone remain unchanged.

[14] Nanda, Wu, and Zhou (2019) explore the collective role of insurance companies as major corporate bond investors in determining corporate bond yield spreads. They find investment decisions of bond insurance companies are highly correlated with one another, creating an additional source of risk in the corporate bond market and the potential to cause systemwide financial instability. They argue that the commonality in insurers' bond investments can be partly attributed to factors such as facing similar regulatory constraints as prescribed by NAIC, preferring for long-term bonds to mitigate potential asset-liability mismatch (Schwarcz and Schwarcz (2014)), or reaching for yield (Becker and Ivashina (2015)). Cai, Han, Li, and Li (2019) estimate the levels of collective trading (herding) by investor type in the corporate bond market. They find bond insurance companies exhibit the greatest tendency to herd among institutions, and document the strong and long-lasting persistence in their collective selling behavior.

[15] The first term in Equation (4) measures how much the trading pattern of bond i varies from the general trading pattern of corporate bonds in quarter t, driven by disproportionally buy or sell by bond insurance companies. The second term is an adjustment factor accounting for the fact that the absolute value of $|p_{i,t} - E[p_{i,t}]|$ is always equal or greater than zero under the null hypothesis of no herding, i.e., when the probability of any insurer being a net buyer

$$HM_{i,t} = \left|p_{i,t} - E\left[p_{i,t}\right]\right| - E\left|p_{i,t} - E\left[p_{i,t}\right]\right|, \quad (4)$$

where $p_{i,t}$ is the proportion of buyers to all active traders of bond i in quarter t. The term $E\left[p_{i,t}\right]$ is the expected level of buying intensity, estimated using the market-wide intensity of buying $\overline{p_t}$,

$$\overline{p_t} = \frac{\sum_i \#\ of\ Buy_{i,t}}{\sum_i \#\ of\ Buy_{i,t} + \sum_i \#\ of\ Sell_{i,t}}. \quad (5)$$

Next, we follow Wermers (1999) to define the sell herding measure (SHM) or buy herding measure (BHM) for bonds with a lower or higher proportion of buyers than the market average, respectively as follows.[16]

$$SHM_{i,t} = HM_{i,t}\left|\left[p_{i,t} < E\left[p_{i,t}\right]\right], BHM_{i,t} = HM_{i,t}\right|\left[p_{i,t} > E\left[p_{i,t}\right]\right]. \quad (6)$$

We replicate the baseline bond-quarter panel regressions with $\Delta N\_Ins_{i,t}$, SHM, and BHM in quarter t as dependent variables in Table 3. We find that more negative conference calls lead to fewer insurers holding the issuers' bonds in the following quarter, suggesting that insurers react negatively to the tone of earnings conference calls and exit from such bonds. In Column (1), a one-standard deviation increase in the net negative tone leads to nearly 2% fewer insurers holding the bond in the following quarter, significant at 1% level. In addition to this, there is significantly more collective selling for bonds issued by firms conducting more negative conference calls, lending further support to our finding that bond insurers as a whole respond to the negative tone of firms' conference calls by decreasing their holdings of the underlying bonds. In contrast, there is no significant impact of the tone on bond insurers' collective buying behavior. The results are invariant to bond controls, stock controls, and fixed effects.

[Insert Table 3 about here]

Till now, the dependent variable measures the aggregate insurance trading behaviors towards the conference call tone. Would the individual insurance ownership change be significantly

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of any bond is $\overline{p_t}$, the absolute value of $p_{i,t} - E\left[p_{i,t}\right]$ is greater than zero. Since $Buy_{i,t}$ follows a binomial distribution with probability $\overline{p_t}$ of success, the adjustment factor is easily calculated given $\overline{p_t}$ and the number of active insurers on that bond in that quarter.

[16] By definition, for a given bond in a given quarter, it has either a sell herding measure or buy herding measure (but not both), depending on its buying intensity relative to the market-wide buying intensity in that quarter.

affected by the conference call tone as well? In the Appendix Table A1, we run panel regressions at insurer-bond-quarter level, using the same setting as the baseline regression. The dependent variable is individual insurance ownership change of bond i from end of quarter $t-1$ to quarter t, multiplied by 100. In Column (6), with all bond and stock controls, and bond, quarter and insurer fixed effects, the impact of net negative tone on individual ownership change is significantly negative, indicating that individual insurance company would also be impacted by the conference call tone. The magnitude is much smaller than those in Table 2, for the effect is supposed to be stronger in the aggregate level.

3.2.2 Confounding Factors

In this sub-section, we conduct a set of tests to address the concern that confounding factors other than the tone of conference calls may contribute to subsequent insurance ownership changes.

Control for overall risk measure of Hassan et al. (2019)

Hassan et al. (2019) construct an overall risk measure of the conference calls, and we first check whether the effects of net negative tone would be absorbed by the risk measure. Following Hassan et al. (2019), we truncate the risk measure at the 95th percentile and standardize the variable by its standard deviation. In Column (1) of Table 4, we find that the coefficient on the risk measure is insignificant while that on the tone variable remains significant.

[Insert Table 4 about here]

Control for sentiment measures from 10-K and 10-Q reports

How about the tone measures of mandate reports and general news? To answer this question, we obtain the sentiment measures of 10-K and 10-Q reports from the "Readability and Sentiment" database from WRDS SEC Filings, which contains the number of Loughran-McDonald Financial-Negative and Financial-Positive words, and the number of Harvard General Inquirer Negative words, divided by the total number of words in the document (*LM_Neg/ LM_Pos/ GI_Neg*). To make the regression coefficients comparable, we standardize all these sentiment variables in the full sample. Results are presented from Columns (2) to (4) in Table 4.[17] The coefficients on the

[17] We match the measures from "Readability and Sentiment" database to our data with the help of CIK-CUSIP and CIK-GVKEY links.

net negative tone of conference calls remain significantly negative. This is consistent with the literature stressing earnings conference calls as the additional source of information (Borochin et al. (2018), Brown, Hillegeist, and Lo (2004), Frankel, Johnson, and Skinner (1999), Kimbrough (2005), and Price et al. (2012), among others).

Control for general firm news

For the sentiment measures of the general firm news, we utilize the ESS and CSS scores from the WRDS RavenPack database.[18] For each firm, we collect the average ESS and CSS scores across all related news (relevance score = 100, NOVELTY score =100) on the daily level, and then average all the scores within each quarter. For ESS score lower (higher) than 50, the ESS_Neg dummy is equal to 1 (-1), and zero otherwise. The CSS_Neg dummy is constructed in a similar way. We find that the coefficient on the CSS_Neg dummy is significantly positive, while the ESS-_Neg dummy does not have strong predictability for future insurance ownership change, as the CSS score is a composite measure compared to the simple ESS score. The magnitude of the coefficient on the CSS_Neg dummy is nearly one third of the coefficient on the negative tone of conference calls. Results are similar if we use the raw ESS and CSS scores instead of the dummies. In the last column of Table 4, we control for all the above variables simultaneously. Consistent with our previous findings, none of the additional controls, nor the sentiments of other reports could subsume the significant impact of the earnings conference call tone on future insurance ownership changes.

Control for time laps between conference call and insurance ownership change

Another concern regarding identifying the relation between insurance ownership changes and the conference call tone lies in that the time lapse between the conference call in quarter $t-1$ and insurance holdings at the end of quarter t may introduce confounding factors. To address this concern, we conduct two further tests. First, we follow Huang and Wermers (2022) to group the conference calls into different months of occurrence such as in the first, second, or third month of the quarter. We then perform baseline regressions for the sub-samples of conference calls held in

[18] ESS is a granular score that represents the news sentiment for a given entity by measuring various proxies sampled from the news. CSS represents the news sentiment of a given story by combining various sentiment analysis techniques. They both range from 0-100. Values of 50 indicate neutral sentiment, while values above (below) 50 indicate positive (negative) sentiment.

the different months separately, in Columns (1) to (6) of the Appendix Table A2. We find the magnitudes of the coefficients are comparable across the conference calls held in the first, second, and third months.[19]

Another method to alleviate the concern is to shorten the time lapse between conference calls and insurance ownership change. We therefore aggregate daily transactions by insurance companies provided by NAIC database to the monthly level. Specifically, we rely on Parts 3, 4, and 5 of NAIC Schedule D for insurance transaction data, which lists every security an insurer disposed of or purchased along with its par value, disposal/purchase value, and date of disposal/purchase.[20] To retain sales motivated by information, we exclude any security disposals due to maturity, repayment, calls, or other non-trading activity.

Monthly net buy amount by insurance companies for a certain corporate bond is the difference between aggregate buy amount and aggregate sell amounts, scaled by the bond issuing amount. We then regress the cumulative monthly net purchase of insurers from the conference call month (0) to the third month (+3) following the call on the negative tone measure in the Appendix Table A3. We find insurers decrease their holdings of bonds with more negative conference calls from month 0 till month +3. The magnitude of the cumulative decrease in insurance ownership in Column (4) is nearly four times of that in Column (1), implying the gradual and continuous response by insurers to the conference call tone.

Control for bond downgrades and upgrades

In addition, insurers are regulated by NAIC in holding a limited proportion of risky bonds in their portfolios. Therefore, their trading behavior can be affected by bond downgrades or upgrades. In the baseline regression with bond and time fixed effects, and bond and stock controls, we further

[19] As a robustness, we further define the Second (Third) dummy which is equal to one if the conference calls are in the second (third) month of a quarter, and interact the tone measure with the Second and Third dummies. There are no significant coefficients on the interaction terms, indicating that conference calls conducted in the later periods of a quarter have similar impacts to those in the first month of a quarter on the subsequent insurance ownership changes.

[20] We do not use the NAIC database for our main analysis, as we focus on the change in quarter-end insurance ownership instead of the specific trading records in a quarter. The data from the Lipper eMAXX database of insurance ownership are nearly complete as they are based on insurance companies' regulatory disclosure to the NAIC. Fixed income holdings information for insurance companies is acquired through both National Association of Insurance Commissioners (NAIC) annual holdings files and the quarterly transaction reports to the state insurance commissioners that are used to interpolate the holdings each quarter. The literature has broadly use the eMAXX database to analyze the institutional ownership changes at the bond level (Becker and Ivashina (2015), Cai et al. (2019), and Massa and Zhang (2020), among others).

control for dummies indicating bond downgrade and upgrade events.[21] Specifically, the Lag_DG_All (Lag_DG_IG-NIG) dummy is equal to one if the bond is downgraded (from investment-grade to non-investment-grade) in the same quarter as the conference call, and DG_All (DG_IG-NIG) dummy is equal to one if the bond is downgraded (from investment-grade to non-investment-grade) in the quarter next to the conference call. Upgrade dummies are defined similarly. Results are shown in the Appendix Table A4. The coefficients on the net negative tone remain significantly negative and have similar magnitudes to those in Table 2, suggesting that insurers' selling of bonds with more negative conference calls are not induced by recent rating change events. Besides, insurance companies would fire sale bonds recently downgraded to non-investment level while increase their holdings of the bonds upgraded in the last quarter.

In summary, our finding that insurance companies reduce their corporate bond holdings of companies with more negative earnings conference calls is robust to alternative measures of insurance trading behaviors, sentiments of formal firm reports, the time gap between conference calls and insurance trading, and rating change events. It is worth noting that it takes time for bond insurers to incorporate information from conference calls into their investment portfolios.

3.3. Other Market Participants: Bond Mutual Funds and Bond Dealers

Although mutual funds on average hold a proportion of nearly 8% of the corporate bonds across our whole sample, there has been a substantial growth in the market share of mutual funds since the 2008-2009 global financial crisis, who nowadays become an important player in the credit market.

There are distinctive features among insurance companies and mutual funds. Bretscher et al. (2022) document that the corporate bond market is highly segmented, and the main investors, i.e., insurance companies and mutual funds, exhibit different preferences in constructing portfolios. The effective duration of insurance liabilities is high (Domanski, Shin, and Sushko (2017)). Therefore, insurance companies prefer long maturity bonds to hedge long-dated liabilities, while mutual funds with shorter investment horizons prefer short-dated bonds. Moreover, mutual funds hold illiquid corporate bonds while allowing their investors to redeem shares on a daily basis,

[21] Data on historical rating changes by major rating agencies are obtained from Mergent FISD. Several rating agencies, including Standard & Poor's, Moody's, Fitch, and Duff & Phelps, provide credit ratings for each bond. Rating agencies differ with respect to the timing of the rating. We follow Ellul, Jotikasthira, and Lundblad (2011) to define the rating change event as the date of first downgrade or upgrade by a rating agency.

therefore playing the role of drastic liquidity transformation especially when there are large-scale investor redemptions when confronting a negative shock. In contrast, insurance products often embed fees that make it costly for consumers to withdraw from these products. Given the distinction between the two main institutional investors, we conjecture there to be heterogeneities in their responses to the linguistic tone of conference calls in forming bond portfolios.

We replicate baseline regressions with the quarterly changes in mutual fund ownership (ΔMut) as the new dependent variable. The empirical results are shown in Columns (1) and (2) of Table 5. Coefficients on the negative tone measure are positive and marginally significant with all the bond and stock controls. In Column (2), a one-standard-deviation increase in the tone leads to nearly 3-basis-points increase in the mutual fund ownership of the underlying bond. This magnitude is non-trivial given the average cross-sectional median of the change in mutual fund ownership is only negative 1-basis-point. The positive signs suggest that mutual funds buy the bonds issued by firms with more negative conference calls, therefore supplying liquidity to insurers who tend to dump such bonds.[22] However, the absolute magnitudes of coefficients for mutual funds are much smaller than those for insurance companies, suggesting the selling pressure from insurers on bonds with more negative conference calls cannot be fully absorbed by the buying intensity from mutual funds.

[Insert Table 5 about here]

We also examine the trading pattern of bond dealers on the conference call tone, who are supposed to provide liquidity in the corporate bond market. We rely on the dealer-to-customer transaction data on TRACE. For each bond, we compute dealer net-buy, defined as the difference in the par value between all dealers' buy from customers and all dealers' sell to customers within a quarter, scaled by the bond issuing amount. Results are shown in Columns (4) to (6). The negative tone measure is insignificantly related to quarterly dealer net-buy, indicating that dealers do not have the tendency to buy or sell bonds in the light of the linguistic tone of earnings conference calls.

[22] This is consistent with the literature pointing out the role of liquidity provision from the side of bond mutual funds, in the case of forced fire-sales due to regulation constraints on insurance companies (Cai et al. (2019)). Huang, Wermers, and Xue (2022) provide evidence that bond mutual funds seek for positive alphas by trading against news sentiment and waiting for the return reversals subsequent to positive news.

4. Why do Insurance Companies Sell Bonds with More Negative Conference Calls?

Findings in Section 3 suggest that insurance companies respond significantly to the linguistic tone of earnings conference calls. In this section, we conduct a detailed investigation of the potential motivation for insurers to sell bonds issued by firms with more negative conference calls by examining the specific information contained in the linguistic tone.

4.1. Information in the Earnings Conference Call Tone

4.1.1. Bonds with High Regulatory Constraints and Downside Risks

The comparison with mutual funds points to that insurance companies are sensitive to the conference call tone possibly because of regulatory capital constraints. Insurers in general face two types of regulations that either impose large capital requirements on the holdings or prohibit large holdings of speculative-grade bonds prescribed by the National Association of Insurance Commissioners (NAIC). First, the capital requirements are 4.6% and 10% for the holdings of BB-rated and B-rated bonds, respectively. The same requirement is only 1.3% for BBB-rated bonds and 0.4% for bonds rated A or above. Second, the NAIC prescribes a hard cap of 20% for all non-investment-grade bonds as a percent of the portfolio.[23]

In view of the feature that insurance companies are subject to large capital requirements for low rated bonds, we expect the impact of the net negative conference call tone on insurance ownership to be stronger among bonds with higher regulatory capital constraints. To verify our hypothesis, we examine whether insurers' response to the linguistic tone is more pronounced among bonds on the verge of becoming "fallen angels" (i.e., bonds with BBB^- ratings, which are investment-grade but one step away from being downgraded to high-yield), as they will carry much higher regulatory capital costs if downgraded by just one notch.[24] More specifically, we define a "High" dummy variable equal to one if the bond is rated BBB^-, and zero otherwise, and then interact it with the net negative tone in Columns (1) and (2) of Table 6.

[Insert Table 6 about here]

[23] In our sample, insurers (mutual funds) on average hold a percentage of 6.5% (34.5%) of non-investment level bonds in their portfolios.

[24] When an investment-grade corporate bond is downgraded to be high-yield (called a "fallen angel"), this could trigger the widespread selling from its insurance company investors in fear of high regulatory capital requirements to hold these bonds (Ambrose, Cai, and Helwege (2008), Ellul, Jotikasthira, and Lundblad (2011), and Nanda, Wu, and Zhou (2019)).

Table 6 shows that the coefficients on the interaction term are significantly negative, indicating that insurance companies are much more likely to decrease their holdings of the bond on the margin when its issuer's conference call tone is more negative if the bond is rated BBB⁻. In Column (1), for a BBB⁻ rating bond, a one-standard-deviation increase in the negative tone leads to nearly 25 bps decrease in its insurance ownership change. All the coefficients on the tone measure are still significantly negative, suggesting that the impact of conference call tone on the subsequent insurance ownership changes holds widely.

To isolate the impacts of negative conference call tones for bonds on the verge of becoming "fallen angels" and simultaneously leave out the potential effects from firm fundamentals, we compare the average insurance ownership changes between bonds with BBB⁻ ratings and non-BBB⁻ ratings issued by the same firm.[25] In particular, for each conference call conducted by each firm, we calculate the medians of insurance ownership changes in the quarter following the call for bonds issued by this firm with BBB⁻ rating and with non-BBB⁻ ratings, respectively. Then we get the averages of the two medians, and their differences between more positive and negative earnings conference calls (defined by the cross-sectional median), separately. The empirical results are presented in the Appendix Table A5.

We find that insurance companies significantly decrease their holdings of bonds with BBB⁻ rating, compared to other bonds issued by the same firm, for conference calls with more negative tones. The average insurance ownership changes among bonds with BBB⁻ rating is 27 bps lower than the average among bonds with non-BBB⁻ ratings. The more positive earnings conference calls, on the other hand, do not display significant differences in insurance bond ownership changes between the two rating groups. Therefore, the negative impact of the conference call tone on insurance ownership changes is indeed stronger among bonds with higher regulatory capital constraints.

Given the regulatory constraint of holding a limited percentage of junk bonds, insurance companies are supposed to be risk averse to bonds with high default risks. To test the hypothesis, we measure bond downside risks with the quarterly average of 5% VaR and 10% ES from the empirical distribution of past bond returns (Bai, Bali, and Wen (2019)).[26] We define a high dummy

[25] Firms should have at least one BBB⁻ rating bond and one non-BBB⁻ rating bond to be included.

[26] VaR determines how much the value of an asset could decline over a given period of time with a given probability as a result of changes in market rates or prices. 5% VaR is based on the lower tail of the empirical return distribution, i.e., the second lowest monthly return observation over the past 36 months. ES (expected shortfall) is defined as the

variable equal to one if the VaR (ES) measure for the bond is below the cross-sectional median in each quarter, and zero otherwise, in Columns (3) and (4) (Columns (5) and (6)) of Table 6. The interaction term of Neg_net and "High" dummy is significantly negative, suggesting that among bonds issued by firms with more negative conference calls, insurers tend to shy away from those bonds with high default risks.

4.1.2. Predictability for Future Default Risks and Default Events

There is sufficient evidence in the literature of investors gathering price (i.e., mean, the first moment) related information from the conference call tone. For instance, Price et al. (2012) demonstrate that the linguistic tone influences investor beliefs with a significantly positive relationship between optimistic call tones and stock returns. Guo, Ying, and Zeng (2022) document a positive relation between firm-specific investor sentiment measured by tone of earnings conference call transcripts and firm's value of cash. However, there are fewer studies exploring the risk (i.e., variance, the second moment) related information contained in the linguistic tone. Borochin et al. (2018) find that measures of conference call tones are negatively related to investors' perceived price risk (i.e., value uncertainty) about firms generated from the equity options market. They demonstrate that the impact of conference call tones extends beyond the simple conveyance of expected value information to market participants to their perceptions of expected risk as well. With supervised machine learning methods, Donovan et al. (2021) develop a text-based estimate of the CDS spread from qualitative information disclosed in conference calls, and document that the measure captures incremental information about the firm's credit risk relative to prior credit risk measures.

Given that insurers' responses to the linguistic tone of conference calls are stronger among bonds with high default risks, we hypothesize that the information included in the tone is related to potential risks, especially the downside risk, to which bond insurers subject to NAIC regulatory capital constraints would pay keen attention. We use various proxies for future default risks as the dependent variable and run baseline regressions, including bond downgrades, changes in firm

conditional expectation of loss given that the loss is beyond the VaR level. We use the 10% expected shortfall (ES) defined as the average of the four lowest monthly return observations over the past 36 months (beyond the 10% VaR threshold). The sample observations decrease a lot when we interact the tone measure with the dummy indicating low VaR or ES, for we require there to be at least 24 monthly returns in past 36 months.

expected default frequency (EDF) and Z-score (Altman (1968)).[27] The downgrade (DG) dummy is equal to one if there is a downgrade in that quarter, and zero otherwise. The EDF and Z-score are calculated for each firm at the monthly frequency, and the corresponding averages are taken across the quarter respectively. The results are presented in Table 7.

[Insert Table 7 about here]

We show that bonds issued by firms conducting conference calls with more negative tones are more likely to be downgraded in the following quarter. With bond controls, in Column (1), a one-standard-deviation increase in the negative tone is associated with 0.5% higher probability of the bond to be downgraded.[28] For default proxies at the firm level, we control for the level of EDF and Z-score in the last quarter, respectively. With bond and stock controls, a one-standard-deviation increase in Neg_net leads to an increase of 33 bps in EDF change and a decrease of 2 bps in Z-score change. The economic magnitudes are non-trivial compared to the average cross-sectional mean of the EDF change and Z-score change. We explore whether the negative tone measure has any predictability for real bond default events in the near future. We define a dummy variable "real_default" equal to one if the bond defaults in one year following the conference call, and zero otherwise. In the last two columns of Table 7, we find that bonds issued by firms with more negative conference calls are indeed more likely to default in the next year. [29]

We additionally control for the text-based overall risk measure in Hassan et al. (2019) in each regression. In an untabulated table, we find that the overall risk measure does not significantly

[27] The literature has shown how insurance companies treat bonds with lower credit ratings. Ellul, Jotikasthira, and Lundblad (2011) find insurance companies more constrained by regulation are more likely to sell downgraded bonds. Becker and Ivashina (2015) state that generally, insurers invest in highly rated bonds, but they select into more risky bonds within regulatory requirements. Data on historical rating changes by major rating agencies are obtained from the Mergent Fixed Income Securities Database (FISD). We follow Ellul, Jotikasthira, and Lundblad (2011) to define the rating change event as the date of the first downgrade by a rating agency (Standard & Poor's, Moody's, Fitch, and Duff & Phelps).

[28] Given that insurance companies pay keen attention to events related to bond rating changes, there is a concern that they sell bonds just in response to the bond downgrade events. Therefore, we further control for a dummy indicating whether there is any downgrade in the same quarter with or in the quarter following the conference call in the baseline regressions. The ccoefficients on Neg_net remain significant with similar magnitudes, implying that the information in the conference call tone goes beyond the rating changes.

[29] We also check the occurrence of bond downgrade events in one year following insurance ownership decreases, across the quintiles sorted on the net negative tone of bond issuer's conference call. In the highest (lowest) tone quintile, on average 12% (7%) percentage of bond insurance ownership decreases are followed by bond downgrade events in the next one year. Moreover, for bonds in the highest quintile with BBB$^-$ rating, the percentage rises to 19%. These results confirm our finding that insurers sell bonds issued by firms with more negative conference calls that have higher default risks in the future, especially among bonds with high regulatory constraints.

predict the future default risk proxies and real default events, while the net negative tone measure still has strong predictability, both economically and statistically significant. This is consistent with Wang (2021) that the effect of the tone of risk disclosures is distinguishable from that of the amount of such disclosures.

In the previous studies, Donovan et al. (2021) use a text-based measure of the CDS spread based on conference calls to predict future events that reflect a firm's credit risk, including bankruptcy, interest rate spreads, and credit rating downgrades. We expand their analysis to the corporate bond market, and show that the net negative tone of earnings call is a significant predictor for future default risks and real default events, consistent with the hypothesis that insurers are sensitive to the default related information contained in the conference call tone.

4.1.3. Default-related and Non-default-related Tone Measures

To further demonstrate that insurers pay attention to the earnings conference call tone due to additional information source of default risks, we construct novel tone measures by separating the whole earnings conference call transcript into default-related and non-default-related documents. If insurers care more about default-related information, bond insurance ownership changes should be more sensitive to the tone measure of the default-related document.

We first collect earnings conference call transcripts data from Capital IQ Transcripts, which provides historical conference call transcripts covering more than 8,000 public companies. The database records all transcripts' details divided by responses of chief executives to each question asked by analysts or investors. The detailed records allow us to roughly identify whether a certain question is related to default and then to separate the whole conference call transcript into default and non-default documents.

To identify whether a question is related to the default topic, we collect more than 100 default-related documents such as credit-related textbooks and annual reports from credit rating companies, count words frequencies, and then manually select default-related words based on the word frequency and topic relevance. We then create a default-topic words dictionary to identify default-related descriptions from the conference call transcript. A cloud of the most frequent words in the

default-topic dictionary is provided in Figure 1, with the complete list of words provided in the Appendix Table A6.[30]

[Insert Figure 1 about here]

After creating the default-topic words dictionary, motivated by Hassan et al. (2019), we divide each transcript to the sentence level and transfer the whole articles into a list of bigrams (i.e., all adjacent two-word combinations), with necessary adjustments such as excluding stop words, reducing a word to its word stem, and switching a word to its base root mode (i.e., lemmatization). We then classify each bigram in a conference transcript into the default-related (non-default-related) group if the bigram has at least (less than) one word belonging to the default-topic words dictionary. Along this line, we separate the original conference call transcripts into two parts: default-related and non-default-related documents. On average, the default-related bigrams count for 22% out of the total bigrams in the conference call transcripts.

For each group of default-related and non-default-related bigrams, we calculate the net negative tone measure, separately:

$$Net\_neg_{group,j,t} = \frac{\sum_{b=1}^{B_{group,j,t}} S(b)}{B_{group,j,t}}, \tag{7}$$

where $B_{group,j,t}$ is the total number of bigrams of either the default-related or non-default-related document. $S(b)$ is an indicator function that assigns a value of +1 (-1) if the bigram b contains at least one word in the Loughran and McDonald negative (positive) dictionary, and zero otherwise.

To formally test whether insurance companies react to the default-related information, we run panel regressions of insurance ownership changes on the standardized net negative tones of the two groups. In Column (2) of Table 8, after controlling for bond and stock characteristics, a one-standard-deviation increase in the default-related net negative tone is accompanied with a decrease of 7-basis points in the insurance ownership change. The coefficient on the non-default-related net negative tone is insignificant with a much smaller magnitude. Therefore, the bond insurers care

[30] Sethuraman (2019) develop a credit risk dictionary, including words that are most commonly used by firms in providing credit risk-related information in the "Liquidity and Capital Resources" section of the MD&A, and that most commonly occur in the MD&A section of disclosures provided by firms that are tending toward a Chapter 11 or Chapter 7 bankruptcy filing. Nearly 22% of the words in Sethuraman (2019) are include in our default-related words dictionary which stems from credit-related textbooks and reports of credit rating companies. Besides, results in Table 8 still hold if we directly use the credit risk dictionary in Sethuraman (2019).

much more about the default-related information in the conference call tone while pay little attention to the non-default-related information.

[Insert Table 8 about here]

4.2. Heterogeneity

In this section, we explore heterogeneities in the responses of bond insurance companies to the tone of earnings conference calls, from the following perspectives: 1) levels of information asymmetry, 2) insurance portfolio compositions, types, and holding horizons.

4.2.1. Heterogeneities at Issue and Issuer Levels

So far, our findings suggest that the tone of conference calls provides additional information about future default risks, both at bond and firm levels. If the bonds, or the issuers, have a higher degree of information asymmetry, the incremental information in the linguistic tone is supposed to be more valuable to insurance companies for making investment decisions.

We consider two common firm attributes as firm-level information asymmetry measures: firm size and stock idiosyncratic volatility (stock IVOL). Firms with smaller size and higher stock IVOL tend to have a higher degree of information asymmetry (e.g., Krishnaswami and Subramaniam (1999), Huang and Wermers (2022), and Huang, Wermers, and Xue (2022)). Besides, we consider bond attributes including bond idiosyncratic volatility (bond IVOL) and bond illiquidity. The information asymmetry is supposed to be higher among bonds with higher bond IVOL and lower liquidity.

In Table 9, with the cross-sectional median cutoffs, we create a high information asymmetry dummy variable (high_asymmetry) indicating lower firm size, higher stock IVOL, higher bond IVOL, and higher bond illiquidity, respectively. We then interact the net negative tone measure with the high information asymmetry dummy and include it in our baseline regressions, controlling for bond and time fixed effects and other characteristics. The interaction terms are significantly negative across all the four proxies. That is to say, for a bond with higher degree of information asymmetry, insurance companies are more sensitive to the tone of its issuer's earnings conference calls. These are cases where the additional information is of more use for insurance companies.

[Insert Table 9 about here]

4.2.2. Heterogeneities at the Insurer Level

We then explore whether insurers' responses to the tone of conference calls vary with respect to their portfolio compositions. Given that it is the default-related information in the tone that matters for bond insurance companies, we expect them to care more about the tone when 1) there are more downgraded and high-yield bonds, and 2) there is larger holding of the bond with more negative conference call, in their portfolios.

For each insurance company k $(1,2,\dots,K_{i,t-1})$ holding bond i in quarter $t-1$, we first get the total numbers of downgraded bonds (except the downgrade for bond i if any), high-yield bonds, and all bonds in its portfolio. Besides, we calculate the percentage of bond i in insurer k's portfolio in quarter $t-1$, $p_{i,t-1}$, as the holding par amount of bond i divided by the total holding par amount in its portfolio. For the $K_{i,t-1}$ insurers holding bond i in quarter $t-1$, we sort them into equal halves (quintiles) based on the percentage of downgraded bonds, the percentage of high-yield bonds in their portfolios, and $p_{i,t-1}$, separately. We then obtain the aggregate change in the ownership of insurers in the top and bottom half (quintile) groups for bond i in quarter t. We run regressions of changes of insurance ownership on the net negative tone for each group, with time and bond fixed effects in Table 10.

[Insert Table 10 about here]

Panel A and B of Table 10 demonstrate that if insurers hold more downgraded and junk bonds in their portfolios, they react more actively to the tone of conference calls. The magnitudes of coefficients on the tone measure are much larger for insurers in the top half (> P50) and top quintile (> P80), than the bottom half (< P50) and bottom quintile (< P20), respectively.[31] If there are more downgraded or non-investment-grade level bonds in insurers' portfolios, they are more reluctant to hold the bonds issued by firms with more negative conference calls, due to higher probability of defaults. Panel C performs similar tests sorting on $p_{i,t-1}$. We find that insurers care more about the negative conference call when the issuer's bond is more important (takes up a larger proportion) in their holding portfolios.

[31] The negative effects of the tone do not monotonically increase with the sorting variable, for a higher sorting variable does not necessarily indicate larger holding par amount of the bond.

There are different types of insurers and they distinct substantially in their preferences for portfolio investments (Bretscher et al. (2022)). Life insurance companies, for instance, tilt portfolios to long-dated bonds and investment grade bonds, consistent with a sharp discontinuity in capital requirements at the investment-grade to high-yield (IG-HY) threshold. On the other hand, property and casualty insurers with more short-term liabilities like mutual funds on average have much larger demand elasticities with respect to bond yields. Koijen and Yogo (2023) develop an equilibrium asset pricing model with leverage-constrained households and insurance investors, verifying that life insurers have become more financially constrained relative to property and casualty insurers, and the credit risk of life insurers' bond portfolios has decreased relative to that of property and casualty insurers after the global financial crisis.

To test effects of the conference call tone on different types of insurers, we run baseline regressions for life and health (L&H) insurers, and property and casualty (P&C) insurers, separately in the Appendix Table A7. We find the coefficients on the net negative tone measure are significantly negative for both L&H and P&C insurers, with larger magnitudes for the former.

To sum up, above results provide heterogeneities of insurers' investment of corporate bonds in response to issuers' earnings conference call tones, from the bond and insurer levels. We find effects of the tone on the subsequent insurance ownership changes are more pronounced when there is higher level of information asymmetry, when there are more downgraded and junk bonds in insurers' portfolios, and when the bond is more important for the holding insurers.

5. Market Impacts

The previous results show that insurers are more likely to decrease their holdings of bonds issued by firms with more negative conference calls. The selling pressure for these bonds from insurers cannot be fully absorbed by the limited liquidity provision from other market participants such as bond mutual funds. In this section, we examine whether insurers' trading based on the linguistic tone of earnings conference calls impacts the corporate bond market. Intuitively, bonds issued by firms with more negative conference calls are supposed to experience lower subsequent returns if they are largely held by insurance companies. Moreover, for a bond with more negative conference call in the past, when the bond is downgraded from investment-grade (IG) to non-investment grade (NIG), we expect the fire sale pressure for this bond to be lower, for the downward price pressure has been absorbed gradually by the insurance selling based on the past negative call tone.

We investigate two additional questions: 1) would the effect of earnings conference call tone on bond insurance ownership change spill over from public firms who hold the conference calls to bonds issued by private firms in the same industry? 2) would insurers' trading according to the conference call tone have any impact on liquidity at the market level?

5.1. Impacts on Bond Returns

To investigate bond return pattern in a dynamic setting, we focus on monthly corporate bond returns around earnings conference calls. We first calculate raw monthly bond returns, following Gebhardt, Hvidkjaer, and Swaminathan (2005):

$$r_{i,t} = \frac{P_{i,t} + AI_{i,t} + C_{i,t}}{P_{i,t-1} + AI_{i,t-1}} - 1, \tag{8}$$

where $P_{i,t}$ is the month-end price of month t for the individual corporate bond i, $AI_{i,t}$ is the accrued interest and $C_{i,t}$ is the coupon payment, if any, from the end of month $t-1$ to the end of month t for corporate bond i. Bond i's excess return at month t is, $R_{i,t} = r_{i,t} - r_{f,t}$, where $r_{f,t}$ is the risk-free rate proxied by one-month Treasury bill rate. Following the prior literature, the monthly abnormal bond return is then computed as the raw monthly return subtracted by the size-weighted average return of the pool of bonds that share similar credit ratings and time-to-maturity in that month.

To give a direct intuition, we first plot the average cumulative monthly abnormal bond returns after conference calls. At the end of each quarter, earnings conference calls are split into two groups by the cross-sectional median, and those above (below) the median are defined as negative (positive) calls. In each half, we further split the bonds into terciles by their insurance ownerships at the most recent quarter-end before the conference calls. In Figure 2, we plot the average cumulative monthly abnormal bond returns since one-month before the conference calls for the bonds with high (top tercile) and low (bottom tercile) insurance ownerships, respectively in the half of negative calls. The average abnormal monthly returns of bonds in the two groups are very close in one-month before earnings conference calls, so we do not expect the two groups to be fundamentally different. Compared to those with lower insurance ownerships, bonds largely held

by insurance companies experience much lower returns after the conference calls.[32]

[Insert Figure 2 about here]

Then we move to formally test whether insurance trading according to the conference call tone affects individual bond returns. Each quarter, we split the bonds into terciles by their insurance ownership at the most recent quarter-end before the conference calls. The high_ins dummy is equal to one for bonds with insurance ownership among the top tercile (largely held by insurance companies), and zero otherwise. We run bond-month panel regressions of cumulative monthly abnormal returns since the conference call month (0) on the Neg_net, high_ins dummy, and their interactions. Table 11 reports the results.

[Insert Table 11 about here]

We expect insurers' responses to the conference call tone to be stronger among the bonds largely held by insurance companies, inducing lower returns for such bonds. The increasingly negative coefficients on the interaction of tone and high_ins dummy verify this assumption. Bonds issued by firms with more negative conference calls have significantly lower cumulative abnormal returns since the second month after the calls (Column (3)). Till the sixth month, a one-standard-deviation increase in the net negative tone measure leads to a significant decrease of 137-bps in cumulative abnormal returns for bonds largely held than those lightly held by insurance companies. Thus, the expected decrease in insurance ownership changes according to more negative conference calls indeed has significantly negative and long-lasting impact on future bond returns.

How about the stress periods? When bonds are downgraded from IG to NIG, there would be fire sales by insurance companies facing regulatory constraints and significant price discounts from fundamental values (Ellul, Jotikasthira, and Lundblad (2011)). Given the finding that earnings conference call tone provides an additional information source for insurance companies and they would sell bonds in response to more negative calls, we expect the fire sale pressure of downgraded bonds to be lower for the bonds with more negative calls in the past.

Among the bonds downgraded from IG to NIG, at each quarter, we split the issuers into two groups by the average net negative tone of its issuer's earnings conference calls in the 8 quarters

[32] The difference between the two groups widens since the second month after the earnings calls. We also check the average returns till one year after the negative conference calls, and there is no evidence of return reversal in both of the groups.

(two years) before the downgrade, and those above (below) the cross-sectional median are issuers with more negative (positive) calls in the past. In Figure 3, we plot the median of monthly abnormal bond returns from 6-month before to 6-month after the downgrades (0 is the downgrade month), for issuers with more negative and positive past calls, respectively.

[Insert Figure 3 about here]

Before the IG to NIG downgrades, the median abnormal returns are much lower for bonds with more negative past calls. For bonds issued by firms with more positive calls in the past, the price declines in the downgrade month and subsequent return reversals after are much higher, compared to bonds with more negative past calls. This is consistent with the previous finding that insurers gradually decrease their holdings of bonds with more negative calls (before IG to NIG downgrades), and hence the price pressure driven by fallen-angle downgrades is relatively lower in these bonds.

5.2. Spillover Effect on Bonds of Private Industry Peers

We focus on insurers' trading of bonds issued by public firms, as these firms are required to provide the details of their financial performance and most of them opt to hold regular earnings conference calls to offer additional information.[33] In contrast, privately held companies are not required to disclose financial information and they do not hold conference calls as well. Thus, it is more challenging for bond market investors to access information of bonds issued by private firms. In this subsection, we attempt to study whether the information in conference calls of public firms is useful for insurers to make decisions for trading bonds issued by private firms.[34]

[33] In addition, Brown, Call, Clement, and Sharp (2019) state that institutional investors who hold the vast majority of corporate debts and dominate trading in fixed income secondary markets typically have the option of meeting privately with managers or investor relations personnel (whether in person, on the phone, or via email exchanges). Moreover, Franco, Shohfi, Xu, and Zhu (2022) state that the fixed income conference call is a unique form of voluntary disclosure deviating from the traditional multipurpose firm disclosures intended for all stakeholders and allow firms to address debt-specific investor questions as well. These calls give debt investors better access to firms' management, and to some extent substitute for the private meetings. Therefore, we also create the overall, default-related, and non-default-related tones of the fixed income conference call transcripts and replicate the baseline regressions. However, we find no significant coefficients on the tone measures from fixed income conference calls. It is likely due to the limited number of available fixed income conference call transcripts (160) in our sample.

[34] Among the corporate bonds held by insurance companies, private firms on average take up 22% of the market caps (25% of the number of bonds).

Firms in the same industry are exposed to common shocks and the disclosure of public firms reveals industry information. For example, Badertscher, Shroff, and White (2013) document that public firm corporate disclosures enrich the industry's information environment and improve the average investment efficiency of private firms in the same industry. Thus, we expect that tones of public firms' conference calls convey information related to their private peers and affect the trading decisions of insurers holding bonds of private firms.

To test this hypothesis, we examine the relation between insurance ownership change of the bond issued by a private firm and the average conference call tone of public firms in the same industry.[35] Specifically, we measure the industry-level conference call tones by taking the average (equal-weighted or equity market cap-weighted) and the median of conference call tones of public firms in the same industry, respectively. The results are presented in Table 12.

[Insert Table 12 about here]

Consistent with the argument that disclosure by public firms contains industry-wide information, we document a spillover effect of conference calls by public firms on their private peers. We find that insurers react to the negative tones of public firms by significantly reducing the holding of private firms in the same industry as well. The results are consistent across different measures of industry-level conference call tone and economically large. For instance, in Column (6) with bond and time fixed effects, a one-standard-deviation (0.58) increase in the median of average tone is associated with a decrease of 0.13% in the insurance ownership change in the next quarter. It is non-trivial in economic significance given the time-series average of cross-sectional median of insurance ownership change for bonds of private firms is only -0.02%. This sizeable economic magnitude is consistent with the fact that insurers have limited information access to private firms.[36]

5.3. Impacts on the Market Liquidity

[35] We use the Fama-French 30 industry classification for these analyses. Results are robust to other industry classifications.

[36] In unreported tests, we also examine the spillover effect of earnings conference calls by public firms on public firms with conference calls (around 14% public firms do not hold conference calls over our sample period). Compared with the spillover effect on private firms, the spillover effect on public firms is less significant, consistent with more information resources of public firms.

Given the direct and spillover effects of earnings conference calls on the corporate bond trading by insurance companies, we further explore the potential impacts of conference call tones on the corporate bond market. The collective selling by insurance companies triggered by the negative information in conference calls may lead to non-negligible liquidity risk in the corporate bond market. We focus on the volatility and illiquidity measures to quantify the risk.

For the tests in this subsection, we consider two samples: 1) bonds issued by public firms holding earnings conference calls ("with calls"); 2) all bonds held by insurance companies including both public and private firms ("all"). We take averages of the bond-level volatility and illiquidity measures for each quarter and use these market-level variables as dependent variables, respectively.[37] We then explore how the average conference tone accompanied with potential selling by insurers affects the overall liquidity in the corporate bond market. To measure the potential selling pressure, we use the equal-weighted average insurance ownership of bonds in the market.[38] We report the regression results in Table 13, Panel A. The key independent variable is the interaction between market-level conference call tone and average bond insurance ownership. However, there are no significant coefficients on the interaction term.

[Insert Table 13 about here]

We show earlier that the selling induced by negative conference call tones is much more pronounced among insurers subject to regulatory constraints. To more precisely measure the potential selling by insurers, especially the constrained ones, we take the equal-weighted average insurance ownership of BBB-rated bonds. We interact the potential selling by constrained insurers with market-level conference call tone, and examine their joint effect on liquidity risks of corporate bond market. The results are presented in Table 13, Panel B. Interestingly, the coefficients on the interaction term are significantly positive in all the columns, implying that selling by constrained insurers caused by negative conference call tones would worsen the liquidity of corporate bond market.

6. Conclusion

[37] The detailed definitions of these variables are provided in the Appendix.

[38] Results remain unchanged if we choose different weighting schemes, such as using firm size-weighted average of the conference call tone, or bond size-weighted average of the insurance ownership. Results are also similar if we use alternative bond illiquidity measures deduced from the IRC or Roll measures.

Earnings conference calls provide important opportunities for management and analysts to express their opinions about a firm's recent performance and outlook. Prior research suggests that investors and sophisticated intermediaries in the stock market pay attention to the qualitative information contained in these calls. However, little is known about impacts of the qualitative information on the investment in the corporate bond market.

In this paper, we fill the gap by conducting a detailed investigation on how the linguistic tone of earnings conference call affects bond insurance ownership changes. We find that bond insurers decrease their holdings of the bonds issued by firms with more negative conference calls. Bond mutual funds provide limited liquidity to buy these bonds and cannot fully absorb the selling pressure from insurers.

We further document that insurers' responses to the negative conference call tone are more pronounced for bonds with higher regulatory constraints and downside risks, pointing to the channel of default risks. Firms conducting more negative conference calls have higher expected default probabilities and their bonds are more likely to be downgraded or even in default in the future. Moreover, by creating a novel default-topic words dictionary and calculating the default-related tone measure, we show that the default-related information in the conference call tone is the information to which insurance companies react.

More importantly, insurers' response to the linguistic tone of conference calls has significant impacts on the underlying bond market. Bonds largely held by insurance companies experience significantly lower returns after more negative earnings conference calls, compared to those lightly held by insurers. Due to insurers' decreases in bond holdings after negative calls, the fire sale price pressure is lower for those bonds with more negative conference calls in the past. Besides, the selling pressure of bonds with negative calls would spill over to the bonds issued by private firms in the same industry. We further show that insurance companies can pose non-negligible liquidity risk to the underlying bond market through their aggregate selling of bonds with high regulatory constraints and more negative conference calls.

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Appendix. Variable Definitions

Dependent Variables	
Insurance ownership change (ΔIns)	Following Huang and Wermers (2022), we first calculate the insurance ownership ($Ins_{i,t}$) for each bond i at the end of quarter t, defined as the total par amount held by insurance companies divided by the issuing amount of the bond. Then we define the quarterly change in insurance ownership of bond i in quarter t as the following equation: $$\Delta Ins_{i,t} = Ins_{i,t} - Ins_{i,t-1}.$$
Change in the number of insurers (ΔN_Ins)	ΔN_Ins equals to [sign of $(N\_Ins_{i,t} - N\_Ins_{i,t-1})$] $\times$ $\log[abs(N\_Ins_{i,t} - N\_Ins_{i,t-1}) + 1]$, where $N\_Ins_{i,t}$ is the number of insurers holding bond i at the end of quarter t.
Expected default frequency (EDF)	We use the procedure in Bharath and Shumway (2008), with the code provided from Tyler Shumway's website. The calculation follows the insights from the Merton (1974) distance to default model: $$\mathrm{EDF} = \mathrm{N}\left(-\frac{\ln\left(\frac{\mathrm{V}}{\mathrm{F}}\right)+\left(\mu-0.5\sigma_{\mathrm{V}}^{2}\right)\mathrm{T}}{\sigma_{\mathrm{V}}\sqrt{\mathrm{T}}}\right),$$ where $N(.)$ is the cumulative distribution function of the standard normal distribution, V is the total value of a firm, F is the face value of the firm's debt, μ is an estimate of the expected annual return of the firm's assets that is calculated using historical return of the firm's asset, and σ_V is the volatility of firm value. V and σ_V are solved numerically from the following two equations: $$\mathrm{E} = \mathrm{VN}(\mathrm{d}_1) - \mathrm{e}^{-\mathrm{rT}}\mathrm{FN}(\mathrm{d}_2), \sigma_{\mathrm{E}} = \left(\frac{\mathrm{V}}{\mathrm{E}}\right)\mathrm{N}(\mathrm{d}_1)\sigma_{\mathrm{V}},$$ where E is the market value of the firm's equity, σ_E is the volatility of the firm's equity, and d_1 and d_2 are parameters defined in the usual way.
Sell or buy herding measure (SHM or BHM)	Following Lakonishok, Shleifer, and Vishny (1992) and Cai et al. (2019), we estimate the herding measure of bond i in quarter t using following equation: $$HM_{i,t} = \left|p_{i,t} - E\left[p_{i,t}\right]\right| - E\left|p_{i,t} - E\left[p_{i,t}\right]\right|,$$ where $p_{i,t}$ is the proportion of buyers to all active traders of bond i in quarter t. The term $E\left[p_{i,t}\right]$ is the expected level of buying intensity, estimated using market-wide intensity of buying $\overline{p_t}$, $$\overline{p_t} = \frac{\sum_i \#\ of\ Buy_{i,t}}{\sum_i \#\ of\ Buy_{i,t} + \sum_i \#\ of\ Sell_{i,t}},$$ Next, we follow Wermers (1999) to define the sell herding measure (SHM) or buy herding measure (BHM) for bonds with a lower or higher proportion of buyers than the market average, respectively as follows. $$SHM_{i,t} = HM_{i,t}\left|\left[p_{i,t} < E\left[p_{i,t}\right]\right], BHM_{i,t} = HM_{i,t}\right|\left[p_{i,t} > E\left[p_{i,t}\right]\right].$$
Abnormal returns	Following the prior literature, the monthly abnormal return is computed as the raw bond return subtracted by the size-weighted average return of the pool of bonds that share similar credit ratings and time-to-maturity in that month.
Return volatility	The volatility of daily returns for each bond in each quarter.

Illiquidity	We follow Bao, Pan, and Wang (2011) to calculate bond illiquidity as the auto-covariance of bond daily log price change in each month multiplied by -1. Then for each bond, we average the monthly illiquidity measure in each quarter.
Independent Variables	
Net negative tone of earnings conference calls (Neg_net)	Hassan et al. (2019) derive the sentiment measure in earnings conference call as the frequency of mentions of positive words, deducts the frequency of mentions of negative words, based on Loughran and McDonald (LM, 2011) sentiment dictionary, divided by the length of the transcript. The sentiment of the conference call for firm j in quarter t is as follows: $$Sentiment_{i,t} = \frac{\sum_{b=1}^{B_{i,t}} S(b)}{B_{i,t}},$$ where $S(b)$ is an indicator function that assigns a value of +1 (-1) if the word b is associated with positive (negative) sentiment, and zero otherwise. We define the net negative tone measure (Neg_net) as the sentiment measure multiplied by -1. The higher the value, the more negative tone of earnings conference call. We standardize the tone measure to one-unit standard deviation and zero mean in the full sample, and cap it at the 1st and 99th percentiles each quarter.
Rating	The average of credit ratings provided by S&P and Moody's when both are available, or the rating provided by one of the two rating agencies when only one rating is available. Numerical score of 1 refers to AAA rating by S&P and Aaa rating by Moody. Numerical score of 21 refers to C for both S&P and Moody. Investment-grade (low yield) bonds have ratings from 1 to 10. Non-investment-grade (high yield) bonds have ratings above 10. A larger number indicates higher credit risk or lower credit quality.
Maturity	Years to maturity.
Age	Years since issuance.
Coupon	Individual bond's coupon rate.
Ln(bond size)	Logarithm of the offering amount of individual bond.
Ln(stock size)	The natural logarithm of the market value of the firm's equity at the end of last year.
Ln(BM)	The natural logarithm of book equity for the fiscal year-end in a calendar year divided by market equity at the end of December of that year, as in Fama and French (1992).
Stock IVOL	The standard deviation of the regression residual of individual stock returns on the Fama and French (1993) three factors using daily data in the previous month, as in Ang et al. (2006). We then average monthly stock IVOL in a quarter to get quarterly IVOL measure.
Institutional ownership(IO)	The percentage of common stocks owned by institutions.
Analyst	The number of analysts following the firm in the previous quarter.

Standardized unexpected earnings (SUE)	SUE is defined as the net income of the quarter minus that four quarters ago, divided by the standard deviation of quarterly net income over past four years.

Figure 1. Word Cloud of the Default-related Dictionary

This figure plots the cloud of the most frequent words in the default-related dictionary. The complete list of words is provided in the Appendix Table A6. To construct the default-related and non-default-related tone measures, we create a default-topic words dictionary from more than 100 default related documents such as textbooks and annual reports from credit rating companies. We then manually select default related words based on word frequency and topic relevance to defaults.

Figure 2. Average Cumulative Monthly Abnormal Bond Returns Following Negative Calls

This figure plots the average cumulative monthly abnormal bond returns since one-month before (-1) to the third-month (+3) after earnings conference calls, over the period from 2002Q2 to 2020Q4. At the end of each quarter, earnings conference calls are split into two halves by the cross-sectional median, and those with above (below) median values are defined as more negative (positive) calls. In each half, we further split the bonds into terciles by their insurance ownership (Ins) at the most recent quarter-end before the conference call. The monthly abnormal bond return is computed as the raw return subtracted by the size-weighted average return of the pool of bonds that share similar credit ratings and time to maturity in that month. In the group with more negative conference calls, we plot the average cumulative monthly abnormal returns for bonds with high (top tercile) and low (bottom tercile) insurance ownerships, respectively.

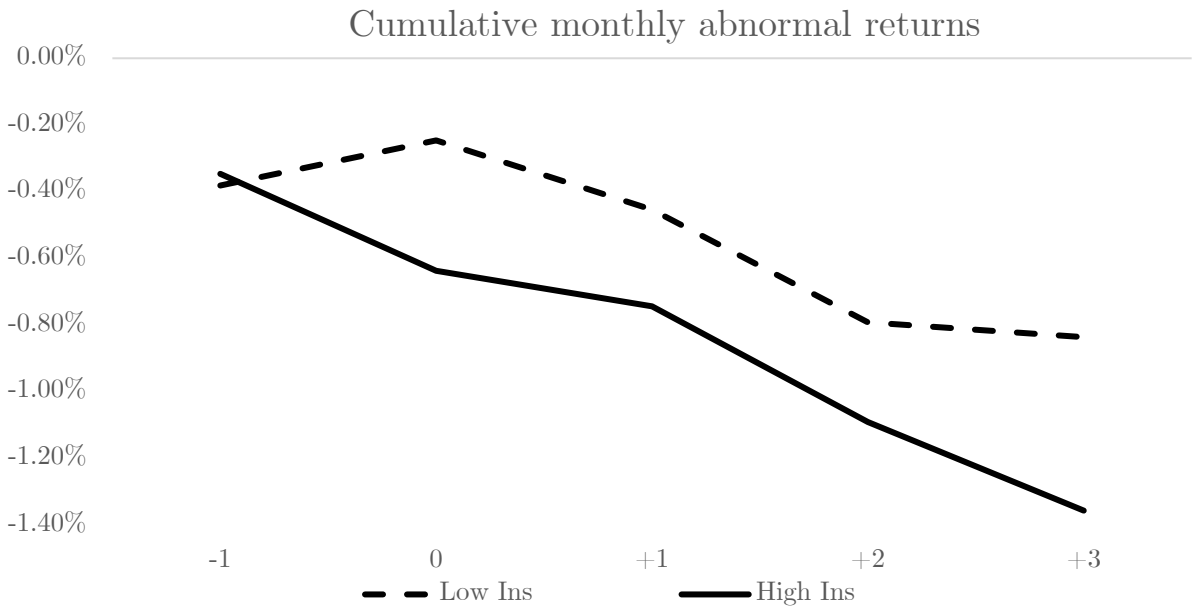

Figure 3. Median of Monthly Abnormal Bond Returns Around IG to NIG Downgrades

This figure plots the median of monthly abnormal returns around investment-grade (IG) to non-investment-grade (NIG) downgrades, over the period from 2002Q2 to 2020Q4. Among the bonds downgraded from IG to NIG, at each quarter, we split the issuers into two groups by the average net negative tone of its issuer's earnings conference calls in the 8 quarters (two years) before the downgrade, and those above (below) the cross-sectional median are issuers with more negative (positive) calls in the past. We plot the median of monthly abnormal bond returns from 6-month before to 6-month after the downgrades (0 is the downgrade month), for issuers with more negative and positive past calls, respectively. The monthly abnormal bond return is computed as the raw return subtracted by the size-weighted average return of the pool of bonds that share similar credit ratings and time to maturity in that month.

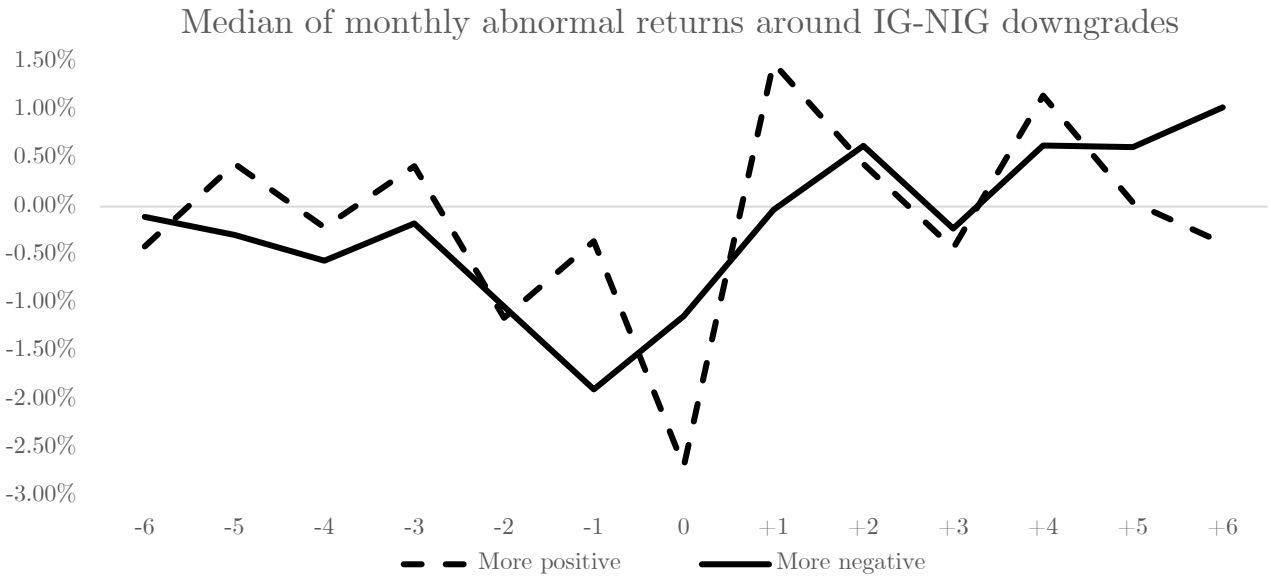

Table 1. Summary Statistics

This table provides descriptive statistics of the data used in our empirical analysis over the period from 2002Q2 to 2020Q4. Panel A reports the number of bond-quarter observations (N), the time-series average of cross-sectional mean, standard deviation (Std), lower quartile (Q1), median, and upper quartile (Q3) for quarterly bond insurance ownership (Ins) in percentage, bond insurance ownership change (ΔIns) in percentage, number of insurers (N_Ins), change in the number of insurers (ΔN_Ins), and bond characteristics including bond rating, time-to-maturity (Maturity) in years, time-since-issuance (Age) in years, coupon rate in percentage, and the logarithm of bond issue size (Ln(bond size)). Panel B reports summary statistics for firm-quarter variables. Hassan et al. (2019) derive the sentiment measure of earnings conference calls as the frequency of mentions of positive words, deducts the frequency of mentions of negative words, based on Loughran and McDonald (LM, 2011) sentiment dictionary, divided by the length of the transcript. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure multiplied by -1. The higher the value, the more negative tone of earnings conference call. Following Hassan et al. (2019), we standardize the tone measure to one-unit standard deviation and zero mean in the full sample, and cap it at the 1st and 99th percentiles each quarter. Other firm-quarter variables include the logarithm of firm size (Ln(stock size)), logarithm of book-to-market ratio (Ln(BM)), stock institutional ownership (IO) in percentage, number of analysts (Analyst), and unexpected earnings surprise (SUE) in percentage. The variable definitions are provided in the Appendix A. We focus on fixed-rate bonds and exclude bonds that are puttable, convertible or perpetual. We also exclude mortgage-backed, asset-backed, agency-backed or equity-linked securities, Yankees, Canadians, structured notes, issues denominated in foreign currency, or issues offered globally. We delete observations with age or maturity of less than 6-month. All the variables are winsorized each quarter at the 0.5% level.

	N	Mean	Std	Q1	Median	Q3
Panel A: Bond-quarter variables						
Ins (%)	247,795	34.95	30.12	6.93	28.86	57.75
ΔIns (%)	247,795	-0.21	3.33	-0.38	-0.02	0.26
N_Ins	247,795	28.46	29.85	4.84	20.73	42.11
ΔN_Ins	247,795	-0.03	0.82	-0.28	-0.01	0.21
Rating	247,795	7.75	3.25	5.58	7.26	9.24
Maturity (in years)	247,795	9.93	9.89	3.36	6.70	14.13
Age (in years)	247,795	7.02	5.36	2.93	5.46	9.71
Coupon (%)	247,795	6.00	1.66	4.96	5.95	7.03
Ln(bond size)	247,795	18.59	1.73	17.52	19.15	19.78
Panel B: Firm-quarter variables						
Neg_net	34,424	-0.01	0.95	-0.64	-0.01	0.61
Ln(stock size)	34,424	8.66	1.56	7.60	8.59	9.73
Ln(BM)	34,424	-0.67	0.79	-1.09	-0.57	-0.15
IO (%)	34,424	75.45	18.93	66.10	78.23	88.00
Analyst	34,424	13.50	7.39	7.62	12.84	18.46
SUE (%)	34,424	-0.47	10.06	-0.62	0.11	0.71

Table 2. Effects of Conference Call Tone on Insurance Ownership Changes

This table reports bond-quarter panel regression results for the relation between the net negative tone of earnings conference calls and the ownership change (trading behavior) of bond insurance companies in the subsequent quarter, over the period from 2002Q2 to 2020Q4. The dependent variable is insurance ownership change (ΔIns) of bond i measured from end of quarter $t-1$ to quarter t, multiplied by 100. The independent variables are measured at the end of quarter $t-1$ and defined in the Appendix A. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure (Hassan et al. (2019)) multiplied by -1. The higher the value, the more negative tone of earnings conference call. The tone measure is standardized to one-unit standard deviation and zero mean across the whole sample, and winsorized each quarter at the 1st and 99th percentiles. Columns (2) and (5) control for bond characteristics including bond rating, maturity, age, coupon, and logarithm of bond size. Columns (3) and (6) further control for stock characteristics including unexpected earnings surprise (SUE), logarithm of firm size (Ln(stock size)), logarithm of book-to-market ratio (Ln(BM)), stock institutional ownership (IO), and number of analysts (Analyst). All the variables are winsorized each quarter at the 0.5% level. Columns (1) to (3), and Columns (4) to (6) include time and firm fixed effects, and time and bond fixed effects, respectively. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable: ΔIns						
	(1)	(2)	(3)	(4)	(5)	(6)
Neg_net	-0.125***	-0.130***	-0.128***	-0.136***	-0.137***	-0.135***
	(-5.91)	(-6.03)	(-6.01)	(-6.28)	(-6.31)	(-6.25)
Rating		-0.018	0.002		-0.001	0.021
		(-1.35)	(0.14)		(-0.08)	(1.07)
Maturity		0.011***	0.011***		-0.002	-0.002
		(4.64)	(4.63)		(-0.13)	(-0.16)
Age		-0.071***	-0.071***		-0.183**	-0.185**
		(-6.22)	(-6.21)		(-2.16)	(-2.19)
Coupon		0.064***	0.064***			
		(3.53)	(3.55)			
Ln(bond size)		-0.025	-0.027			
		(-1.30)	(-1.38)			
SUE			0.060*			0.049
			(1.92)			(1.58)
Ln(stock size)			0.104**			0.079
			(2.31)			(1.61)
Ln(BM)			-0.079**			-0.139***
			(-2.54)			(-3.59)
IO (mutual fund ownership)			-0.062			-0.099
			(-0.37)			(-0.50)
Analyst			-0.007			-0.008
			(-1.54)			(-1.64)
Time FE	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	N	N	N
Bond FE	N	N	N	Y	Y	Y
Adj-R^2	0.053	0.056	0.057	0.067	0.067	0.067
# of obs	247,739	247,573	247,573	246,967	246,967	246,967

Table 3. Effects of Conference Call Tone on Alternative Measures

This table reports bond-quarter panel regression results for the relation between the net negative tone of earnings conference calls and changes in number of insurers in the subsequent quarter, over the period from 2002Q2 to 2020Q4. The dependent variable is the change in number of insurers (ΔN_Ins) holding bond i measured from end of quarter $t-1$ to quarter t in Columns (1) to (2). We follow Cai et al. (2019) to construct the sell and buy herding measures (*SHM* and *BHM*) of insurance companies for each bond at each quarter-end, and then use them as the dependent variables in Columns (3) to (4), and Columns (5) to (6), respectively. Dependent variables are multiplied by 100. The independent variables are measured at the end of quarter $t-1$ and defined in the Appendix A. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure (Hassan et al. (2019)) multiplied by -1. The higher the value, the more negative tone of earnings conference call. The tone measure is standardized to one-unit standard deviation and zero mean across the whole sample, and winsorized each quarter at the 1st and 99th percentiles. Columns (1), (3), and (5) control for bond characteristics including bond rating, maturity, age, coupon, and the logarithm of bond size. Columns (2), (4), and (6) further control for stock characteristics including unexpected earnings surprise (SUE), logarithm of firm size (Ln(stock size)), logarithm of book-to-market ratio (Ln(BM)), stock institutional ownership (IO) and number of analysts (Analyst). All the variables are winsorized each quarter at the 0.5% level. Time and bond fixed effects are included in the columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable	ΔN_Ins		*SHM*		*BHM*	
	(1)	(2)	(3)	(4)	(5)	(6)
Neg_net	-0.021***	-0.021***	0.424**	0.406**	0.206	0.213
	(-4.21)	(-4.08)	(2.54)	(2.43)	(1.37)	(1.43)
Rating	-0.017***	-0.014***	0.718***	0.555***	0.034	0.002
	(-4.55)	(-3.83)	(4.72)	(3.35)	(0.23)	(0.01)
Maturity	0.005***	0.005***	-0.028	-0.034	0.051	0.048
	(4.06)	(4.01)	(-0.06)	(-0.07)	(0.65)	(0.60)
Age	-0.030**	-0.031***	-4.673***	-4.676***	-1.030	-1.020
	(-2.59)	(-2.65)	(-3.03)	(-2.91)	(-0.63)	(-0.61)
SUE		0.023*		-0.769		-0.117
		(1.84)		(-1.55)		(-0.34)
Ln(stock size)		0.002		-0.928*		-0.487
		(0.20)		(-1.99)		(-1.43)
Ln(BM)		-0.033***		0.333		-0.909***
		(-3.50)		(0.88)		(-3.38)
IO		0.034		-0.091		2.550*
		(1.02)		(-0.06)		(1.97)
Analyst		-0.002*		0.087**		-0.045
		(-1.77)		(2.09)		(-1.35)
Time FE	Y	Y	Y	Y	Y	Y
Bond FE	Y	Y	Y	Y	Y	Y
Adj-R^2	0.120	0.120	0.266	0.267	0.146	0.147
# of obs	246,967	246,967	28,762	28,762	31,650	31,650

Table 4. Effects of Conference Call Tone on Insurance Ownership Changes: Robustness

This table reports bond-quarter panel regression results for the relation between the net negative tone of earnings conference calls and the ownership change of bond insurance companies in the subsequent quarter, with additional controls. Column (1) includes the overall risk measure in Hassan et al. (2019) as an additional control. Columns (2), (3), and (4) control for Financial-Negative words (LM_Neg), Financial-Positive (LM_Pos) words based on the sentiment dictionary in Loughran-McDonald (2011), and Harvard General Inquirer Negative words (GI_Neg), divided by the total number of words in the document of 10-K and 10-Q, respectively. Columns (5) and (6) control for the indicating dummy variables of ESS and CSS scores for the most related and novel firm news from the RavenPack database, respectively. For ESS score lower (higher) than 50, the ESS_Neg dummy variable is equal to 1 (-1), and zero otherwise. The CSS_Neg dummy variable is defined similarly. Column (7) includes all the above controls. We include all the bond and stock characteristics in the columns. All the variables are winsorized each quarter at the 0.5% level. Time and bond fixed effects are included in the columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Dependent variable: ΔIns						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Neg_net	-0.131***	-0.127***	-0.128***	-0.127***	-0.135***	-0.126***	-0.113***
	(-6.12)	(-5.72)	(-5.88)	(-5.71)	(-5.17)	(-4.79)	(-4.60)
Risk	-0.026						-0.035**
	(-1.55)						(-2.53)
LM_Neg		-0.015					-0.029
		(-0.61)					(-0.95)
LM_Pos			0.012				0.016
			(0.55)				(0.65)
GI_Neg				-0.029			-0.031
				(-1.57)			(-1.22)
ESS_Neg					-0.032*		-0.018
					(-1.88)		(-1.01)
CSS_Neg						-0.053***	-0.038**
						(-3.11)	(-2.24)
Bond Controls	Y	Y	Y	Y	Y	Y	Y
Stock Controls	Y	Y	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y	Y	Y
Bond FE	Y	Y	Y	Y	Y	Y	Y
Adj-R^2	0.067	0.067	0.067	0.067	0.068	0.068	0.067
# of obs	246,967	235,422	235,422	235,422	192,114	192,114	182,791

Table 5. Effects of Conference Call Tone on Ownership Changes of Other Institutions

This table reports bond-quarter panel regression results for the relation between the net negative tone of earnings conference calls and the ownership change (trading behavior) of other institutions in the corporate bond market in the subsequent quarter, over the period from 2002Q2 to 2020Q4. In Columns (1) to (2), the dependent variable is the mutual fund ownership change (ΔMut) of bond i measured from end of quarter $t-1$ to quarter t. The dependent variable in Columns (3) to (4) is the dealer net buy, defined as the difference in the par value between all dealers' buy from customers and all dealers' sell to customers in quarter t, scaled by the bond issuing amount. The dependent variables are multiplied by 100. The independent variables are measured at the end of quarter $t-1$ and defined in the Appendix A. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure (Hassan et al. (2019)) multiplied by -1. The higher the value, the more negative tone of earnings conference call. The tone measure is standardized to one-unit standard deviation and zero mean across the whole sample, and winsorized each quarter at the 1st and 99th percentiles. Columns (2) and (5) control for bond characteristics including bond rating, maturity, age, coupon, and the logarithm of bond size. Columns (3) and (6) further control for stock characteristics including unexpected earnings surprise (SUE), logarithm of firm size (Ln(stock size)), logarithm of book-to-market ratio (Ln(BM)), stock institutional ownership (IO), and number of analysts (Analyst). All the variables are winsorized each quarter at the 0.5% level. Time and bond fixed effects are included in the columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable	ΔMut		Dealer net buy	
	(1)	(2)	(3)	(4)
Neg_net	0.027***	0.027***	0.003	0.003
	(2.75)	(2.78)	(0.57)	(0.55)
Rating	0.013	0.014	-0.037***	-0.037***
	(1.36)	(1.53)	(-6.68)	(-6.32)
Maturity	0.000	0.000	0.002*	0.002*
	(0.09)	(0.09)	(1.75)	(1.74)
Age	0.012	0.013	0.009	0.009
	(0.77)	(0.79)	(1.09)	(1.08)
SUE		0.049**		0.016
		(1.99)		(1.50)
Ln(stock size)		0.015		0.002
		(0.57)		(0.19)
Ln(BM)		0.017		0.003
		(0.63)		(0.24)
IO		0.109		-0.108*
		(0.90)		(-1.95)
Analyst		0.001		-0.000
		(0.28)		(-0.18)
Time FE	Y	Y	Y	Y
Bond FE	Y	Y	Y	Y
Adj-R^2	0.061	0.062	0.025	0.025
# of obs	246,734	246,734	246,863	246,863

Table 6. Conditional Effects of Conference Call Tone on Insurance Ownership Changes

This table reports bond-quarter panel regression results for the relation between the net negative tone of earnings conference calls and the ownership change (trading behavior) of bond insurance companies in the subsequent quarter, conditional on regulatory constraints and default risk proxies separately, over the period from 2002Q2 to 2020Q4. The dependent variable is the insurance ownership change (ΔIns) of bond i measured from end of quarter $t-1$ to quarter t, multiplied by 100. The independent variables are measured at the end of quarter $t-1$ and defined in the Appendix A. In Columns (1) and (2), the "High" dummy variable is equal to one for bonds with the rating of BBB⁻, and zero otherwise. In Columns (3) and (4) (Columns (5) and (6)), the high dummy variable is equal to one if the 5% VaR (10% ES) measure for the bond is below the cross-sectional median in each quarter, and zero otherwise. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure (Hassan et al. (2019)) multiplied by -1. The higher the value, the more negative tone of earnings conference call. The tone measure is standardized to one-unit standard deviation and zero mean across the whole sample, and winsorized each quarter at the 1st and 99th percentiles. We include bond characteristics for Columns (1), (3), and (5), and additionally control for stock characteristics in Columns (2), (4), and (6). The bond and stock characteristics are the same as in Table 2. All the variables are winsorized each quarter at the 0.5% level. Time and bond fixed effects are included in the columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable: ΔIns						
High =1 if	BBB⁻ rating		Low 5% VaR		Low 10% ES	
	(1)	(2)	(3)	(4)	(5)	(6)
Neg_net	-0.123***	-0.122***	-0.046*	-0.044*	-0.043	-0.040
	(-5.85)	(-5.80)	(-1.78)	(-1.70)	(-1.66)	(-1.59)
Neg_net× High	-0.130***	-0.132***	-0.101***	-0.100***	-0.107***	-0.107***
	(-2.79)	(-2.80)	(-2.68)	(-2.73)	(-2.72)	(-2.76)
High	0.019	0.016	-0.082	-0.076	-0.048	-0.042
	(0.29)	(0.25)	(-1.52)	(-1.43)	(-0.84)	(-0.76)
Bond Controls	Y	Y	Y	Y	Y	Y
Stock Controls	N	Y	N	Y	N	Y
Time FE	Y	Y	Y	Y	Y	Y
Bond FE	Y	Y	Y	Y	Y	Y
Adj-R^2	0.067	0.067	0.113	0.113	0.113	0.113
# of obs	246,967	246,967	68,993	68,993	68,993	68,993

Table 7. Predictability of conference call tone for future default risks

This table presents bond-quarter regressions for the relation between the net negative tone of earnings conference calls and proxies for future default risks, over the period from 2002Q2 to 2020Q4. The dependent variable in Columns (1) and (2) is the downgrade dummy (DG) equal to one if the bond experiences any downgrade in quarter t, and zero otherwise. The dependent variables are changes in the EDF and Z-score in quarter t for Columns (3) to (4) and Columns (5) to (6), respectively. In Columns (7) and (8), the dependent variable is the real_default dummy equal to one if the bond undergoes a real default in the year following the conference call, and zero otherwise. Dependent variables are multiplied by 100. The independent variables are measured at the end of quarter $t-1$ and defined in the Appendix A. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure (Hassan et al. (2019)) multiplied by -1. The higher the value, the more negative tone of earnings conference call. The tone measure is standardized to one-unit standard deviation and zero mean across the whole sample, and winsorized each quarter at the 1st and 99th percentiles. We include bond characteristics in Columns (1), (3), (5), and (7), and further control for stock characteristics in other columns. The bond and stock characteristics are the same as in Table 2. We additionally control for the EDF and Z-score in quarter $t-1$ in Column (3) to (4) and Column (5) to (6), respectively. All the variables are winsorized each quarter at the 0.5% level. Time and bond fixed effects are included in the columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable	*DG*		*Change in EDF*		*Change in Z-score*		*Real_default*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Neg_net	0.508*	0.504*	0.343**	0.331**	-0.016***	-0.016***	0.417**	0.413**
	(1.90)	(1.94)	(2.07)	(2.13)	(-3.52)	(-3.52)	(2.45)	(2.44)
Lagged_EDF			-0.193***	-0.187***				
			(-3.70)	(-3.89)				
Lagged_Z-score					-0.073***	-0.070***		
					(-6.01)	(-5.81)		
Bond Controls	Y	Y	Y	Y	Y	Y	Y	Y
Stock Controls	N	Y	N	Y	N	Y	N	Y
Time FE	Y	Y	Y	Y	Y	Y	Y	Y
Bond FE	Y	Y	Y	Y	Y	Y	Y	Y
Adj-R^2	0.075	0.077	0.232	0.236	0.183	0.187	0.320	0.325
# of obs	201,852	201,852	69,748	69,748	66,182	66,182	246,967	246,967

Table 8. Effects of Default-related Tone on Insurance Ownership Changes

This table reports bond-quarter panel regression results for the relation between the default-related net negative tone of earnings conference calls and the ownership changes (trading behavior) of insurance companies and mutual funds in the corporate bond market in the subsequent quarter, over the period from 2002Q2 to 2020Q4. The dependent variable is the insurance ownership change (ΔIns) of bond i from end of quarter $t-1$ to quarter t, multiplied by 100. The independent variables are measured at the end of quarter $t-1$. To construct the default-related and non-default-related tone measures, we first create a default-topic words dictionary from more than 100 default related documents such as textbooks and annual reports from credit rating companies, and manually select default related words based on the word frequency and topic relevance to defaults. We divide each transcript to the sentence level and transfer the whole articles into a list of bigrams (i.e., all adjacent two-word combinations), with necessary adjustments such as excluding stop words, reducing a word to its word stem, and switching a word to its base root mode (i.e., lemmatization). We classify each bigram in a conference transcript into the default-related (non-default-related) group if the bigram has at least (less) than one word belonging to the default-topic words dictionary. Along this line, we separate the original conference call transcripts into two parts: default-related and non-default-related groups. For each group, we define the net negative tone measure as the number of bigrams containing at least one word in Loughran and McDonald (LM) negative dictionary, deducting the number of bigrams containing at least one word in LM positive dictionary, divided by the total number of bigrams. We then regress the dependent variable on the net negative tone of the default-related and non-default-related groups. We include bond characteristics in Column (1) and additionally control for stock characteristics in Column (2). The bond and stock characteristics are the same as in Table 2. Time and bond fixed effects are included in the columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable	ΔIns	
	(1)	(2)
Net_neg (default-related)	-0.072**	-0.074**
	(-2.55)	(-2.63)
Net_neg (non-default-related)	-0.029	-0.029
	(-1.07)	(-1.07)
Bond Controls	Y	Y
Stock Controls	N	Y
Time FE	Y	Y
Bond FE	Y	Y
Adj-R^2	0.076	0.076
# of obs	156,957	156,957

Table 9. Effects of Conference Call Tone and Information Asymmetry on Insurance Ownership Changes

This table reports bond-quarter panel regression results for the relation between the net negative tone of earnings conference calls, information asymmetry, and the ownership change (trading behavior) of insurance companies in the corporate bond market in the subsequent quarter, over the period from 2002Q2 to 2020Q4. The dependent variable is the insurance ownership change (ΔIns) of bond i measured from end of quarter $t-1$ to quarter t, multiplied by 100. The independent variables are measured at the end of quarter $t-1$ and defined in the Appendix A. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure (Hassan et al. (2019)) multiplied by -1. The higher the value, the more negative tone of earnings conference call. The tone measure is standardized to one-unit standard deviation and zero mean across the whole sample, and winsorized each quarter at the 1st and 99th percentiles. The dummy variable High_asymmetry is equal to one for bonds with lower than median analyst coverage, higher than median stock IVOL, higher than median bond IVOL, and higher than median bond illiquidity at each quarter in Columns (1) to (8). We include bond characteristics for Columns (1), (3), (5), and (7), and additionally control for stock characteristics in Columns (2), (4), (6), and (8). The bond and stock characteristics are the same as in Table 2. All the variables are winsorized each quarter at the 0.5% level. Time and bond fixed effects are included in the columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable: ΔIns								
	Low analyst coverage		High stock IVOL		High bond IVOL		High bond illiquidity	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Neg_net	-0.116***	-0.115***	-0.081***	-0.081***	-0.006	-0.003	-0.088***	-0.086***
	(-4.72)	(-4.71)	(-4.11)	(-4.11)	(-0.22)	(-0.09)	(-4.05)	(-3.90)
Neg_net× High_asymmetry	-0.067*	-0.066*	-0.121***	-0.119***	-0.188***	-0.189***	-0.077***	-0.077***
	(-1.83)	(-1.79)	(-3.79)	(-3.81)	(-4.09)	(-4.09)	(-2.72)	(-2.70)
High_asymmetry	0.028	0.006	-0.089*	-0.086*	-0.147**	-0.139**	0.061**	0.065**
	(0.64)	(0.11)	(-1.99)	(-1.93)	(-2.30)	(-2.21)	(2.32)	(2.49)
Bond Controls	Y	Y	Y	Y	Y	Y	Y	Y
Stock Controls	N	Y	N	Y	N	Y	N	Y
Time FE	Y	Y	Y	Y	Y	Y	Y	Y
Bond FE	Y	Y	Y	Y	Y	Y	Y	Y
Adj-R^2	0.067	0.067	0.067	0.067	0.114	0.114	0.095	0.095
# of obs	246,967	246,967	246,966	246,966	78,996	78,996	151,095	151,095

Table 10. Effects of Conference Call Tone on Insurance Ownership Changes: Heterogeneous Insurers

This table reports bond-quarter panel regression results for the relation between the net negative tone of earnings conference calls and the ownership change (trading behavior) of insurance companies in the corporate bond market in the subsequent quarter. Across the panels, we sort all the insurers holding bond i on a certain characteristic into equal quintiles (halves) in quarter $t-1$. The dependent variables are the insurance ownership change (ΔIns) of bond i measured from end of quarter $t-1$ to quarter t, for insurers in the top half (>P50), bottom half (<P50), top quintile (>P80), and bottom quintiles (<P20), separately. Dependent variables are multiplied by 100. In Panel A and Panel B, we sort on the percentage of downgraded and high-yield bonds in the insurer's portfolio, respectively. In Panel C, the sorting variable is the percentage of bond i in insurer's portfolio, defined as the holding par value of bond i divided by the total portfolio par value in its portfolio. The independent variables are measured at the end of quarter $t-1$ and defined in the Appendix A. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure (Hassan et al. (2019)) multiplied by -1. The higher the value, the more negative tone of earnings conference call. The tone measure is standardized to one-unit standard deviation and zero mean across the whole sample, and winsorized each quarter at the 1st and 99th percentiles. We include bond characteristics in Columns (1), (3), (5), and (7), and additionally control for stock characteristics in Columns (2), (4), (6), and (8). The bond and stock characteristics are the same as in Table 2. All the variables are winsorized each quarter at the 0.5% level. Time and bond fixed effects are included in the columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable: ΔIns								
Percentiles	> P50		< P50		> P80		< P20	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Percentage of downgraded bonds								
Neg_net	-0.081***	-0.080***	-0.031***	-0.031***	-0.043***	-0.042***	-0.008**	-0.008**
	(-5.51)	(-5.45)	(-4.61)	(-4.55)	(-5.60)	(-5.54)	(-2.44)	(-2.41)
Panel B: Percentage of high-yield bonds								
Neg_net	-0.073***	-0.072***	-0.038***	-0.038***	-0.041***	-0.040***	-0.012***	-0.012***
	(-5.04)	(-4.97)	(-5.29)	(-5.21)	(-5.11)	(-5.01)	(-4.69)	(-4.58)
Panel C: Percentage of the bond in insurer's portfolio								
Neg_net	-0.065***	-0.064***	-0.058***	-0.057***	-0.018***	-0.017***	-0.006	-0.005
	(-5.42)	(-5.38)	(-6.33)	(-6.22)	(-3.89)	(-3.84)	(-1.23)	(-1.15)
Bond Controls	Y	Y	Y	Y	Y	Y	Y	Y
Stock Controls	N	Y	N	Y	N	Y	N	Y
Time FE	Y	Y	Y	Y	Y	Y	Y	Y
Bond FE	Y	Y	Y	Y	Y	Y	Y	Y

Table 11. Effects of Conference Call Tone and Insurance Ownership on Cumulative Monthly Abnormal Returns

This table reports bond-month panel regression results for the relation between the net negative tone of earnings conference calls, bond insurance ownership, and cumulative monthly abnormal returns following the calls, over the period from 2002Q2 to 2020Q4. The dependent variables are cumulative monthly abnormal returns (multiplied by 100) from the conference call month (0) to the sixth month following (+6). The monthly abnormal bond return is computed as the raw return subtracted by the size-weighted average return of the pool of bonds that share similar credit ratings and time to maturity in that month. The independent variables are measured at the month-end before conference call and are defined in the Appendix A. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure (Hassan et al. (2019)) multiplied by -1. The higher the value, the more negative tone of earnings conference call. The tone measure is standardized to one-unit standard deviation and zero mean across the whole sample, and winsorized each quarter at the 1st and 99th percentiles. Each quarter, we split the bonds into terciles by their insurance ownership at the most recent quarter-end before the conference calls. The high_ins dummy variable is equal to one for bonds with insurance ownership among the top tercile (largely held by insurance companies), and zero otherwise. We include all the bond and stock characteristics in the columns. All the variables are winsorized each quarter at the 0.5% level. Time and bond fixed effects are included in the columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable: *cumulative monthly abnormal returns*							
Window	0	[0, +1]	[0, +2]	[0, +3]	[0, +4]	[0, +5]	[0, +6]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Neg_net	0.021	-0.013	0.147	0.381	0.358	0.674	0.788*
	(0.15)	(-0.06)	(0.74)	(1.11)	(0.86)	(1.63)	(1.71)
Neg_net× High_ins	-0.111	-0.289	-0.528**	-0.886**	-1.115**	-1.218**	-1.367**
	(-0.59)	(-1.28)	(-2.01)	(-2.10)	(-2.27)	(-2.35)	(-2.50)
High_ins	0.046	-0.035	-0.244	-0.154	-0.322	-0.338	-0.153
	(0.46)	(-0.27)	(-1.41)	(-0.71)	(-1.24)	(-1.07)	(-0.45)
Bond Controls	Y	Y	Y	Y	Y	Y	Y
Stock Controls	Y	Y	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y	Y	Y
Bond FE	Y	Y	Y	Y	Y	Y	Y
Adj-R^2	0.048	0.061	0.087	0.141	0.150	0.188	0.202
# of obs	42,672	35,316	30,931	28,141	25,756	23,906	22,546

Table 12. Spillover Effects of Conference Call Tone on Bonds of Private Industry Peers

This table reports bond-quarter panel regression results for the relation between insurance ownership change of bonds issued by a private firm and the average tone across all the conference calls conducted by public firms in the same industry over the period from 2002Q2 to 2020Q4. The dependent variable is the insurance ownership change (ΔIns) of bond i issued by a private firm j measured from end of quarter $t-1$ to quarter t, multiplied by 100. The independent variable (Ave_neg_net) includes the equal-weighted average, firm size-weighted average, and the median of all the conference calls held by the public industry peers of issuer j in quarter $t-1$. We use the Fama-French 30 industry identification, and include bond controls (as in Table 2) and time fixed effects. We control for the industry fixed effects in Columns (1), (3), and (5), and additionally bond fixed effects in the other columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Dependent variable: ΔIns					
	Equal-weighted		Firm size-weighted		Median	
	(1)	(2)	(3)	(4)	(5)	(6)
Ave_neg_net	-0.288***	-0.179*	-0.277***	-0.180*	-0.292***	-0.227**
	(-3.12)	(-1.74)	(-3.13)	(-1.80)	(-3.08)	(-2.21)
Bond Controls	Y	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
Bond FE	N	Y	N	Y	N	Y
Adj-R^2	0.040	0.073	0.040	0.073	0.040	0.073
# of obs	84,665	83,423	84,665	83,423	84,665	83,423

Table 13. Effects of (Average) Conference Call Tone and Insurance Ownership on the Corporate Bond Market

This table reports time-series regression results for the relation between variables at the market level and the average conference call tone interacted with average insurance ownership over the period from 2002Q2 to 2020Q4. We use the average bond return volatility and illiquidity in quarter t as the dependent variable, respectively. The detailed definitions of the measures are provided in the Appendix. The key independent variables are measured in quarter $t-1$ and include the equal-weighted average conference call tone (Mave_neg_net), the equal-weighted average bond insurance ownership (Ins), and their interactions. In Columns (1), (3), and (5), we consider bonds issued by public firms holding earnings conference calls ("with calls"). In the other columns, we use all bonds held by insurance companies including both public and private firms ("all"). We average the insurance ownership across all bonds (all BBB-rated bonds) in Panel A (B). The bond controls are the same as in Table 2 and averaged to the market level in quarter $t-1$. Standard errors are clustered at the quarter level, with the corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable	Return volatility		Illiquidity	
Sample	With calls	All	With calls	All
	(1)	(2)	(3)	(4)
Panel A: Ins = The average insurance ownership of bonds				
Mave_neg_net×Ins	0.079	0.077	1.285	1.059
	(1.27)	(0.79)	(1.48)	(0.92)
Mave_neg_net	-0.006	-0.004	-0.204	-0.114
	(-0.25)	(-0.11)	(-0.66)	(-0.30)
Ins	0.003	0.051	0.411	1.250**
	(0.07)	(1.28)	(0.86)	(2.14)
Bond Controls	Y	Y	Y	Y
Adj-R^2	0.570	0.586	0.421	0.473
Panel B: Ins = The average insurance ownership of BBB-rated bonds				
Mave_neg_net×Ins	0.126***	0.151***	1.948***	2.454***
	(2.73)	(3.20)	(2.80)	(3.74)
Mave_neg_net	-0.042*	-0.052**	-0.730**	-0.939***
	(-1.92)	(-2.34)	(-2.28)	(-3.12)
Ins	-0.022	-0.048	-0.286	-0.303
	(-0.70)	(-1.48)	(-0.69)	(-0.71)
Bond Controls	Y	Y	Y	Y
Adj-R^2	0.603	0.616	0.464	0.493

Table A1. The Effects of Conference Call Tone on Individual Insurance Ownership Change

This table reports insurer-bond-quarter panel regression results for the relation between the net negative tone of earnings conference calls and the ownership change (trading behavior) of bond individual insurance company in the subsequent quarter, over the period from 2002Q2 to 2020Q4. The dependent variable is individual insurance ownership change ($\Delta Ins\_individual$) of bond i measured from end of quarter $t-1$ to quarter t, multiplied by 100. The independent variables are measured at the end of quarter $t-1$ and defined in the Appendix A. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure (Hassan et al. (2019)) multiplied by -1. The higher the value, the more negative tone of earnings conference call. The tone measure is standardized to one-unit standard deviation and zero mean across the whole sample, and winsorized each quarter at the 1st and 99th percentiles. We control for all the bond and stock characteristics. All the variables are winsorized each quarter at the 0.5% level. Time and bond fixed effects are included in the columns. In Columns (4) to (6), insurer fixed effects are further included. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable: $\Delta Ins\_individual$				
	(1)	(2)	(3)	(4)
Neg_net	-0.002***	-0.002***	-0.002***	-0.002***
	(-5.11)	(-5.05)	(-5.10)	(-5.04)
Rating	-0.001**	-0.001	-0.001**	-0.001
	(-2.17)	(-1.58)	(-2.24)	(-1.66)
Maturity	-0.001	-0.001	-0.001	-0.001
	(-0.83)	(-0.84)	(-1.10)	(-1.10)
Age	-0.001	-0.000	0.001	0.001
	(-0.19)	(-0.17)	(0.27)	(0.29)
SUE		0.003*		0.003*
		(1.89)		(1.89)
Ln(stock size)		0.001		0.001
		(1.42)		(1.46)
Ln(BM)		-0.002**		-0.002***
		(-2.60)		(-2.66)
IO		-0.005		-0.005
		(-0.90)		(-0.86)
Analyst		-0.000		-0.000
		(-0.53)		(-0.59)
Time FE	Y	Y	Y	Y
Bond FE	Y	Y	Y	Y
Insurer FE	N	N	Y	Y
Adj-R^2	0.024	0.024	0.027	0.027
# of obs	6,812,070	6,812,070	6,812,053	6,812,053

Table A2. The Effects of Conference Call Tone on Insurance Ownership Changes: Calls Occurring in Different Months

This table reports bond-quarter panel regression results for the relation between the net negative tone of earnings conference calls and the ownership change of bond insurance companies in the subsequent quarter, for conference calls occurring in different months of a quarter over the period from 2002Q2 to 2020Q4. The dependent variable is the insurance ownership change (ΔIns) of bond i measured from end of quarter $t-1$ to quarter t, multiplied by 100. The independent variables are measured at the end of quarter $t-1$ and defined in the Appendix A. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure (Hassan et al. (2019)) multiplied by -1. The higher the value, the more negative tone of earnings conference call. The tone measure is standardized to one-unit standard deviation and zero mean across the whole sample, and winsorized each quarter at the 1st and 99th percentiles. In Columns (1) to (6), we run regressions for the sub-samples of conference calls held in the first, second, and third months in a quarter, separately. We include bond characteristics in Columns (1), (3), and (5), and additionally control for stock characteristics in other Columns. The bond and stock characteristics are the same as in Table 2. All the variables are winsorized each quarter at the 0.5% level. Time and bond fixed effects are included in the columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable: ΔIns						
	First month		Second month		Third month	
	(1)	(2)	(3)	(4)	(5)	(6)
Neg_net	-0.123***	-0.119***	-0.123***	-0.119***	-0.297**	-0.294**
	(-5.13)	(-5.07)	(-3.93)	(-3.84)	(-2.49)	(-2.44)
Bond Controls	Y	Y	Y	Y	Y	Y
Stock Controls	N	Y	N	Y	N	Y
Time FE	Y	Y	Y	Y	Y	Y
Bond FE	Y	Y	Y	Y	Y	Y
Adj-R2	0.072	0.072	0.079	0.079	0.085	0.084
# of obs	155,424	155,424	79,592	79,592	8,846	8,846

Table A3. Effects of Tone on Cumulative Monthly Insurance Ownership Changes

This table reports bond-month panel regression results for the relation between the net negative tone of earnings conference calls and the cumulative monthly ownership change (trading) of bond insurance companies, over the period from 2002Q2 to 2020Q4. The dependent variables are cumulative monthly insurance ownership change (ΔIns, multiplied by 100) from the conference call month (0) to the third month following (+3). We aggregate the daily NAIC transaction data at the monthly frequency, and obtain the net trading of bond insurers as their aggregate buy minus aggregate sell amounts divided by the bond issuing amount. The independent variables are measured at the month of conference call and defined in the Appendix A. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure (Hassan et al. (2019)) multiplied by -1. The higher the value, the more negative tone of earnings conference call. The tone measure is standardized to one-unit standard deviation and zero mean across the whole sample, and winsorized each quarter at the 1st and 99th percentiles. We include all the bond and stock characteristics, as in Table 2. All the variables are winsorized each quarter at the 0.5% level. Time and bond fixed effects are included in the columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable: ΔIns				
Event window	0	[0, +1]	[0, +2]	[0, +3]
	(1)	(2)	(3)	(4)
Neg_net	-0.027***	-0.042***	-0.057***	-0.084***
	(-4.83)	(-5.72)	(-5.73)	(-6.65)
Bond Controls	Y	Y	Y	Y
Stock Controls	Y	Y	Y	Y
Time FE	Y	Y	Y	Y
Bond FE	Y	Y	Y	Y
Adj-R^2	0.023	0.028	0.041	0.077
# of obs	231,486	231,484	231,482	231,482

Table A4. Effects of Conference Call Tone on Insurance Ownership Changes: Controlling for Bond Downgrades and Upgrades

This table reports bond-quarter panel regression results for the relation between the net negative tone of earnings conference calls and the ownership change (trading behavior) of bond insurance companies in the subsequent quarter, over the period from 2002Q2 to 2020Q4. The dependent variable is insurance ownership change (ΔIns) of bond i measured from end of quarter $t-1$ to quarter t, multiplied by 100. The independent variables are measured at the end of quarter $t-1$ and defined in the Appendix A. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure (Hassan et al. (2019)) multiplied by -1. The higher the value, the more negative tone of earnings conference call. The tone measure is standardized to one-unit standard deviation and zero mean across the whole sample, and winsorized each quarter at the 1st and 99th percentiles. Lag_DG_All (Lag_DG_IG-NIG) dummy is equal to one if the bond is downgraded (from investment-grade to non-investment-grade) in quarter $t-1$. DG_All (DG_IG-NIG) dummy is equal to one if the bond is downgraded (from investment-grade to non-investment-grade) in quarter t. Lag_UG_All (Lag_UG_NIG-IG) dummy is equal to one if the bond is upgraded (from non-investment-grade to investment-grade) in quarter $t-1$. UG_All (UG_NIG-IG) dummy is equal to one if the bond is upgraded (from non-investment-grade to investment-grade) in quarter t. We include all the bond and stock characteristics in the columns. All the variables are winsorized each quarter at the 0.5% level. Time and bond fixed effects are included in the columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable: ΔIns			
	(1)	(2)	(3)
Neg_net	-0.131***	-0.131***	-0.128***
	(-5.18)	(-5.19)	(-5.09)
Lag_DG_All	-0.087		-0.084
	(-0.90)		(-0.88)
Lag_DG_IG-NIG	-1.565***		-1.562***
	(-4.28)		(-4.28)
DG_All	-0.121		-0.116
	(-1.45)		(-1.39)
DG_IG-NIG	-1.657***		-1.654***
	(-4.94)		(-4.94)
Lag_UG_All		0.369**	0.363**
		(2.43)	(2.39)
Lag_UG_NIG-IG		0.421	0.396
		(1.34)	(1.26)
UG_All		-0.018	-0.019
		(-0.18)	(-0.19)
UG_NIG-IG		0.203	0.182
		(0.51)	(0.46)
Bond Controls	Y	Y	Y
Stock Controls	Y	Y	Y
Time FE	Y	Y	Y
Bond FE	Y	Y	Y
Adj-R2	0.069	0.067	0.069
# of obs	201,623	201,623	201,623

Table A5. Effects of Conference Call Tone on Insurance Ownership Changes: Within Firm Heterogeneity

This table reports the average insurance ownership changes for bonds with different ratings issued by the same firm in the quarter following conference calls. Firms holding earnings conference calls should have at least one BBB⁻ rating bond and one non-BBB⁻ rating bond to be included. We calculate the bond issuing size-weighted of insurance ownership changes (ΔIns, multiplied by 100) in the quarter following the conference call of bonds with BBB⁻ rating and with non-BBB⁻ ratings, and more positive and negative earnings calls (defined by the cross-sectional median of the net negative tone measure), respectively. Differences in insurance ownership changes between bonds with BBB⁻ rating and with non-BBB⁻ ratings are also reported. The corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Variable: ΔIns		
	More positive	More negative
BBB⁻ bonds	-0.11	-0.49***
	(-1.39)	(-4.11)
Non-BBB⁻ bonds	-0.27***	-0.22***
	(-2.89)	(-2.35)
Difference	0.15	-0.27**
	(1.33)	(-2.00)

Table A6. Word List of the Default-related Dictionary

This table is the complete word list of the default-related dictionary. To construct the default-related and non-default-related tones, we create a default-topic words dictionary from more than 100 default related documents such as textbooks and annual reports from credit rating companies. We then manually select default related words based on word frequency and topic relevance to defaults.

severity	difficulty	downturn	shortage	distress	deficit	risk
rating	drop	deterioration	uncertainty	pandemic	fluctuation	leverage
detriment	constraint	downgrade	credit	debt	bond	volatility
disruption	resilience	vulnerability	inability	safety	recession	barrel
decline	liquidity	liability	doubt	impairment	reliability	depreciation
loan	limit	fall	problem	slowdown	borrowing	delays
shock	decade	challenge	repayment	restructuring	cost	loss
crash	burden	recovery	cash	deployment	refinancing	reconciliation
resolution	competition	exposure	concerns	pressure	compression	reduction
hedges	expense	revenue	discount	break	cut	productivity
return	maintenance	strain	flexibility	inflation	mitigation	continuation
preliminary	profitability	insurance	grade	reserves	model	pipeline
outlook	sensitivity	intensity	quality	headwinds	utility	efficiency
capacity	yield	runs	expenditures	negotiation	valuation	landscape
regulation	infrastructure	strength	investment	reform	conditions	push
offering	charge	ratio	stop	litigation	completion	material
premium	prospects	earning	savings	spending	improvement	authorization
occupancy	obligations	demand	growth	utilization	concentration	transaction
resource	venture	trend	value	potential	renewal	expectation
cycle	operation	consolidation	rival	consideration	aggression	participation
discretion	force	environment	implementation	organization	outbreak	retail
expansion	segment	agreement	replacement	opportunity	storage	settlement
commitments	overview	legacy	compliance	application	metrics	schedule
requirement	capital	review	repurchase	bank	inventory	balance
maturity	change	proceed	contract	margin	solutions	capability
wholesale	persistency	incentives	opportunities	surprise	synergies	expertise
compensation	approach	focus	swing	system	dividend	status
variety	progress	availability	proposition	initiative	comment	excuse
intention	tax	evaluation	transition	retention	rate	

Table A7. Effects of Conference Call Tone on Ownership Changes: Different Types of Insurers

This table reports bond-quarter panel regression results for the relation between the net negative tone of earnings conference calls and the ownership change (trading behavior) of bond insurance companies in the subsequent quarter, for different types of insurers. The dependent variables are the insurance ownership change (ΔIns) of bond i measured from end of quarter $t-1$ to quarter t, for Life/ Health insurers (L&H) in Columns (1) to (2), and Property & Casualty insurers (P&C) in Columns (3) to (4), respectively. The independent variables are measured at the end of quarter $t-1$ and defined in the Appendix A. We define the net negative tone of earnings conference call (Neg_net) as the sentiment measure (Hassan et al. (2019)) multiplied by -1. The higher the value, the more negative tone of earnings conference call. The tone measure is standardized to one-unit standard deviation and zero mean across the whole sample, and winsorized each quarter at the 1st and 99th percentiles. We include bond characteristics for Columns (1) and (3), and additionally control for stock characteristics in Columns (2) and (4). The bond and stock characteristics are the same as in Table 2. All the variables are winsorized each quarter at the 0.5% level. Time and bond fixed effects are included in the columns. Standard errors are clustered at the bond and quarter levels, with corresponding t-values in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable: ΔIns				
Type	L&H		P&C	
	(1)	(2)	(3)	(4)
Neg_net	-0.116***	-0.115***	-0.016***	-0.016***
	(-5.73)	(-5.70)	(-4.76)	(-4.67)
Bond Controls	Y	Y	Y	Y
Stock Controls	N	Y	N	Y
Time FE	Y	Y	Y	Y
Bond FE	Y	Y	Y	Y
Adj-R^2	0.058	0.059	0.033	0.033
# of obs	246,967	246,967	246,967	246,967