Inflation, Default, and Corporate Bond Returns*

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Abstract

We document key facts about the inflation risk exposure of corporate bonds from 2004–2022. Inflation betas of standard bond excess returns (relative to T-bills) are generally negative, whereas those of credit excess returns (relative to duration-matched Treasurys) are positive across most bonds. Cross-sectional variation in inflation betas is mainly driven by credit excess returns, with higher-default-risk bonds showing stronger positive exposure. Inflation beta affects future bond returns in the cross-section through credit excess returns, and firms with higher bond inflation betas exhibit higher stock inflation betas. Analyses using pre-2004 data and alternative inflation measures further illuminate underlying economic channels.

Keywords: Corporate bond, Credit excess return, Credit risk, Default risk, Inflation expectation, Inflation risk, Inflation swap

JEL Codes: D4, G2

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1 Introduction

The surge in inflation since 2021 has renewed interest in the impact of inflation risk on the prices of various securities, particularly bonds denominated in nominal terms; see Cieslak and Pflueger (2023) for a recent survey. In the literature on inflation risk and nominal bonds, most studies focus on (plausibly) default-free Treasury bonds.[1] Motivated by the observed negative relationship between inflation and corporate default in the data, important studies such as Kang and Pflueger (2015) and Bhamra, Dorion, Jeanneret, and Weber (2022) have examined the effect of inflation risk on corporate bond yield spreads using frameworks built on the structural model of Merton (1974). Surprisingly, little research has examined the effect of inflation risk on corporate bond returns within standard portfolio frameworks.

Examining inflation risk and corporate bonds within standard portfolio frameworks—where the systematic exposure of bonds to inflation shocks can be formally defined and measured by inflation betas of bond returns—is essential for understanding how inflation risk affects corporate bond pricing. Specifically, are corporate bonds systematically exposed to inflation shocks, and if so, is the exposure positive or negative? Is there significant variation in inflation beta across different bonds, and what are the economic drivers of this variation? Finally, do corporate bond investors demand a risk premium for bearing systematic inflation risk?[2] Answering these fundamental questions will also inform portfolio management in practice—particularly in addressing growing concerns about inflation risk.[3] In this paper, we document, to the best of

[1] This extensive literature includes Ang and Piazzesi (2003), Wachter (2006), Ang, Bekaert, and Wei (2008), Christensen, Lopez, and Rudebusch (2010), Haubrich, Pennacchi, and Ritchken (2012), D'Amico, Kim, and Wei (2018), Ajello, Benzoni, and Chyruk (2019), Breach, D'Amico, and Orphanides (2020), and Pflueger (2025), among others.

[2] Because corporate bond returns are related to their yield spreads, one might infer their inflation betas indirectly from the impact of inflation on yield spreads. However, such inferences are, at best, qualitative. For instance, even for a zero-coupon bond, yield equals return only when the bond is held to maturity; consequently, differences in yields across bonds can diverge substantially from their differences in (monthly, quarterly, or annual) returns. Moreover, because returns are nonlinear functions of bond prices, which in turn are nonlinear functions of yields, it is far from straightforward to compute the inflation beta of bond returns from changes in yield spreads. Therefore, directly examining the inflation beta of corporate bond returns is essential for quantitatively assessing their systematic inflation risk exposures. For further discussions on the relation between bond returns and yield spreads, see Asvanunt and Richardson (2017), Huang and Shi (2021), and Chen and Choi (2024).

[3] For example, see the analysis by Morgan Stanley Investment Management on managing inflation risk (https://www.morganstanley.com/im/publication/insights/articles/article_managinginflationrisk.pdf). Moreover, the iShares Inflation Hedged Corporate Bond ETF (LQDI US) has attracted considerable attention in recent years (https://markets.ft.com/data/etfs/tearsheet/summary?s=LQDI:BTQ:USD).

our knowledge, the first set of key facts about the systematic inflation risk exposures across the entire cross section of corporate bonds.

Our sample of bond returns is constructed using the Enhanced Trade Reporting and Compliance Engine (TRACE) data of corporate bond transactions. We follow standard procedures in the literature to clean the data and compute monthly bond returns. Furthermore, to conduct a comprehensive analysis, we use both a measure of realized inflation and a forward-looking measure of inflation that is closely related to inflation expectations. The former is the monthly growth rate of the headline consumer price index (CPI), while the latter is the long-term (specifically, 10-year) inflation swap rate whose payment is based on headline CPI.[4] Though mechanically different, realized inflation and inflation expectations are economically intertwined.[5] In particular, we find that (in Section 2) both measures are significantly and negatively associated with corporate default in our sample—spanning July 2004 to March 2022 based on the availability of the TRACE data and inflation measures—consistent with existing studies. Guided by this negative inflation—default relationship, we conduct three main sets of analyses.

In the first set of our main analyses (in Section 3), we examine the inflation exposures of corporate bond returns. Based on the aforementioned significant negative inflation—default relationship, consistent with a procyclical and "good" inflation regime of our sample period (Campbell, Pflueger, and Viceira, 2020; Cieslak and Pflueger, 2023), one would expect a *positive* inflation exposure of corporate bond returns. Surprisingly, however, existing studies find that corporate bond returns are *negatively* exposed to inflation (e.g., Fang, Liu, and Roussanov, 2024). We follow the literature to estimate the inflation beta of the standard excess return used in existing studies—defined as the total return minus one-month T-bill rate—for each bond in each month using standard rolling-window regressions (Fama and French, 1993). Indeed, in our sample, the inflation beta of corporate bond excess return is negative on average.

[4] Section 2.2 provides details of these two main inflation measures and several additional measures, while Section 6.2 provides results using the additional measures. We give brief discussions later in the Introduction.

[5] As discussed in detail by Binder and Kamdar (2022), "a variety of mechanisms imply that inflation and inflation expectations are interconnected. For example, past inflation may shape current inflation expectations, but current inflation expectations may also shape current and future inflation." By using both realized and forward-looking inflation measures, our analysis not only accommodates their interconnected nature and ensures the robustness of the findings but also helps understand their potential distinctions.

Importantly, we delve into the components of corporate bond excess returns to further understand their inflation exposures. In particular, the default-free benchmark of a corporate bond should be a long-term coupon bond rather than a short-term zero-coupon bond like T-bill (Merton, 1974). Hence, variations in standard excess return can arise from variations in both the return associated with interest rate risk and the return associated with risks specific to corporate bonds (e.g., default risk and liquidity risk). Following Houweling and van Zundert (2017), Israel, Palhares, and Richardson (2018), and particularly Binsbergen, Nozawa, and Schwert (2025), we decompose a corporate bond return into the (synthetic) duration-matched Treasury return and the excess return over and above this duration-matched benchmark. The former captures the compensation for the same duration risk as that of Treasury bonds, which we denote as the duration component, while the latter captures the compensation for the risks specific to corporate bonds, which we denote as the credit component.[6]

Using this decomposition, we document a remarkable finding—the inflation exposure of the credit component of corporate bond return is *positive* across the board. Specifically, we estimate the inflation beta of the credit and duration components of the corporate bond excess return, respectively, following the same procedure of estimating the inflation beta of the excess return. We find that the average credit-component-inflation-beta across all individual bonds is 1.095 using CPI growth and 5.134 using inflation swap rate, both highly significant statistically. Further looking into the distributions of inflation beta, we find that the average inflation beta of the credit component is positive in 91.4% and 93.0% of the months using CPI growth and inflation swap rate, respectively. At the individual bond-month level, 69.6% and 88.3% of inflation betas of the credit component are positive using CPI growth and inflation swap rate, respectively. In contrast, the inflation beta of the duration component is strongly negative across all bonds. Hence, the negative inflation exposure of corporate bond excess return that is inconsistent with the negative inflation—default relationship arises from confounding inflation exposure of the duration component.

[6]Robustness analyses in Appendix A.5, based on credit default swaps, confirm that the effects we attribute to the credit component primarily capture credit risk rather than liquidity risk.

Furthermore, we examine the cross-sectional variation of inflation beta across individual corporate bonds, also breaking it up into those associated with the credit and duration components separately. We find that the inflation beta of standard excess return exhibits a large and significant cross-sectional variation, and importantly, the majority of this cross-sectional variation is due to the credit component. For example, over 80% of the spread in excess return inflation beta across the quintile portfolios is accounted for by the spread in credit component inflation beta. Moreover, credit rating has significant and large explanatory power for inflation beta in regressions controlling for standard bond characteristics like maturity, coupon rate, seasoning, illiquidity, and so on. Overall, these findings imply that the negative inflation—default relationship is a quantitatively important driver of the cross-sectional variation of corporate bond inflation exposure.

Prompted by the significant positive inflation exposure of corporate bond returns and its substantial cross-sectional variation, we next examine whether inflation exposure has significant explanatory power for corporate bond returns in the cross section, in the second set of our main analyses (in Section 4). We note that our goal is not to propose a new cross-sectional pricing factor for corporate bond returns. Nor are we seeking to construct corporate bond investment portfolios. Rather, our goal is to conduct simple and exploratory analyses to understand whether the exposure to inflation—a key macroeconomic fundamental factor—is systematically priced in corporate bonds through its negative relationship with corporate default.[7]

We first sort bonds in each month into quintile portfolios by their inflation betas of standard excess returns. We find that higher-inflation-beta quintile portfolios deliver higher average excess returns in the next month than lower-inflation-beta ones. In particular, the average return spread between the highest and lowest inflation-beta quintile portfolios is approximately 0.63% per month and statistically significant, using both the CPI growth and inflation swap rate. Importantly, the duration component exhibits little variation across different quintile portfolios, so the cross-sectional variation in excess return arises totally from the cross-sectional variation

[7] Our analyses hence add to the several studies that focus on the pricing of macroeconomic factors in the cross section of corporate bonds, including Bali, Subrahmanyam, and Wen (2023) on macroeconomic uncertainty, Elkamhi, Jo, and Nozawa (2024) on consumption growth, and Ceballos (2022) on inflation volatility, among others.

in the credit component—the average credit component of the high-minus-low-inflation-beta portfolio averages 0.71% per month.

Taking one step further, we sort bonds into quintile portfolios by their credit-component-inflation-betas directly. We find that these quintile portfolios feature a positive effect of inflation beta as well. In fact, the next-month excess return of the high-minus-low credit-component-inflation-beta portfolio averages 0.67% per month, closely matching that of the high-minus-low excess-return-inflation-beta portfolio (again, 0.63% per month). Even more, the cross-sectional variation in excess return of these credit-component-inflation-beta portfolios also arises totally from the cross-sectional variation in credit component, just like the excess-return-inflation-beta portfolios.

So far, we have focused exclusively on the inflation exposure of corporate bonds. In the third set of main analyses (in Section 5), we examine the relationship between a firm's bond inflation exposure and its stock inflation exposure, given that both stocks and bonds are contingent claims on the firm's underlying asset value (Merton, 1974). For instance, the negative inflation—default relationship implies not only a positive bond inflation exposure but also a positive stock inflation exposure. However, early studies found a significantly negative stock inflation beta, contradicting this implication (e.g., Lintner, 1975; Fama and Schwert, 1977; Bekaert and Wang, 2010). Nonetheless, recent studies found that inflation exposures of stock returns post 2000 tend to be positive, particularly with respect to headline inflation (Boons, Duarte, De Roon, and Szymanowska, 2020; Fang et al., 2024). It thus remains unclear whether a contradiction still exists regarding the effect of inflation on stock and bond.

We match our bond return sample with the CRSP stock return sample by the issuing firm and estimate the inflation betas of monthly stock excess returns. We find that the inflation beta of corporate bond return—the credit component in this set of analyses, unless noted otherwise—remains significantly positive in this matched sample. Furthermore, the inflation beta of stock return is also significantly positive, consistent with the findings of Boons et al. (2020) and Fang et al. (2024). Hence, in our sample period, average stock inflation exposure does not contradict average bond inflation exposure.

More importantly, we utilize our granular firm-level data to examine the relationship between stock and bond inflation exposures in the cross-section. Specifically, although bond and stock inflation exposures are both positive, a firm with higher bond inflation exposure may have either higher or lower stock inflation exposure, compared to another firm. Based on both portfolio-sorting analyses and Fama and MacBeth (1973) regressions, we find that firms with higher bond inflation betas also tend to have higher stock inflation betas, i.e., a positive association between stock and bond inflation exposures across firms. Quantitatively, a one standard deviation increase in the bond inflation beta corresponds to a 0.316 and 0.364 standard deviation increase in the stock inflation beta, using the inflation swap rate and CPI growth, respectively. This novel positive cross-sectional association that we uncover presents new empirical insights to guide further developments in the theory of inflation and credit risk.[8]

In addition to the main analyses, we conduct further analyses to understand the effect of inflation risk on corporate bond returns.[9] First, we examine the sample period from January 1986 to June 2004 (Section 6.1), during which inflation is mostly countercyclical and "bad"—inflation news is negatively correlated with real economic growth (Cieslak and Pflueger, 2023)—in contrast to our main sample period with procyclical and "good" inflation. While the debt deflation channel always induces a negative inflation-default relationship (Fisher, 1933; Kang and Pflueger, 2015), countercyclical inflation implies a positive relationship in the pre-2004 period. Hence, the inflation exposure of credit excess returns should be less positive, and may even be negative if the effects of countercyclical inflation dominate those of debt deflation. Indeed, we find that the effect of inflation on bond default is not significantly positive and the inflation exposure of credit excess return is less positive pre-2004. Yet, it does not become predomi-

[8]For example, although standard structural frameworks that typically consider one firm can rationalize the fact that bond and stock inflation exposures of a firm are both positive, extensions are needed to rationalize the *across-firm* positive relationship we uncover.

[9]We also conduct a number of additional analyses and robustness checks—excluding bonds with call options (Appendix A.3), computing duration-matched returns using interest rate swaps (Appendix A.4), examining corporate bond returns implied from credit default swaps (Appendix A.5), constructing CPI innovations based on a VAR model (Appendix A.6), analyzing the relationship between inflation beta and credit risk characteristics in explaining future returns (Appendix A.7), evaluating firm-level inflation betas (Appendix A.8), using the Bank of America Merill Lynch (BAML) data of corporate bond price quotes (Appendix A.9), measuring inflation using energy CPI (Appendix A.10), and documenting the industry-level inflation exposures (Appendix A.11).

nantly negative, suggesting that the effects of debt deflation remain significant. Furthermore, the baseline findings on the variation in inflation beta across bonds and the relationship between bond and stock inflation exposures remain the same in the pre-2004 sample, i.e., they hold generically regardless of the economy's inflation variety.

Second, we conduct analyses using three additional forward-looking measures of inflation (Section 6.2.1), including the breakeven inflation rate implied by Treasury Inflation-Protected Securities (TIPS), the inflation forecast of the Michigan Surveys of Consumers (MSC), and the inflation forecast from the Blue Chip Financial Forecasts (BCFF), and two additional measures of realized inflation (Section 6.2.2), including the producer price index (PPI) and core CPI. For our main analyses, we choose the inflation swap rate over the TIPS breakeven inflation rate because inflation swaps are less susceptible to liquidity and mispricing issues than TIPS (Haubrich et al., 2012; Campbell, Shiller, and Viceira, 2009). We also prefer inflation swaps over surveys because they cover long future horizons at a higher frequency than surveys. Further, payments for inflation swaps are based on headline CPI instead of core CPI, so we choose headline CPI for consistency. That said, analyses using the additional inflation measures yield further insights into the effects of inflation risk on corporate bond returns.

Specifically, we find that our main findings remain valid using all three additional forward-looking inflation measures, with the only exception that for BCFF, the statistical significance of positive inflation betas and their relation to credit rating and future return in the cross section is weaker. This latter result echoes findings in the literature that some survey-based inflation forecasts exhibit certain distinct characteristics (Coibion and Gorodnichenko, 2015; Bordalo, Gennaioli, Ma, and Shleifer, 2020). Regarding the results using the additional realized information measures, we find that the statistical significance of positive inflation betas and their relation to credit rating and future return is also weaker using core CPI (while all other main results remain the same), consistent with findings in the literature on the distinct characteristics of core inflation from headline inflation (Ajello et al., 2019; Fang et al., 2024). In contrast, the results using PPI are similar to and reinforce the main findings using headline CPI. Put together, these results suggest that the effects of inflation risk on corporate bonds likely operate through channels related to firm production, which represents a promising direction for future research.

Our paper contributes to both the literature on inflation risk and nominal bond pricing—particularly the small subset of studies on corporate bonds—and the literature on systematic inflation risk exposures of assets within standard portfolio frameworks. The small subset of studies on corporate bonds, including Kang and Pflueger (2015), Bhamra et al. (2022), Augustin, Cong, Corhay, and Weber (2024), and Bonelli, Palazzo, and Yamarthy (2024), among others, incorporate the negative inflation—default relationship in theoretical modeling and focus on yield spreads in empirical analyses.[10] We complement these studies by distinctly investigating the systematic inflation risk exposures of individual corporate bond returns within standard portfolio frameworks.[11]

The literature on inflation risk exposures of assets within portfolio frameworks focuses mostly on stocks, including early studies like Fama and Schwert (1977), Chen, Roll, and Ross (1986), Boudoukh and Richardson (1993), and Ang, Brière, and Signori (2012), among many others, as well as more recent studies like Boons et al. (2020), Hong, Pan, Liu, and Tian (2025), and Chaudhary and Marrow (2024). Some studies, such as Fama and Schwert (1977), Bekaert and Wang (2010), D'Amico and King (2023), and Fang et al. (2024), also examine currencies, commodities, real estate, and nominal bonds. Among them, only Fang et al. (2024) consider corporate bonds and estimate their average inflation exposures using the standard excess return measure. We complement their study by examining inflation betas of the credit and duration components of bond returns separately and analyzing the full cross-section of individual bonds. Furthermore, our analysis of bond and stock inflation exposures at the individual firm level enhances the understanding of the impact of inflation risk on corporate defaults.

Additionally, the significant effect of inflation beta on future bond returns, which we document as part of the second set of main analyses, relates to the literature on cross-sectional

[10] Bhamra et al. (2022) and Bonelli et al. (2024) also include equity prices, in addition to corporate bond prices, in their analyses. Moreover, several important studies, including Bhamra, Fisher, and Kuehn (2011), DeFiore, Teles, and Tristani (2011), Gomes, Jermann, and Schmid (2016), Corhay and Tong (2025), and others, explore the implications of nominal corporate debt for the macroeconomy and monetary policy.

[11] Numerous studies in the literature focus on corporate yield spreads and their changes, such as Collin-Dufresne, Goldstein, and Martin (2001), Elton, Gruber, Agrawal, and Mann (2001), Longstaff, Mithal, and Neis (2005), Huang and Huang (2012), Bao, Pan, and Wang (2011), and He, Khorrami, and Song (2022), among others.

corporate bond returns. However, our study differs from this literature in important ways. Specifically, the primary goal of this literature is to identify benchmark factors with strong cross-sectional pricing power, which can then be used to evaluate bond investment strategies.[12] Instead, our primary goal is to examine inflation risk exposures of corporate bonds. Even regarding the effect of inflation beta on cross-sectional bond returns, our key message is not its strong performance, but rather that it works entirely through the credit components, confirming that inflation affects corporate debt predominantly through its impact on default risk.

2 Data and Measures

In this section, we first introduce our sample of corporate bonds and calculation of bond returns. We then discuss the inflation measures used in our analyses. We finally present some simple evidence on the negative inflation—default relationship that has been documented in the literature and we shall use as the overarching principle to organize our analyses.

2.1 Corporate Bonds

Sample of corporate bond transactions. Following the literature, we use data of corporate bond transactions from the enhanced Trade Reporting and Compliance Engine (TRACE) maintained by the Financial Industry Regulatory Authority (FINRA).[13] Each transaction record in the data set contains the bond CUSIP, trade date, settlement date, (clean) trade price, untruncated principal amount, an indicator of whether the transaction is either between a customer and a dealer or between two dealers, and the trading direction (buy or sell) of dealers. The sample we

[12]This extensive literature includes Fama and French (1993), Gebhardt, Hvidkjaer, and Swaminathan (2005), Lin, Wang, and Wu (2011), Bai, Bali, and Wen (2019), Kelly, Palhares, and Pruitt (2023), and Chung, Wang, and Wu (2019), among many others. More recently, the literature has evolved to address concerns regarding the effectiveness of proposed factors and their associated bond investment strategies, particularly after Dickerson, Mueller, and Robotti (2023) documented serious errors in Bai et al. (2019); see Dick-Nielsen, Feldhütter, Pedersen, and Stolborg (2023), Dickerson, Robotti, and Rossetti (2024), and Jostova, Nikolova, and Philipov (2024), among others.

[13]The TRACE data set contains all U.S. corporate bond transactions executed by broker-dealers registered with the FINRA. The transactions executed on all-to-all trading platforms or exchanges, such as the New York Stock Exchange's Automated Bond System, are not covered by the TRACE. However, these transactions account for a very small portion of total corporate bond trading volume, less than 1% in 1990 and 5% in 2014 according to reports of U.S. SEC (1992) and Bank for International Settlements (2016).

obtain is from July 1, 2002 to March 31, 2022.

We first apply a number of filters to account for trade cancellation, correction, reversion, duplication, and so on (Dick-Nielsen, 2014; Bao and Hou, 2017). We also remove transactions with principal trading amount less than $10,000, transaction with trade price less than $5 or greater than $1,000, transactions that are labeled as when-issued, locked-in, or have special sales conditions, transactions that have a non-standard settlement cycle.

We then merge the resulting sample of corporate bond transactions with the Mergent Fixed Income Securities Database (FISD) that provides bond characteristics. We exclude bonds that are not publicly traded in the U.S. market or are denominated in foreign currencies. We also remove bonds classified as structured notes, mortgage-backed securities, asset-backed securities, agency-backed securities, equity-linked or convertible bonds. Additionally, we remove privately placed bonds under Rule 144A, bonds with floating coupon rates, bi-monthly or unclassified coupons, and bonds with missing values for key variables that are used to compute accrued interest (coupon type, coupon rate, dated date, and day count basis). We further exclude transactions for which the trading date is on or before the bond offering date, the rating is missing, the time-to-maturity is less than one year, or the amount outstanding is zero.

In Table A.1 of Appendix A.1, we present the detailed step-by-step procedure of the data cleaning above, along with the associated change in sample coverage. The resulting sample contains 49,922 unique bonds and 18,323,055 transactions in total.[14]

Corporate bond returns. Using the above cleaned sample of corporate bond transactions, we follow the standard approach in the literature to compute monthly bond returns. In particular, we first calculate the price of each corporate bond on each day as the volume-weighted average of the intraday bond trade prices. Then, we calculate the month-t return using the price of the last trade day in month t, which we denote by $P_{i,t}$, and the price of the last trade day in month

[14] Some of the included bonds are callable. In Appendix A.3, we show that all our main results remain the same if we exclude callable bonds.

$t-1$, which we denote by $P_{i,t-1}$. Finally, the month-t gross return for bond i is calculated as

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

where $AI_{i,t}$ and $C_{i,t}$ are the accrued interest and coupon payment for bond i in month t.

As many corporate bonds do not trade every day, $P_{i,t}$ and $P_{i,t-1}$ may not be the end-of-the-month prices; in this case, we still keep the calculated return as long as $P_{i,t}$ and $P_{i,t-1}$ are both within the last five business days of (respective) month end. Moreover, when $P_{i,t-1}$ is not within the last five business days of month end but $P_{i,t}$ is, we replace $P_{i,t-1}$ using the price of the first trade day in month t (if this price is within the first five business days of the beginning of month t) and keep the return calculated using this price and $P_{i,t}$.[15]

With the gross return $r_{i,t}$, we then compute the corporate bond excess return

$$rx_{i,t} = r_{i,t} - r_t^f. \tag{2}$$

where r_t^f is the one-month U.S. T-Bill rate. This standard excess return is used by most studies in the literature of corporate bond returns (Fama and French, 1993; Huang and Shi, 2021).

Nevertheless, to investigate the economic channels of the effects of inflation risk on corporate bond returns, we decompose the excess return $rx_{i,t}$ using a duration-matched return. Specifically, following Binsbergen et al. (2025), we compute a duration-matched Treasury return $r_{i,t}^{\text{Tsy}}$ for bond i in month t using the weighting of cash flows in the calculation of the corporate bond's Macaulay duration and the Treasury yield curve of Gürkaynak, Sack, and Wright (2007); see Appendix A.4 for details. We then make the following decomposition

$$rx_{i,t} = \underbrace{r_{i,t} - r_{i,t}^{Tsy}}_{rx_{i,t}^{\text{Credit}}} + \underbrace{r_{i,t}^{Tsy} - r_t^f}_{rx_{i,t}^{\text{Duration}}}, \tag{3}$$

[15]In the month a bond defaults, its trading price may be unavailable, in which case the default-month return is treated as missing. As a robustness check, we follow the literature and use the WRDS method to impute default-month returns, assuming a bond price of $40 at default. Our main findings remain unchanged. In fact, our main sample contains a negligible number of bond-default observations.

where $rx_{i,t}^{\text{Duration}}$ is the excess return of the synthetic Treasury security, which captures the duration component of the corporate bond return,[16] while $rx_{i,t}^{\text{Credit}}$ is the return difference between the corporate bond and the synthetic Treasury security with the same duration, which captures the return specific to corporate bonds (compensation for their default and liquidity risk).[17]

Our corporate bond return sample is at the bond×month level that spans from July 2004 to March 2022. Table 1 presents summary statistics of this sample. In total, the sample includes 33,209 bonds issued by 3,648 firms, yielding 1,123,777 bond×month observations.

The first six columns of Table 1 report time-series averages of cross-sectional bond characteristics. On average, bonds in our sample have a time-to-maturity of 9.5 years, an age of 4.7 years, a coupon rate of 5.36%, an outstanding amount of $588.41 million, and a rating of 9.09—corresponding to a BBB rating.[18] We also compute a bond's seasoning—defined as the ratio of its age to original maturity—which serves as a proxy for bond illiquidity, as newer issues tend to be more liquid (Israel et al., 2018). The average bond in our sample has a seasoning of 0.36, indicating it is slightly less than halfway through its original maturity.

The last three columns of Table 1 present the time-series average of the cross-sectional bond distributions of the bond excess return, along with its duration and credit components. We observe that the bond excess return averages 0.52% per month, with the duration component around 0.18% and credit component around 0.35%. Hence, the duration component accounts for a sizable fraction of the corporate bond excess return.[19] However, the cross-sectional variation of the duration component is substantially lower than that of the excess return; the former

[16]To address the concern that convenience premiums of Treasury securities can enter the duration-matched returns (Krishnamurthy and Vissing-Jorgensen, 2012), we compute the duration-matched returns using interest rate swaps in Appendix A.4. The results remain the same.

[17]To mitigate the concern on the illiquidity of corporate bonds, we conduct analyses using credit default swap (CDS) in Appendix A.5. The results are similar.

[18]We convert ratings into numerical scores, where 1 refers to an AAA rating and 21 refers to a C rating; hence, a higher numerical score implies lower credit rating. Bonds with numerical ratings of 10 or below (BBB- or better) are classified as investment-grade bonds, and bonds with ratings of 11 or higher (BB+ or worse) are classified as high-yield bonds.

[19]Note that the fraction of the excess return that is accounted for by the duration component is lower in our sample ($0.18/0.52 \approx 33\%$) than in the sample used by Binsbergen et al. (2025) (more than 60%). One likely reason is that their sample period is from January 1986 to December 2020 during which the long-term Treasury excess return is higher than that in our sample period from July 2004 to March 2022. The higher Treasury return in earlier periods arises from the well-known secular decline in interest rates over past several decades.

Table 1. Summary of the Sample of Corporate Bond Returns

This table presents a summary of the sample of corporate bond returns used in our main analyses. The top panel provides the total number of unique issuers, unique bonds, and bond-month observations. The bottom panel provides the mean, median, and standard deviation, as well as the 10th, 25th, 75th, and 90th percentiles of the bond time-to-maturity (in years), age (in years), coupon rate (in percent), amount outstanding (in millions of dollars), credit rating, seasoning (age divided by original time-to-maturity), and monthly returns (in percent), across all bond-month observations. We include three measures of monthly returns—the standard excess return $rx_{i,t}$, the credit component $rx_{i,t}^{\text{Credit}}$, and the duration component $rx_{i,t}^{\text{Duration}}$. Ratings are converted into numerical scores, where 1 refers to an AAA rating and 21 refers to a C rating. We also report the mean and standard deviation of these variables for investment-grade (IG) bonds with credit rating of BBB- or higher and for high-yield (HY) bonds with credit rating of BB+ or lower, respectively.

Sample period	July 2004 - March 2022
# issuer	3,648
# bonds	33,209
# bond×month	1,123,777

Sample	Statistics	Time to maturity	Age	Coupon	Outstanding ($mm)	Rating	Seasoning	$rx_{i,t}$	$rx_{i,t}^{\text{Credit}}$	$rx_{i,t}^{\text{Duration}}$
All	Mean	9.45	4.69	5.36	588.41	9.09	0.36	0.52	0.35	0.18
	Median	6.50	3.50	5.38	450.00	9.00	0.33	0.27	0.16	0.05
	Std	8.07	4.47	1.92	631.85	3.74	0.24	5.08	5.13	1.53
	P10	2.08	0.67	2.95	23.70	5.00	0.06	-1.86	-1.92	-1.38
	P25	3.67	1.67	4.00	246.12	7.00	0.15	-0.46	-0.47	-0.43
	P75	12.08	6.33	6.60	750.00	10.00	0.55	1.35	1.08	0.73
	P90	24.33	9.33	7.75	1250.00	15.00	0.73	3.07	2.77	1.81
IG	Mean	10.23	4.64	4.84	630.26	7.36	0.35	0.38	0.20	0.18
	Std	8.66	4.36	1.66	670.40	2.10	0.25	2.90	2.89	1.64
HY	Mean	7.12	4.83	6.95	462.54	14.29	0.39	0.96	0.80	0.17
	Std	5.33	4.76	1.77	476.55	2.61	0.23	8.83	8.96	1.14

has an average standard deviation of 1.53% and an average P10-to-P90 range of -1.38% to 1.81%, while the latter has an average standard deviation of 5.08% and an average P10-to-P90 range of -1.86% to 3.07%. Hence, the major portion of the cross-sectional variation of corporate bond excess return is associated with its credit component.

In addition, in the last four rows of Table 1, we provide summaries of the investment-grade (IG) and high-yield (HY) corporate bonds separately. On average, IG bonds have a longer time to maturity, are younger, have lower coupon rates, and have larger outstanding amounts compared to HY bonds, although their seasoning is similar. Moreover, the excess returns of HY bonds exhibit both a higher mean and a higher within-group cross-sectional standard deviation than those of IG bonds. In contrast, the duration components of HY bond returns have a slightly lower mean and lower within-group cross-sectional standard deviation than those of IG bonds. This further confirms that their cross-sectional variation in excess returns is primarily driven by the credit component.

2.2 Inflation Measures

In this section, we introduce the two inflation measures used in our main analyses, and also briefly discuss several additional inflation measures used in further analyses.

Main inflation measures. The first main measure is the long-term (specifically, 10-year) inflation swap rate. Inflation swaps are a liquid and actively traded instrument that investors use to hedge inflation risk (Haubrich et al., 2012; Fleckenstein, Longstaff, and Lustig, 2014; Campbell et al., 2009).[20] Payments of inflation swaps are based on the future realized CPI inflation rates over the swap tenor, so inflation swap rate is a forward-looking measure of inflation that is closely related to inflation expectation. Inflation swaps are quoted and traded for a set of fixed maturities, ranging from 6 months to 30 years, at daily frequency. Hence, they provide

[20]The inflation swap market has been growing rapidly. For example, according to a survey by the International Swaps and Derivatives Association, the notional outstanding amount of inflation swaps increased by 24% in 2019, reaching $2.4 trillion. Trading of inflation swaps usually incurs a bid-ask spread on the order of six to ten basis points. Moreover, as shown by Haubrich et al. (2012), the bid-ask spread of inflation swaps stayed flat mostly during the global financial crisis, only increasing above 10 bps for very brief periods. In contrast, the TIPS experienced fairly large, sustained deterioration in liquidity.

Table 2. Summary of Inflation Measures

This table presents summary statistics for the monthly series of the two inflation measures—the 10-year inflation swap rate and the monthly headline CPI growth rate, both expressed in annualized terms. The sample period extends from July 2004 through December 2022.

	Mean	Median	Std	P10	P25	P75	P90
Headline CPI Growth	2.58	2.57	4.02	-0.99	0.60	4.45	6.72
10-year Inflation Swap Rate	2.41	2.50	0.39	1.88	2.14	2.72	2.83

high-frequency assessments of future long-term inflation.

We use zero-coupon inflation swaps that are the most basic and actively-traded type of inflation swaps. A zero-coupon inflation swap is a forward contract, whereby a fixed nominal swap rate is determined at time 0 and only one cash flow exchange (based on the swap rate and realized inflation rate) occurs at the maturity date.[21] We obtain from Bloomberg the monthly zero-coupon inflation swap rates of 10-year maturity, which is the usual horizon for gauging long-term inflation expectation.[22] The series are available starting from July 2004.

The second one is the monthly CPI growth rate as in Boons et al. (2020), calculated as the percentage change in the seasonally adjusted Consumer Price Index for All Urban Consumers (also known as headline CPI). We obtain this series from the U.S. Bureau of Labor Statistics (the code is CUSR0000SA0). Note that we use headline CPI in our main analyses for consistency because payoffs of inflation swaps are based on it.

In Table 2, we present summary statistics of these two inflation measures, both in annualized terms, for our sample period from July 2004 to December 2022. We observe that their mean values are similar, around $2.4 - 2.6$ percent. Moreover, the monthly CPI growth that captures inflation rate over a one-month horizon is much more volatile than the inflation swap rate that captures average inflation rate over a 10-year horizon: the standard derivation is 4.02 percent

[21] For example, consider a 10-year zero-coupon inflation swap with the swap rate equal to 300 basis points. At the maturity in 10 years, it will have a cash flow exchange of $(1+0.05)^{10} - (1+0.03)^{10}$ if the realized inflation rate is 5% per year over the 10-year horizon of the swap.

[22] For example, the Federal Reserve focuses on the inflation expectation over the next 10 years in its "Report to the FOMC on Economic Conditions and Monetary Policy" (known as the Tealbook); see https://www.federalreserve.gov/monetarypolicy/files/FOMC20180321tealbooka20180309.pdf.

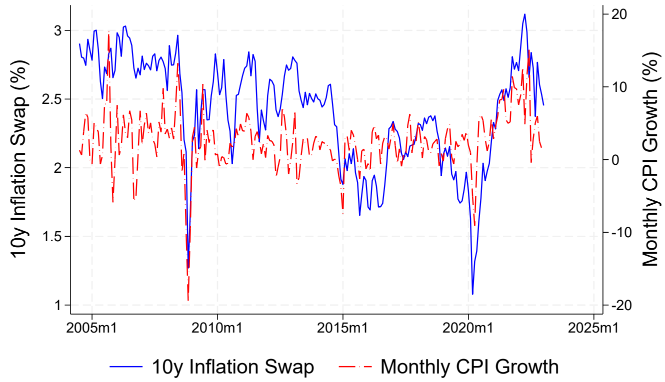

Figure 1. Time Series of Inflation Measures

This figure plots the monthly series of the 10-year inflation swap rate and monthly headline CPI growth, both in annualized terms. The sample period is from July 2004 to December 2022.

for the former but only 0.39 percent for the latter. We then plot the monthly series of the two measures in Fig. 1. We observe that although the two measures have different levels because of the difference in horizons, they share significant common variations over time. For example, both dropped substantially in the 2008 and COVID-19 crises and increased greatly in the recent inflationary episode. Indeed, their time series correlation is around 0.4.

Additional inflation measures. In addition to the aforementioned two main measures, we use several additional inflation measures in further analyses (in Section 6.2). Specifically, we consider three additional forward-looking measures of inflation, including the breakeven inflation rate implied by Treasury Inflation-Protected Securities (TIPS), the inflation forecast from the Michigan Surveys of Consumers (MSC), and the inflation forecast from the Blue Chip Financial Forecasts (BCFF), and two additional measures of realized inflation, including the producer price index (PPI) and core CPI.

Similar to the inflation swap rate, the TIPS-based breakeven inflation rate—the difference between the yields of nominal Treasury securities and TIPS—is a market-based, forward-looking measure of inflation. It is also available at a daily frequency and covers long future horizons. However, TIPS trading is relatively illiquid and tends to experience substantial, sustained deterioration in liquidity during periods of market stress (Haubrich et al., 2012). Indeed, Campbell et al. (2009) document that liquidity issues during the 2008 financial crisis undermined the reliability of the TIPS breakeven rate as an indicator of future inflation.

Inflation forecasts from the MSC and BCFF, both available at a monthly frequency, provide the other two additional forward-looking measures of inflation. The MSC forecasts are provided by a rotating but nationally-representative sample of U.S. households (D'Acunto, Malmendier, and Weber, 2023). The surveyed households are asked about their expected price changes in general over the next one year. We obtain the monthly series of the median forecast of MSC from the Federal Reserve Bank of St. Louis database (series code: MICH). The BCFF forecasts are provided by a large number of professional economists from leading financial institutions, including banks, broker-dealers, and consulting firms, and has been widely used in academic research. Their inflation forecasts cover horizons up to six quarters ahead. Following the literature, we use the BCFF consensus measure—defined as the cross-sectional mean of individual forecasts—of four-quarter-ahead inflation forecasts.

Similar to headline CPI, we obtain monthly series of core CPI and PPI from the U.S. Bureau of Labor Statistics and use their monthly growth rates as measures of realized inflation. These two measures are closely related to headline CPI but capture somewhat different aspects of inflation. In particular, both headline and core CPI reflect inflation from the consumer's perspective, tracking changes in the prices of goods and services purchased by households. Headline CPI includes not only the core component but also food and energy components.[23] Core inflation typically exhibits lower volatility and higher persistence, while food and energy inflation is more volatile and less persistent.

Whereas both the headline and core CPI are primarily used to measure the cost of living and adjust household incomes, the PPI is mainly used to measure real output growth by adjusting revenue sources for inflation. It encompasses a broad range of goods and services from the production chain, including raw materials, intermediary products, and retail sales. Hence, it

[23]The core component includes expenditures on shelter, household furnishings and operations, apparel, transportation, medical care, recreation, education and communication, alcoholic beverages, and other goods and services (e.g., tobacco, personal care).

mainly measures inflation from the producer's perspective.[24]

For our main analyses, we choose the inflation swap rate over the TIPS breakeven inflation rate because inflation swaps are less susceptible to liquidity and mispricing issues than TIPS. We also prefer inflation swaps over survey forecasts because they cover long future horizons at a higher frequency than survey forecasts.[25] Further, because payments for inflation swaps are based on headline CPI instead of core CPI and PPI, we choose headline CPI for consistency. That said, given that these additional measures capture certain different aspects of inflation, we conduct additional analyses using them to gain further insights into the effects of inflation risk on corporate bond returns.

2.3 The Negative Inflation—Default Relationship

The literature documents a negative association between corporate default and inflation (Kang and Pflueger, 2015; Bhamra et al., 2022). In this section, we present simple evidence of this relationship using the two main inflation measures introduced earlier. While establishing this negative inflation—default relationship is not our contribution, confirming it with our inflation measures and sample period provides reassurance for its use in structuring our analyses and interpreting our results.

Specifically, we construct the series of the number of bond defaults in each month from July 2004 through December 2022 using the FISD and Moody's Default and Recovery Database (DRD). We then plot this monthly series together with our two inflation measures in the top and bottom panels of Fig. 2, respectively. We observe that both inflation measures are negatively related to bond defaults, and seem to be leading defaults by about several quarters. For example, both inflation measures reached a trough around November 2008 and the number of

[24]For detailed comparisons between the CPI and PPI, see https://www.bls.gov/ppi/methodology-reports/comparing-the-producer-price-index-for-personal-consumption-with-the-us-all-items-cpi-for-all-urban-consumers.htm. As a broad indicator of producer price trends, we use the Producer Price Index for All Commodities (BLS series code: WPU00000000), which reflects price changes for a wide range of domestically produced and imported goods sold to businesses.

[25]The Survey of Professional Forecasters (SPF) provides inflation forecasts up to 10 years ahead, but only at a quarterly frequency. The MSC offers monthly forecasts at long horizons, though only for the 5- to 10-year range. The Blue Chip Economic Indicators (BCEI) also provide 5- to 10-year-ahead inflation forecasts, but at an even lower frequency—semiannually.

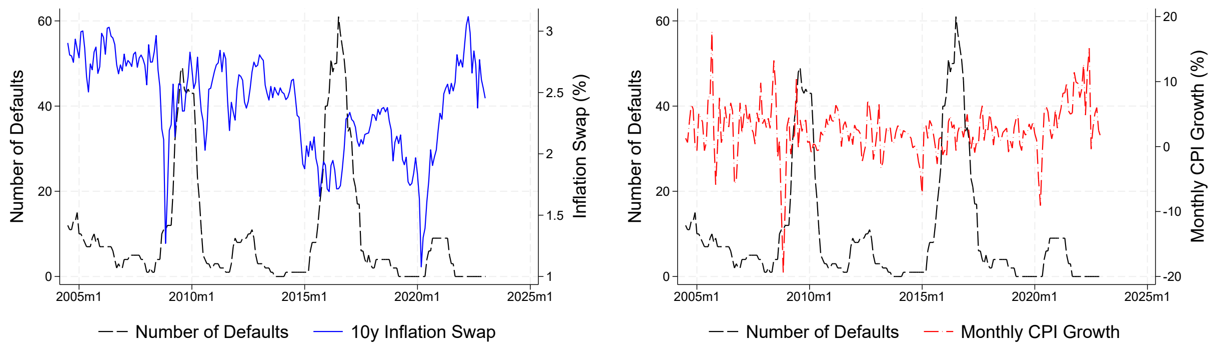

Figure 2. Monthly Series of Inflation and Bond Default Measures

This figure plots the monthly series of the inflation measures (the 10-year inflation swap rate in the left panel and the monthly headline CPI growth in the right panel) alongside the number of bond defaults per month. The sample period is from July 2004 to December 2022.

bond defaults peaked around August 2009. Moreover, inflation rates dropped significantly in July - September 2015 and the number of bond defaults soared above 60 around July 2016.

To gauge the negative relation between inflation and default statistically, we regress the average number of defaults over the next 12 months on the inflation swap rate and monthly CPI growth this month, as reported in columns (1) and (2) of Table 3, respectively. We observe that the regression coefficients are indeed negative and statistically significant. In addition to the number of bond defaults, we also calculate, in each month, the ratio of the amount outstanding of bonds that default to the outstanding amount of all bonds. We then regress the average amount ratio of bond defaults over the 12 months on inflation measures this month. As reported in columns (3) and (4) of Table 3, the regression coefficients are also negative and significant. Overall, these simple analyses corroborate the negative inflation—default relationship documented in the literature using our inflation measures and sample period.

What economic channels underlie the negative inflation—default relationship? Existing studies have mainly explored two channels. First, Kang and Pflueger (2015) analyzed the "debt deflation" channel of Fisher (1933) whereby a surprise drop in inflation results in rises in real liabilities and corporate default. Under this channel, inflation is negatively associated with default. Second, inflation has been positively related to real macroeconomic fundamentals such as the real GDP growth since 2000 (Campbell et al., 2020; Song, 2017). Under this procyclical or

Table 3. Inflation and Corporate Bond Defaults

In columns (1) and (2), the average number of bond defaults per month over the next 12 months is regressed on the inflation swap rate and the monthly headline CPI growth rate this month, respectively. In columns (3) and (4), the average amount ratio of bond defaults over the next 12 months is regressed on the inflation swap rate and the monthly headline CPI growth rate this month, respectively. Robust t-statistics based on Newey and West (1987) standard errors with the rule-of-thumb bandwidth choice $0.75N^{1/3}$ are reported in parentheses. The sample period is July 2004 to December 2022. Significance levels: *** for $p<0.01$ and ** for $p<0.05$, and * for $p<0.1$, where p is the p-value.

	Number of Bond Defaults		Amount Ratio of Bond Defaults	
	(1)	(2)	(3)	(4)
Inflation Swap Rate	-13.281***		-0.206**	
	(-2.650)		(-2.534)	
Monthly CPI Growth		-0.676***		-0.012**
		(-2.695)		(-2.436)
Intercept	41.561***	11.272***	0.655***	0.189***
	(3.124)	(5.275)	(3.029)	(5.012)
N	222	222	222	222
R^2	0.171	0.048	0.138	0.051

"good" inflation channel (Cieslak and Pflueger, 2023), inflation should also be negatively associated with default.[26]

We emphasize that differentiating the various channels of the negative inflation—default relationship is beyond the scope of this paper. Rather, as mentioned above, we use this relation in guiding and organizing our analyses of the inflation exposure of corporate bonds. In particular, the focus of our paper is to delve into the detailed components of corporate bond returns and the cross sectional differences of individual bonds to understand their inflation exposure, taking the negative inflation—default relationship as given.

3 Inflation Exposure of Corporate Bond Return

Based on the negative inflation—default relationship discussed above, one would expect corporate bond returns to have positive exposure to inflation. Surprisingly, however, existing stud-

[26] An indirect channel is that high inflation implies higher short-term rate (which is the drift term of the risk-neutral process of the firm's asset value), which in turn reduces default probability (Longstaff and Schwartz, 1995).

ies find that corporate bond returns are negatively exposed to inflation. For example, in a recent comprehensive study examining the inflation exposure of various asset classes, Fang et al. (2024) document that the average inflation beta of corporate bond returns is significantly negative. In this section, we investigate the inflation betas of individual corporate bonds and further decompose bond excess returns into their duration and credit components to better understand the sources of inflation exposure.

To estimate the inflation beta of corporate bond returns, we need to construct the innovation series of our two inflation measures. For the monthly CPI growth rate, we construct the innovation series using the ARMA(1,1) model, similar to Fama and Gibbons (1984), Boons et al. (2020), and Hong et al. (2025).[27] For the inflation swap rate, we construct the innovation series as the first difference between consecutive months, following the standard approach in the literature for forward-looking, market-price-based measures.[28]

We estimate the inflation beta of each bond in each month, following the standard procedure in the literature. Specifically, the inflation betas of bond excess returns are estimated based on the following regression:

$$rx_{i,m} = \alpha_i + \beta_i^{\text{Inflation}} \times \Delta\text{Inflation}_m + \beta_i^{\text{Inflation, Lag}} \times \Delta\text{Inflation}_{m-1} + \varepsilon_{i,m}, \tag{4}$$

where $rx_{i,m}$ is the excess return of bond i in month m and $\Delta\text{Inflation}_m$ is the innovation of the inflation swap rate or monthly CPI growth in month m. Moreover, as discussed in Section 2.1, corporate bonds are traded infrequently, so their returns may not be calculated using end-of-the-month prices exactly and fail to match the change of inflation at the end of the month. To address this illiquidity-induced asynchronous issue, we follow Hu, Pan, and Wang (2013) and Chung et al. (2019) to include the lagged inflation innovation $\Delta\text{Inflation}_{m-1}$ in the regression and use the sum of $\beta_i^{\text{Inflation}}$ and $\beta_i^{\text{Inflation, Lag}}$ as the inflation beta of bond excess return. We use

[27] In Appendix A.6, we conduct robustness checks by constructing the innovation series using a VAR model as in Fang et al. (2024).

[28] For example, the first difference of VIX is used as the innovation of market volatility (Ang, Hodrick, Xing, and Zhang, 2006). More relatedly, the first difference of TIPS-based breakeven inflation is used as the innovation of inflation expectation.

the same procedure to compute the inflation betas of the credit and duration components of corporate bond return, replacing $rx_{i,m}$ in Eq. (4) by $rx_{i,m}^{\text{Credit}}$ and $rx_{i,m}^{\text{Duration}}$, respectively.

Moreover, for each bond i in each month t, we take the standard rolling-window approach to compute its inflation beta, using observations of the past 36 months (i.e., $m \in [t-35, t]$) and requiring at least 24 months of return observations.[29] Hence, for each bond i in each month t, we have the inflation betas of the bond's excess return, credit component return, and duration component return, which we denote by $\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$, $\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$, and $\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$, respectively. Note that based on Eqs. (3) and (4), we have

$$\beta(rx_{i,t}, \Delta\text{Inflation}_t) = \beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t) + \beta(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t). \quad (5)$$

That is, the inflation beta of a bond's excess return can be decomposed into two components: the inflation beta of its credit component and the inflation beta of its duration component. Further, two estimates are available—with respect to the monthly CPI growth and inflation swap rate separately—for each of these three beta estimates.

3.1 Level of Inflation Beta

Inflation betas of bond excess returns. We first examine inflation betas of bond excess returns as done in the literature. Specifically, in each month, we compute the value-weighted average inflation beta of excess return across the bonds available in this month and use it as the measure of market-level inflation beta of corporate bond excess return. In column (1) of Table 4, we report the time series mean of this market-level inflation beta estimate. From panel A, we observe that the mean inflation beta with respect to monthly CPI growth is equal to -0.543 and statistically significant. From panel B, the mean inflation beta with respect to inflation swap rate is -0.717, though statistically insignificant.

[29] As a result, the sample with inflation beta estimates is reduced compared to that reported in Table 1 and starts from September 2006; see Panel A of Table A.2 for summary statistics. Moreover, to mitigate the impact of outliers on the beta estimation, we winsorize corporate bond excess returns at the upper and lower 0.5 percentiles each month in the beta estimation; however, we still use the original returns in examining the performance of the inflation-β portfolios.

Table 4. Level of Inflation Beta of Corporate Bond Returns

This table presents summaries of the inflation betas for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$). Panel A presents inflation beta estimates with respect to the monthly headline CPI growth rate and Panel B presents those with respect to the 10-year inflation swap rate. We report the time-series average of cross-sectional value-weighted monthly beta estimates in the row labeled as "Mean", and the corresponding Newey-West t-statistics with 36 lags in parentheses. We also report two measures that capture the fraction of positive inflation beta estimates: "% Positive Month" is the proportion of all months where the cross-sectional value-weighted beta is positive, and "% Positive Bond-Month" is the proportion of all bond-month observations where the individual bond-month inflation beta estimates are positive. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

	(1) $\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	(2) $\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	(3) $\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$
A. Monthly CPI Growth			
Mean	-0.543***	1.095***	-1.638***
t-stat	(-4.870)	(4.986)	(-9.942)
% of Positive Month	14.4%	91.4%	0.0%
% of Positive Bond-Month	34.8%	69.6%	2.2%
B. Inflation Swap Rate			
Mean	-0.717	5.134***	-5.850***
t-stat	(-0.858)	(6.883)	(-9.181)
% Positive Month	43.9%	93.0%	0.0%
% Positive Bond-Month	45.0%	88.3%	2.9%

Given that we have bond-level estimates over time, we take one step further by looking into the distribution of the excess return's inflation beta. Specifically, we first calculate the proportion of months with positive market-level inflation beta among all months in our sample. As reported in the third row in column (1) of Table 4, this fraction is 14.4% using CPI growth and 43.9% using inflation swap rate. We then calculate the proportion of bond-month inflation beta estimates that are positive among the whole bond-month sample. As reported in the last row of column (1), this fraction is 34.8% using CPI growth and 45.0% using inflation swap rate.

In summary, we find that inflation beta of corporate bond excess return is indeed negative on average, consistent with existing studies in the literature (Fang et al., 2024). Moreover, an interesting finding out of our analyses is that inflation beta is more negative with respect to realized CPI inflation rate than forward-looking inflation swap rate, both on average and across the distribution of individual bonds. In any case, the negative inflation exposure is inconsistent with the negative inflation—default relationship and puzzling.

Inflation betas of the credit and duration components of bond excess returns. Next, we delve into this puzzling negative inflation exposure of corporate bond excess return by decomposing it into the inflation exposures of the credit and duration components of bond returns, as in Eq. (5).

In particular, we report the time series mean of the market-level inflation beta estimates of the credit and duration components (calculated in the same way as for the excess return) in columns (2) and (3) of Table 4, respectively. We observe that inflation beta of the duration component is equal to -1.638 using CPI growth and -5.850 using inflation swap rate, both highly significant statistically. In remarkable contrast, inflation beta of the credit component is positive: it is equal to 1.095 using CPI growth and 5.134 using inflation swap rate, both also highly significant statistically. Therefore, the negative inflation beta of bond excess return is primarily due to the duration component, whereas the credit component has strongly positive inflation beta consistent with the negative inflation—default relationship.

The contrast is even more striking when we look into the distributions of the inflation betas of the credit and duration components. First, as reported in column (3) of Table 4, market-level inflation beta of the duration component is never positive using either inflation measures, whereas as reported in column (2), market-level inflation beta of the credit component is positive in 91.4% and 93.0% of the months in our sample using CPI growth and inflation swap rate, respectively. Second, at the individual bond-month level, up to about 3% of inflation betas of the duration component are positive, whereas 69.6% and 88.3% of inflation betas of the credit component are positive using CPI growth and inflation swap rate, respectively.

In summary, we find that the duration component of a corporate bond, which is equivalent to a Treasury bond whose payoff is negatively affected by rising inflation, has strong negative inflation beta. This results in the puzzling average negative inflation exposure of corporate bond excess return as documented in the literature. In contrast, inflation beta of the credit component of a corporate bond is predominately positive, consistent with the negative inflation—default relationship in the data.

3.2 Cross-Sectional Variation of Inflation Beta

In this section, we examine the cross-sectional variation of inflation beta to understand the differential inflation exposure of different bonds. In particular, in each month t, we sort bonds i into quintile portfolios based on their excess return inflation betas, i.e., $\beta(rx_{i,t}, \Delta\text{Inflation}_t)$. Quintile 1 contains the bonds with the lowest betas, and quintile 5 contains the bonds with the highest betas. In Table 5, we report, for each quintile, the average inflation betas of the excess return, the credit component, and the duration component in columns (1) - (3), respectively. The results using the monthly CPI growth and inflation swap rate are reported in panels A and B, respectively.

From column (1), we observe that the excess return's inflation beta varies greatly across the quintile portfolios. Specifically, it is negative for the first three portfolios and turns positive for the last two, using both CPI growth and inflation swap rate. The high-minus-low difference is 9.034 with a t-stat of 5.068 for the inflation beta with respect to CPI growth and 21.607 with a t-stat of 6.855 for the inflation beta with respect to inflation swap rate.

Moreover, from columns (2) and (3), we observe that the duration component's inflation beta is negative across all quintile portfolios using both inflation measures, and the credit component's inflation beta is all positive (except only the first quintile portfolio using CPI growth), consistent with the results reported above in Section 3.1. Most importantly, the credit component's inflation beta varies greatly across the quintile portfolios whereas the variation of the duration component's inflation beta is quite muted relatively. Specifically, the high-minus-low difference of the credit component's inflation beta ranges from 7.831 to 17.236 using the two inflation measures while the high-minus-low difference of the duration component's inflation

Table 5. Inflation-Beta-Sorted Corporate Bond Portfolios

This table reports average inflation betas of quintile corporate bond portfolios that are sorted by bonds' excess return inflation beta, $\beta(rx_{i,t}, \Delta\text{Inflation}_t)$, using the monthly headline CPI growth rate in Panel A and using the 10-year inflation swap rates in Panel B. For each quintile portfolio, we present the average inflation beta of the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), the average inflation beta of the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and the average inflation beta of the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$). The "High–Low" row provides the difference in average betas between the highest and lowest quintile portfolios, with the corresponding Newey–West t-statistics computed using 36 lags shown in parentheses. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

	(1) $\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	(2) $\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	(3) $\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$
	A. CPI Growth		
1	-4.457	-1.948	-2.509
	(-4.666)	(-2.056)	(-8.223)
2	-1.415	0.233	-1.649
	(-9.457)	(2.258)	(-8.789)
3	-0.485	0.707	-1.192
	(-5.891)	(5.201)	(-10.144)
4	0.519	1.681	-1.161
	(2.233)	(4.878)	(-8.342)
5	4.577	5.882	-1.306
	(4.956)	(5.818)	(-10.488)
High-Low	9.034***	7.831***	1.204***
	(5.068)	(4.423)	(4.877)
	B. Inflation Swap Rate		
1	-9.184	0.103	-9.287
	(-4.702)	(0.044)	(-8.862)
2	-3.01	2.444	-5.454
	(-3.643)	(4.351)	(-7.974)
3	-0.737	3.47	-4.207
	(-1.111)	(6.752)	(-8.154)
4	1.985	6.225	-4.24
	(2.660)	(8.308)	(-8.685)
5	12.423	17.34	-4.916
	(7.377)	(10.452)	(-8.720)
High-Low	21.607***	17.236***	4.370***
	(6.855)	(5.019)	(6.641)

beta ranges only from 1.204 to 4.370.

In sum, these analyses show that inflation exposure varies greatly in the cross section, and the majority of this cross-sectional variation is associated with the credit component of corporate bond return, consistent with the negative inflation—default relationship.

A further natural implication along this direction is that higher-default-risk bonds, which are more exposed to default shocks by definition, should have larger inflation exposure. To examine this implication, we report the average rating for the quintile portfolios sorted by $\beta\left(rx_{i,t}, \Delta\text{Inflation}\right)$ (as reported in Table 5) using CPI growth and inflation swap rate in the first column of Panels A and B of Table 6, respectively. We observe that higher-inflation-beta bonds indeed have significantly lower credit ratings. Specifically, the highest-inflation-beta quintile portfolio has an average rating of around 13 (corresponding to a BB minus-rating category) while the lowest-inflation-beta quintile portfolio has an average rating of around 9 (corresponding to a BBB-rating category).

We also report the average of other bond characteristics, including time-to-maturity, coupon rate, seasoning, amount outstanding, and illiquidity for the quintile portfolios.[30] These characteristics are mainly related to bond duration and liquidity and indirectly related to default risk at most. From the last four columns of Panels A and B of Table 6, we observe that higher-inflation-beta bonds have shorter time-to-maturity, carry higher coupon rate, are more seasoned, have lower outstanding balance, and are less liquid.

To check whether these characteristics affect the relationship between inflation beta and rating, we report results of the Fama and MacBeth (1973) regressions in Panel C. Comparing the results that use rating as the only regressor (in the first and third columns) with the results that include all bond characteristics as regressors (in the second and fourth columns), we find that the explanatory power of rating is substantial: the regression R^2 using only rating is nearly as high as half of the regression R^2 of all bond characteristics together. Overall, the results confirm the key role played by the negative inflation—default relationship in driving the cross-sectional

[30]We use the bond-level illiquidity measure constructed by Dickerson et al. (2024), which is available through the Open Bond Asset Pricing database (https://openbondassetpricing.com/).

Table 6. Inflation Beta and Bond Characteristics

We report average bond characteristics—credit rating (in numerical scores), time-to-maturity (in years), coupon rate (in percent), seasoning (defined as age divided by original maturity), amount outstanding (in millions of dollars), and illiquidity measure—of quintile corporate bond portfolios that are sorted by bonds' excess return inflation beta, using the monthly headline CPI growth rate in Panel A and using the 10-year inflation swap rates in Panel B. The "High–Low" row shows the difference in average bond characteristics between the highest and lowest quintiles, with the corresponding Newey-West t-statistics computed using 36 lags in parentheses. In Panel C, we present results of the Fama-MacBeth regressions of inflation beta on bond characteristics. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

A. Inflation-Beta-Sorted Portfolios: CPI Growth						
Portfolio	Rating	Time-to-Maturity	Coupon	Seasoning	Outstanding	Illiq
1	9.281	14.163	5.698	0.348	697.497	1.750
	(18.488)	(24.014)	(14.700)	(21.681)	(12.239)	(1.838)
2	8.266	8.054	5.255	0.462	762.934	0.798
	(36.664)	(32.991)	(13.321)	(40.849)	(18.502)	(1.962)
3	8.312	6.027	5.214	0.544	749.191	0.516
	(80.411)	(21.274)	(14.895)	(61.911)	(22.331)	(2.296)
4	9.315	6.631	5.578	0.541	643.008	0.947
	(35.357)	(11.437)	(16.364)	(36.271)	(23.656)	(1.906)
5	12.111	8.251	6.340	0.495	500.951	3.543
	(24.888)	(15.836)	(22.892)	(55.051)	(14.214)	(1.945)
High-Low	2.830***	-5.912***	0.641***	0.148***	-196.546***	1.793**
	(5.119)	(-6.235)	(3.600)	(6.410)	(-5.901)	(1.978)

B. Inflation-Beta-Sorted Portfolios: Inflation Swap Rate						
Portfolio	Rating	Time-to-Maturity	Coupon	Seasoning	Outstanding	Illiq
1	8.289	14.799	5.473	0.338	738.615	1.702
	(13.065)	(21.552)	(13.834)	(21.958)	(11.086)	(1.748)
2	7.954	7.535	5.092	0.482	766.584	0.669
	(60.790)	(25.043)	(12.757)	(45.081)	(22.557)	(2.067)
3	8.400	5.886	5.208	0.549	721.658	0.638
	(77.966)	(22.891)	(14.972)	(73.352)	(33.665)	(2.005)
4	9.837	6.495	5.786	0.542	620.895	0.901
	(59.331)	(17.987)	(17.657)	(41.321)	(19.367)	(2.019)
5	12.897	8.312	6.540	0.481	506.771	3.839
	(39.375)	(28.384)	(25.123)	(63.516)	(11.981)	(1.886)
High-Low	4.608***	-6.487***	1.067***	0.143***	-231.843***	2.137*
	(10.694)	(-9.517)	(6.371)	(7.473)	(-4.297)	(1.955)

C. Regressions of Inflation Beta on Bond Characteristics				
	CPI Growth		Inflation Swap Rate	
Rating	0.218***	0.289***	0.830***	0.946***
	(2.792)	(3.858)	(4.611)	(6.090)
Time-to-Maturity		0.064***		0.258***
		(3.792)		(5.462)
Coupon		0.058		0.293***
		(1.222)		(2.708)
Seasoning		-0.061		-1.640
		(-0.145)		(-1.630)
Log(Outstanding)		-0.281***		-0.586**
		(-4.177)		(-2.550)
Illiq		0.053**		0.116**
		(2.102)		(2.399)
R^2	0.080	0.177	0.148	0.328
Months	187	187	187	187

variation of corporate bond inflation exposure.

4 Effects of Inflation Beta on Corporate Bond Return

The significant positive inflation exposure of corporate bond return and its substantial cross-sectional variation documented so far prompts the natural question of whether inflation exposure has explanatory power for corporate bond returns in the cross section. In this section, we show that the answer is yes, and importantly, the effects bear on the credit component of corporate bond return totally.

Effects on bond excess returns. We first analyze the effects of inflation beta on corporate bond excess return. Specifically, for each quintile portfolio based on excess return inflation beta $\beta(rx_{i,t}, \Delta\text{Inflation}_t)$ (those reported in Table 5), we report the value-weighted average excess return next month ($rx_{i,t+1}$) in columns (1) and (4) of Panel A of Table 7 using CPI growth and inflation swap rate, respectively. Recall from Table 5 that the average inflation beta increases monotonically from quintile 1 to quintile 5. Accordingly, from Table 7, higher-inflation-beta quintile portfolios deliver significantly higher future average excess returns than lower-inflation-beta ones, using both CPI growth and inflation swap rate. That is, inflation beta has a positive effect on bond excess return in the cross section.

Moreover, we observe that the spreads in the average excess return between the quintile 5 and quintile 1 portfolios are remarkably similar using CPI growth and inflation swap rate, both around 0.6% per month. The statistical significance, though, is slightly stronger using inflation swap rate than CPI growth.

Effects on the credit and duration components of bond excess returns. We then decompose the effects of inflation beta on corporate bond excess return into those on the credit and duration components separately. Specifically, for the $t+1$ average excess return of each quintile portfolio reported in column (1) of Panel A of Table 7 using CPI growth, we report its credit and duration components in columns (2) and (3), respectively. The credit and duration components

Table 7. Effects of Inflation Beta on Future Corporate Bond Returns

In Panel A, we report average next-month $(t+1)$ returns of quintile corporate bond portfolios that are sorted by bonds' current-month (t) excess return inflation betas, using the monthly headline CPI growth rate in columns (1)–(3) and using the 10-year inflation swap rate in columns (4)–(6). For each quintile portfolio, we present the value-weighted average excess return, as well as its credit component and duration component, with weights based on the amount outstanding. The "High–Low" row provides the difference in average returns between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are shown in parentheses. In Panel B, we report similar estimates for quintile corporate bond portfolios that are sorted by inflation betas of the credit components of bond returns. Significance levels: *** for $p<0.01$ and ** for $p<0.05$, and * for $p<0.1$, where p is the p-value.

	(1)	(2)	(3)	(4)	(5)	(6)
	$rx_{i,t+1}$	$rx^{\text{Credit}}_{i,t+1}$	$rx^{\text{Duration}}_{i,t+1}$	$rx_{i,t+1}$	$rx^{\text{Credit}}_{i,t+1}$	$rx^{\text{Duration}}_{i,t+1}$
A. Portfolios Sorted by Inflation Betas of Bond Excess Returns						
	CPI Growth			Inflation Swap Rate		
1	0.438	0.177	0.261	0.388	0.125	0.263
	(2.243)	(1.051)	(2.871)	(1.927)	(0.746)	(2.697)
2	0.329	0.127	0.201	0.325	0.126	0.199
	(2.929)	(1.364)	(2.732)	(2.728)	(1.438)	(2.511)
3	0.306	0.140	0.166	0.343	0.185	0.158
	(3.339)	(2.035)	(2.184)	(3.335)	(2.655)	(1.963)
4	0.472	0.307	0.165	0.514	0.346	0.168
	(2.709)	(2.801)	(1.774)	(3.240)	(3.470)	(1.894)
5	1.066	0.889	0.177	1.018	0.838	0.180
	(2.570)	(2.456)	(2.081)	(2.754)	(2.591)	(2.285)
High-Low	0.628	0.712*	-0.084**	0.630**	0.713**	-0.083
	(1.624)	(1.971)	(-2.048)	(1.980)	(2.462)	(-1.451)
B. Portfolios Sorted by Inflation Betas of the Credit Component Returns						
	CPI Growth			Inflation Swap Rate		
1	0.374	0.185	0.189	0.323	0.144	0.179
	(1.988)	(1.053)	(2.419)	(1.714)	(0.867)	(2.401)
2	0.247	0.079	0.168	0.256	0.100	0.156
	(2.472)	(0.839)	(2.524)	(2.705)	(1.138)	(2.230)
3	0.365	0.177	0.188	0.406	0.224	0.182
	(3.128)	(2.432)	(2.251)	(3.346)	(2.966)	(2.164)
4	0.546	0.314	0.232	0.594	0.342	0.252
	(3.162)	(2.811)	(2.356)	(3.581)	(3.315)	(2.504)
5	1.039	0.809	0.229	0.999	0.763	0.236
	(2.722)	(2.391)	(2.706)	(2.789)	(2.401)	(2.710)
High-Low	0.664*	0.624*	0.040**	0.676**	0.619**	0.057
	(1.943)	(1.804)	(2.150)	(2.594)	(2.266)	(1.360)

of the $t+1$ average excess return reported in column (4) using inflation swap rate are reported in columns (5) and (6), respectively.

We observe that the duration component $rx_{i,t+1}^{\text{Duration}}$ exhibits minimal variation across different quintile portfolios. In particular, the high-minus-low average duration component is only -0.084% and -0.083% per month using CPI growth and inflation swap rate, respectively, and both are insignificant statistically. In contrast, the credit component $rx_{i,t+1}^{\text{Credit}}$ exhibits large variation across different quintile portfolios, with the high-minus-low average around 0.71% per month and highly significant statistically using both CPI growth and inflation swap rate. That is, the cross-sectional variation in excess return across these inflation-beta-sorted bond portfolios arises totally from the cross-sectional variation in its credit component $rx_{i,t+1}^{\text{Credit}}$.

Quintile portfolios by the credit component's inflation beta. Note that the quintile portfolios analyzed above are sorted by the excess return's inflation beta $\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$. Next, we take one step further by sorting bonds into quintile portfolios in each month based on the credit component's inflation beta $\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$. In Panel B of Table 7, we report the value-weighted average excess return together with its credit and duration components for each of these quintile portfolios, in columns (1) - (3) using CPI growth and columns (4) - (6) using inflation swap rate. These portfolios paint a similar picture. The credit component $rx_{i,t+1}^{\text{Credit}}$ exhibits large and significant variation across different quintile portfolios, whereas the duration component exhibits minimal and insignificant variation. For example, the high-minus-low average excess return is 0.664% per month, with the credit component equal to 0.624% and the duration component equal to 0.040% using CPI growth.

To summarize, we find that inflation exposure has significantly positive effects on corporate bond returns in the cross section. Intuitively, high-inflation-beta bonds underperform when inflation is low, which is also when default is high because of the negative inflation—default relationship. Hence, investors command high returns to hold high-inflation-beta bonds. Most importantly, our analyses uncover a remarkable pattern—the positive effect of inflation beta on corporate bond excess return in the cross section bears on its credit component totally.

In addition, since the effects of inflation beta on corporate bond returns primarily operate through the inflation—default relationship, we conjecture that its impact on future returns broadly aligns with that of bond default characteristics. Toward this direction, in Appendix A.7, we form 5×5 portfolios based bonds' credit rating and maturity and then subtract returns of these portfolios from those of the inflation-beta-sorted portfolios. As reported in Table A.11, the high-minus-low average spread in bond excess return is reduced by about 60%. This is also the case when we use credit spread as the default characteristic. These results confirm the aforementioned conjecture and also imply that the systematic inflation risk exposure can explain a large fraction of cross-sectional return differences associated with bond-level default characteristics, lending support to the use of such characteristics as systematic *risk* measures in portfolio frameworks (Gebhardt et al., 2005).

5 Relationship between Bond and Stock Inflation Exposures

So far, we have focused exclusively on the inflation exposure of corporate bonds. In this section, we analyze the relationship between bond and stock inflation exposures, given that both are contingent claims on a firm's underlying asset value (Merton, 1974). While combining stocks and bonds opens the door to studying various economic issues,[31] our primary goal is to develop a more comprehensive understanding of how the negative inflation—default relation affects corporate bond returns by examining its connection to stock returns' inflation exposure.

Specifically, in addition to the positive inflation beta of corporate bond returns, the negative inflation—default relationship also suggests a generally positive inflation beta for stock returns. Higher inflation is associated with lower default risk, indicating stronger firm fundamentals and, consequently, higher equity values. However, early studies dating back to the 1980s found that stock inflation betas were significantly negative (e.g., Lintner, 1975; Fama and Schwert, 1977; Bekaert and Wang, 2010). To reconcile this contradiction, Bhamra et al. (2022) propose a model incorporating two nominal-rigidity frictions. Yet, recent studies have docu-

[31] For example, one can study the integration of equity and credit markets. We leave investigations into these issues for future research.

mented more positive inflation exposures of stock returns after 2000, particularly concerning headline inflation (Boons et al., 2020; Fang et al., 2024). Therefore, it remains unclear whether a contradiction still exists regarding the effect of inflation on stock and bond values.

To analyze the relationship between inflation exposures of the stock and bond of the same firm, for each bond in each month in our sample, we search for the corresponding stock of the issuing firm in CRSP.[32] A summary of the matched sample is reported in Table 8 (Panel B of Table A.2 provides additional summary of the bonds in the matched sample). In particular, as reported in the left panel, the matched sample has 11,286 bonds and 425,247 bond-month observations, slightly smaller than the baseline bond sample (as reported in Panel A of Table A.2) but with all the characteristics being similar. For instance, the average bond excess return, credit component and duration component are 0.43%, 0.26%, and 0.17%, respectively (they equal 0.51%, 0.34%, 0.17% for the baseline sample as reported in Table A.2). As reported in the right panel, the matched sample has 1,162 unique firms in CRSP (based on permno), yielding a stock-month sample of 86,872 observations. On average, each stock is linked to about 4.9 bonds, and the monthly stock excess return is 1.01%.

We estimate stock inflation beta by regressing the monthly stock excess return on the contemporaneous monthly inflation innovation, similar to Chen et al. (1986), Boons et al. (2020), Fang et al. (2024), and Hong et al. (2025).[33] In Panel A of Table 9, we report the monthly average of the market-level bond and stock inflation betas computed as the weighted average of individual bond and stock inflation betas each month. We observe that bond inflation betas are significantly positive as in the baseline bond sample (see Table 4). Moreover, the stock inflation beta is also significantly positive using both the inflation swap rate and headline CPI growth rate, consistent with the findings of Boons et al. (2020) and Fang et al. (2024). Hence, stock inflation exposure does not contradict bond inflation exposure in our sample period; instead, strong consistency is observed.[34]

[32]We use the Bond-Compustat-CRSP Link file provided by Chuck Fang.

[33]That is, unlike the estimation of bond inflation beta in Eq. (4), we do not include lagged inflation innovation because monthly stock returns are computed using end-of-month prices and do not face asynchronicity issues.

[34]We also estimate the stock inflation beta with respect to CPI growth using the sample prior to 2004 and find that it is significantly negative, as documented in the literature. That is, the negative stock inflation exposure seems

Table 8. Summary of the Stock-Bond Matched Sample

This table provides summaries of the corporate bond return sample that is matched with corresponding firm-level stock data. The left panel provides a summary at the bond-month level, including the total number of unique issuers, unique bonds, and bond-month observations, as well as the mean, median, standard deviation, and the (10th, 25th, 75th, and 90th) percentiles of monthly returns (in percent). We include three measures of monthly returns—the standard excess return $rx_{i,t}$, the credit component $rx_{i,t}^{\text{Credit}}$, and the duration component $rx_{i,t}^{\text{Duration}}$. The right panel provides a summary at the firm-month level, including the total number of unique stocks based on the permno and stock-month observations, as well as the mean, median, standard deviation, and the (10th, 25th, 75th, and 90th) percentiles of the number of bonds per stock and the monthly stock excess return (in percent).

Bond-Level				Firm Level		
# issuers	1,724			# stocks	1,162	
# bonds	11,286			# stock×month	86,872	
# bond×month	425,247					
	$rx_{i,t}$	$rx_{i,t}^{\text{Credit}}$	$rx_{i,t}^{\text{Duration}}$		# bonds per stock	Stock excess ret
Mean	0.430	0.261	0.169	Mean	4.895	1.007
Median	0.226	0.140	0.044	Median	2.000	0.995
Std	4.029	4.088	1.453	Std	7.899	13.509
P10	-1.580	-1.630	-1.239	P10	1.000	-10.922
P25	-0.352	-0.383	-0.341	P25	1.000	-4.318
P75	1.154	0.917	0.616	P75	5.000	6.027
P90	2.691	2.396	1.671	P90	11.000	12.192

Next, moving beyond the average relationship between stocks' and bonds' inflation exposures, we utilize our granular firm-level data to examine this relationship in the cross-section. Specifically, we first sort firms into quintile portfolios based on their bond inflation betas. Then, for each quintile portfolio, we compute the average bond and stock inflation betas. From Panel B of Table 9, we observe that the bond inflation beta increases monotonically across the quintile portfolios as expected (the magnitudes are similar to those reported in Table 4). Importantly, the corresponding stock inflation beta also increases monotonically, indicating a strong positive association between the stock and bond inflation exposures in the cross section of firms. That is, firms with higher bond inflation betas also have higher stock inflation betas.

to be mainly present in the early period.

Table 9. Relationship between Bond and Stock Inflation Betas

This table reports the bond and stock inflation betas using the stock-bond matched sample (as summarized in Table 8). We include inflation betas with respect to both the monthly headline CPI growth rate and 10-year inflation swap rate, but for bonds, we only consider the inflation beta of the credit component of the bond return. In Panel A, we report the time-series average of the cross-sectional value-weighted average inflation beta. In Panel B, we report average inflation betas of quintile portfolios that are sorted by firm-level average bond inflation betas. The "High–Low" row provides the difference in average inflation betas between the highest and lowest quintile portfolios. In Panel C, we report results of the Fama-MacBeth regressions of stock inflation beta on bond inflation beta, where we normalize the bond and stock betas by subtracting their respective means and dividing by their respective monthly cross-sectional standard deviation. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

A. Average Inflation Betas				
	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{CPI}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{CPI}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Swap}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{Swap}_t\right)$
Average	0.975***	3.296***	4.734***	15.587***
t-stat	(5.393)	(3.773)	(6.451)	(3.599)

B. Inflation-Beta Portfolios				
Portfolio	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{CPI}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{CPI}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Swap}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{Swap}_t\right)$
1	-1.079	0.967	-0.347	12.097
	(-5.342)	(1.355)	(-0.349)	(3.260)
2	0.332	2.085	2.697	12.987
	(2.166)	(4.113)	(4.827)	(3.994)
3	1.023	2.593	4.623	15.165
	(4.044)	(4.647)	(7.091)	(4.075)
4	2.076	3.775	7.58	20.137
	(4.527)	(4.939)	(8.024)	(4.319)
5	6.239	8.87	17.897	36.784
	(5.930)	(3.313)	(9.781)	(3.812)
High-Low	7.318***	7.903***	18.244***	24.688***
	(7.533)	(3.532)	(11.236)	(3.742)

C. Regressions of Stock Inflation Beta on Bond Inflation Beta		
	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{CPI}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{Swap}_t\right)$
$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{CPI}_t\right)$	0.316***	
	(5.053)	
$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Swap}_t\right)$		0.364***
		(4.404)
R^2	0.132	0.177
Months	187	187

To assess the magnitude of this cross-sectional relationship, we perform Fama-MacBeth regressions of a firm's stock inflation beta on its bond inflation beta. To facilitate the interpretation of the regression coefficient, we use normalized stock and bond inflation betas—first demeaned and then scaled by their respective cross-sectional standard deviations. As reported in Panel C of Table 9, the coefficient is significantly positive for both the CPI growth and the inflation swap rate, confirming the statistical significance of the positive cross-sectional association. In terms of magnitude, a one standard deviation increase in bond inflation beta corresponds to a 0.316 standard deviation increase in stock inflation beta using CPI growth, similar to the 0.364 increase observed with the inflation swap rate.

To summarize, two main takeaways arise from the analyses in this section, which connect the inflation exposures of bonds and stocks at the individual firm level for the first time to the best of our knowledge. First, during the post-2000 sample period, there is no significant conflict between the inflation exposures of stocks and bonds; instead, they exhibit notable consistency. Second, there is a strong *across-firm* positive association between stock and bond inflation exposures,[35] which presents new empirical facts to guide further developments of the theory of inflation and credit risk. In particular, standard structural frameworks that typically consider one firm can rationalize the fact that bond and stock inflation exposures of a firm are both positive, but extensions are needed to rationalize the across-firm positive relationship we uncover.

6 Additional Analyses

In this section, we conduct additional analyses to further understand the effect of inflation risk on corporate bond returns.

[35] In Appendix A.8, we conduct firm-level analyses by computing the value-weighted inflation betas, credit ratings, and returns using all bonds of each firm in each month. The results remain the same.

6.1 The Pre-2004 Period

In the first additional analysis, we examine the sample period prior to July 2004, which marks the starting point of the sample used in our main analyses. As documented in the literature, inflation since 2000 has mostly been of the procyclical and "good" variety, meaning that inflation news has been positively correlated with real economic growth (Cieslak and Pflueger, 2023). In contrast, prior to 2000, inflation was primarily of the countercyclical and "bad" variety, with inflation news negatively correlated with real economic growth. Analyzing the effects of inflation on corporate bond returns during this bad-inflation period can provide valuable insights into the underlying economic channels.

Specifically, as discussed in Section 2.3, both debt deflation and procyclical inflation lead to a negative relationship between inflation and default, resulting in positive inflation exposure of credit excess returns during the good-inflation period analyzed in our main sample. However, in the bad-inflation period, countercyclical inflation implies a positive inflation-default relationship, while debt deflation continues to induce a negative relationship. Consequently, we conjecture that the overall negative inflation-default relationship and thus the positive inflation exposure of credit excess returns are weaker in the pre-2004 period. Of course, whether the effects of countercyclical inflation dominate those of debt deflation, potentially reversing the inflation exposure to be fully negative, is unclear ex ante and remains an empirical question.

We combine two corporate bond price datasets to analyze the pre-2004 sample period. The first is the Bank of America Merill Lynch (BAML) database, which provides price quotes for bonds covered by ICE BofA corporate bond indices and begins in July 1997. The second is the Lehman/Warga Fixed Income database, which provides monthly quotes dating back to 1973 (excluding matrix prices). Different from the TRACE data used in our main analyses that contain actual transaction prices for any bonds being traded, the BAML and Lehman/Warga Fixed Income datasets contain quoted prices for bonds with relatively larger issues. Similar to Binsbergen et al. (2025), we use the sample starting from 1986 with more than 100 high-yield bonds per month. As a result, our pre-2004 sample of monthly corporate bond returns spans from January 1986 to June 2004. In total, the sample contains 398,331 bond-month observations from 10,266 distinct bonds.[36]

In Panel A of Table 10, we report results from regressions of (i) the 12-month average number of bond defaults per month and (ii) the 12-month average ratio of the amount outstanding of defaulted bonds to the total amount outstanding of all bonds on CPI growth. We observe that the regression coefficients are positive but statistically insignificant. That is, in contrast to the significantly negative effects of inflation on bond default post 2004 as documented in Table 3, the effects are muted pre 2004, as we conjectured above.

Then, in Panel B of Table 10, we report the summary of the inflation beta estimates, with respect to the CPI growth, for the pre-2004 sample. We observe that inflation beta is significantly negative for the corporate bond excess return and its duration component on average, as in the post-2004 sample. Importantly, half of the inflation beta estimates for the credit component are negative in the pre-2004 sample period, different from the predominantly positive estimates in the post-2004 period.

Moreover, from the first two columns of Panel C of Table 10, we observe that the cross-sectional variation in inflation beta is still, as in the post-2004 period, primarily driven by variation in credit excess returns. Yet, higher-default risk bonds do not exhibit more pronounced positive inflation betas, as seen from the third column. Furthermore, from the fourth and fifth columns, no significant effect of inflation beta on next-month returns in the cross-section is present either. In contrast, from the last two columns, the significant positive relationship between bond and stock inflation betas continues to hold in the pre-2004 period.

Overall, the analyses using the pre-2004 sample yield several informative findings. First, we observe a quite muted effect of inflation on bond default during the pre-2004 bad-inflation period compared to the significantly negative effect during the post-2004 good-inflation period. Second, the inflation exposure of credit excess returns pre-2004 is not significantly positive, unlike post-2004. However, it is not predominantly negative either, suggesting that debt deflation

[36]In Appendix A.9, using the BAML sample but for our baseline sample period of 2004-2022, we find that all of our main findings using the TRACE data remain valid and robust.

Table 10. Pre-2004 Period

Panel A reports the results of regressing average number of bond defaults per month (in the first column) and the average amount ratio of bond defaults (in the second column) over the next 12 months, respectively, on the current-month headline CPI growth rate, with robust t-statistics based on the Newey and West (1987) standard errors with the rule-of-thumb bandwidth choice $0.75N^{1/3}$ in parentheses. Panel B reports the time-series average of cross-sectional value-weighted monthly beta estimates (in the row "Mean") for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$). Also reported are "% Positive Month", the fraction of months where the value-weighted beta is positive, and "% Positive Bond-Month", the fraction of bond-month observations with positive individual beta estimates. Panel C presents summaries of the corporate bond quintile portfolios that are sorted by bond excess return inflation beta (using the bond sample in the first five columns) and the firm quintile portfolios that are sorted by firm-level average bond credit component inflation beta (using the bond-stock matched sample in the last two columns). In the first five columns, we report the average of the bond excess return inflation beta ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), the credit component inflation beta ($\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$), bond rating, next-month excess return ($rx_{i,t+1}$), and the credit component of the next-month return ($rx_{i,t+1}^{\text{Credit}}$), for each quintile portfolio. In the last two columns, we report the average bond credit component inflation beta and the average stock inflation beta, for each quintile portfolio. Inflation betas and bond ratings are equally weighted, while returns are value weighted. The "High–Low" row provides the differences between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. The sample period is from January 1986 to June 2004, which combines the BAML (July 1997–June 2004) and Lehman/Warga (January 1986–June 1997) databases. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

A. Regression of Bond Defaults

	Number of Bond Defaults	Amount Ratio of Bond Defaults
CPI Growth	0.295	0.041
	(0.578)	(1.222)
Intercept	15.310***	0.535***
	(5.654)	(4.263)
R^2	0.002	0.019

B. Level of Inflation Beta

	$\beta(rx_{i,t}, \Delta\text{Inflation}_t)$	$\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$	$\beta(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t)$
Mean	-0.748	-0.102	-0.646
t-stat	(-1.060)	(-0.266)	(-0.966)
% Positive Month	42.9%	36.4%	36.4%
% Positive Bond-Month	42.9%	49.3%	44.4%

C. Cross-Sectional Variation of Inflation Beta

	$\beta(rx_{i,t}, \Delta\text{Inflation}_t)$	$\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$	Rating	$rx_{i,t+1}$	$rx_{i,t+1}^{\text{Credit}}$	$\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$	$\beta(rx_{i,t}^{\text{Stock}}, \Delta\text{Inflation}_t)$
1	-4.546	-3.301	10.642	0.553	0.211	-4.459	-5.365
	(-4.104)	(-4.481)	(24.122)	(3.205)	(1.627)	(-5.508)	(-1.638)
2	-1.148	-0.125	8.004	0.388	0.079	-0.558	-4.066
	(-2.009)	(-0.479)	(60.385)	(3.681)	(1.471)	(-2.584)	(-1.784)
3	-0.351	0.149	7.742	0.331	0.023	0.062	-3.551
	(-0.708)	(0.764)	(69.995)	(4.290)	(0.676)	(0.266)	(-2.042)
4	0.333	0.502	7.917	0.320	0.020	0.601	-3.047
	(0.698)	(2.278)	(81.638)	(3.788)	(0.398)	(2.131)	(-1.888)
5	2.817	2.831	10.241	0.502	0.210	3.300	-1.027
	(5.432)	(5.259)	(33.147)	(3.647)	(1.772)	(4.751)	(-0.407)
High-Low	7.363***	6.131***	-0.401	-0.051	-0.001	7.760***	4.338***
	(9.662)	(9.019)	(-0.724)	(-0.514)	(-0.014)	(7.494)	(4.288)

likely remains a contributing factor. Third, the main findings that the cross-sectional variation in inflation beta of corporate bond returns is primarily driven by their credit components and a firm's bond inflation beta is positively associated with its stock inflation betas holds generically regardless of the economy's inflation variety.

6.2 Additional Inflation Measures

In the second additional analysis, we use additional inflation measures not only to conduct robustness checks but also to gain further understanding of the underlying economic channels. As discussed in Section 2.2, we consider three additional forward-looking measures—the 10-year TIPS breakeven inflation rate, the MSC inflation forecast, and the BCFF inflation forecast—and two additional realized inflation measures, the PPI and core CPI.

6.2.1 Analyses Using Additional Forward-Looking Inflation Measures

Similar to the inflation swap rate, we take the first differences of the monthly series of the TIPS breakeven inflation rate, the MSC inflation forecast, and the BCFF inflation forecast, as their respective innovation measures. We also follow the same procedures and use the same sample of corporate bond returns as in the main analyses to estimate the inflation betas with respect to the TIPS, MSC, and BCFF.

Panel A of Table 11 provides correlations of the innovations of different inflation measures. We observe that the TIPS breakeven inflation rate has a very high correlation (over 80%) with our main forward-looking measure of inflation, i.e., the inflation swap rate. In contrast, the correlation between the inflation swap rate and the MSC inflation forecast is much lower (0.178) and close to zero for the BCFF inflation forecast.

Panel B of Table 11 presents results of predictive regressions of future bond default frequency and default amount ratios—averaged over the subsequent 12 months—on alternative inflation measures. As shown in columns (1)–(3) and (6)–(8), the regression coefficients are all negative for the TIPS breakeven inflation rate, the MSC inflation forecast, and the BCFF infla-

Table 11. Pairwise Correlations of Inflation Measures and Inflation—Default Relationship

Panel A of this table reports the correlations of the monthly innovations of various inflation measures, including the monthly headline CPI growth and 10-year inflation swap rate used in the main analyses, as well as the monthly core CPI growth, monthly PPI growth, 10-year TIPS breakeven inflation rate, the median expected price change over the next 12 months from the Michigan Surveys of Consumers (MSC), and four-quarter-ahead consensus inflation forecast from the Blue Chip Financial Forecasts (BCFF) used in the additional analyses. Panel B presents results of regressing the average monthly number of bond defaults (columns 1–5) and the average monthly ratio of defaulted bond amounts (columns 6–10) over the next 12 months on the inflation measures this month. Robust t-statistics based on Newey and West (1987) standard errors with the rule-of-thumb bandwidth choice $0.75N^{1/3}$ are reported in parentheses. The sample period extends from July 2004 to March 2022. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

A. Correlations of Monthly Innovations of Inflation Measures

	Headline	Core	PPI	Swap	TIPS	MSC	BCFF
Headline	1.000						
Core	0.319	1.000					
PPI	0.738	0.199	1.000				
Swap	0.486	0.072	0.335	1.000			
TIPS	0.526	0.128	0.462	0.847	1.000		
MSC	0.422	0.098	0.553	0.178	0.310	1.000	
BCFF	0.043	0.039	0.103	0.014	0.149	0.036	1.000

B. Regressions of Bond Defaults on Lagged Inflation Measures

	Number of Bond Defaults					Amount Ratio of Bond Defaults				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
TIPS	-14.065***					-0.236***				
	(-3.471)					(-3.341)				
MSC		-4.894**					-0.078**			
		(-2.478)					(-2.116)			
BCFF			-4.672					-0.112		
			(-0.492)					(-0.630)		
Core				-1.197***					-0.021***	
				(-2.856)					(-2.753)	
PPI					-0.176**					-0.003**
					(-2.220)					(-2.113)
R^2	0.251	0.088	0.005	0.028	0.048	0.235	0.075	0.009	0.028	0.055

tion forecast, consistent with the results for the inflation swap rate reported in Table 3. The statistical significance of the TIPS breakeven inflation rate and the MSC inflation forecast is much stronger than that of the BCFF inflation forecast.

Then, in Table 12, we present the results using the TIPS breakeven inflation rate, which are fairly similar to the main results using the inflation swap rate (as in Tables 4 to 7 and 9). In particular, inflation beta is predominantly positive for the credit component of corporate bond return (from Panel A), the cross-sectional variation in inflation beta is primarily driven by variation in credit excess returns with higher-default-risk bonds exhibiting more pronounced positive inflation betas (from the first three columns of Panel B), inflation beta positively predicts future bond returns in the cross-section with the effect entirely driven by credit excess returns (from the fourth and fifth columns of Panel B), and firms with higher bond inflation betas also tend to have higher stock inflation betas (from the last two columns of Panel B).

Tables 13 and 14 present the analyses using the MSC and BCFF inflation forecasts, respectively. We observe that the results using these two inflation measures are also similar to the main results using the inflation swap rate (as presented in Tables 4 to 7 and 9). The only exception, as shown in Table 14, is that the positive inflation betas and their relationships with credit rating and future returns are less statistically significant; however, the results are qualitatively similar.[37] In sum, the analyses using the three additional forward-looking inflation measures confirm the robustness of our main findings using inflation swap rate.

6.2.2 Analyses Using Additional Measures of Realized Inflation.

Similar to headline CPI, we first compute the monthly growth rates of PPI and core CPI and then construct their innovation series using the ARMA(1,1) model. We also follow the same procedures and use the same sample of corporate bond returns as in the main analyses to estimate the inflation betas with respect to PPI and core CPI.

[37]This observation echoes findings in the literature that survey-based inflation forecasts may exhibit distinct characteristics (Coibion and Gorodnichenko, 2015; Bordalo et al., 2020). We also conduct analyses using the 10-year-ahead inflation forecast from the SPF, which is only available at quarterly frequency. Results are similar to those using the BCFF inflation forecast.

Table 12. Results using the 10-year TIPS Breakeven Inflation Rate

This table presents the levels and cross-sectional variation of inflation betas, as well as credit ratings and bond returns, using our main sample of corporate bond returns. Inflation is measured by the 10-year TIPS breakeven inflation. Panel A reports the time-series average of cross-sectional value-weighted monthly beta estimates (in the row "Mean") for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$). Also reported are "% Positive Month", the fraction of months where the value-weighted beta is positive, and "% Positive Bond-Month", the fraction of bond-month observations with positive individual beta estimates. Panel B presents summaries of the corporate bond quintile portfolios that are sorted by bond excess return inflation beta (using the bond sample in the first five columns) and the firm quintile portfolios that are sorted by firm-level average bond credit component inflation beta (using the bond-stock matched sample in the last two columns). In the first five columns, we report the average of the bond excess return inflation beta ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), the credit component inflation beta ($\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$), bond rating, next-month excess return ($rx_{i,t+1}$), and the credit component of the next-month return ($rx_{i,t+1}^{\text{Credit}}$), for each quintile portfolio. In the last two columns, we report the average bond credit component inflation beta and the average stock inflation beta, for each quintile portfolio. Inflation betas and bond ratings are equally weighted, while returns are value weighted. The "High–Low" row provides the differences between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

A. Level			
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$
Mean	-0.283	5.002***	-5.285***
t-stat	(-0.307)	(7.033)	(-7.826)
% Positive Month	57.2%	94.7%	0.0%
% Positive Bond-Month	47.9%	90.3%	5.4%

B. Cross-Sectional Variation							
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx_{i,t+1}^{\text{Credit}}$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{Inflation}_t\right)$
1	-7.683	0.897	8.057	0.320	0.064	0.199	12.157
	(-4.543)	(0.515)	(14.235)	(1.674)	(0.403)	(0.230)	(4.795)
2	-2.455	2.361	7.885	0.284	0.108	2.697	13.128
	(-2.730)	(4.582)	(37.067)	(2.773)	(1.218)	(4.890)	(5.607)
3	-0.434	3.408	8.556	0.342	0.170	4.540	15.250
	(-0.591)	(7.031)	(187.406)	(3.222)	(2.406)	(6.729)	(5.742)
4	2.288	6.150	10.044	0.589	0.413	7.406	20.382
	(2.641)	(7.306)	(33.767)	(2.928)	(2.994)	(7.294)	(5.913)
5	12.072	16.390	12.804	1.090	0.907	17.309	36.010
	(6.217)	(8.561)	(30.352)	(2.651)	(2.491)	(8.949)	(4.855)
High-Low	19.755***	15.493***	4.747***	0.770**	0.843**	17.110***	23.853***
	(7.174)	(5.541)	(7.082)	(1.997)	(2.314)	(10.278)	(4.333)

Table 13. Results using the MSC Inflation Forecast

This table presents the levels and cross-sectional variation of inflation betas, as well as credit ratings and bond returns, using our main sample of corporate bond returns. Inflation is measured by the median expected price change over the next 12 months reported in the University of Michigan Surveys of Consumers. Panel A reports the time-series average of cross-sectional value-weighted monthly beta estimates (in the row "Mean") for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$). Also reported are "% Positive Month", the fraction of months where the value-weighted beta is positive, and "% Positive Bond-Month", the fraction of bond-month observations with positive individual beta estimates. Panel B presents summaries of the corporate bond quintile portfolios that are sorted by bond excess return inflation beta (using the bond sample in the first five columns) and the firm quintile portfolios that are sorted by firm-level average bond credit component inflation beta (using the bond-stock matched sample in the last two columns). In the first five columns, we report the average of the bond excess return inflation beta ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), the credit component inflation beta ($\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$), bond rating, next-month excess return ($rx_{i,t+1}$), and the credit component of the next-month return ($rx_{i,t+1}^{\text{Credit}}$), for each quintile portfolio. In the last two columns, we report the average bond credit component inflation beta and the average stock inflation beta, for each quintile portfolio. Inflation betas and bond ratings are equally weighted, while returns are value weighted. The "High–Low" row provides the differences between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

	A. Level						
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$				
Mean	0.384	1.413***	-1.029***				
t-stat	(1.294)	(5.505)	(-4.238)				
% Positive Month	56.7%	81.8%	15.0%				
% Positive Bond-Month	55.1%	72.2%	22.0%				
	B. Cross-Sectional Variation						
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx_{i,t+1}^{\text{Credit}}$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{Inflation}_t\right)$
1	-4.012	-2.402	9.494	0.357	0.140	-1.182	0.592
	(-3.110)	(-2.320)	(22.990)	(1.876)	(1.030)	(-5.700)	(0.742)
2	-0.793	0.272	8.240	0.294	0.111	0.399	1.358
	(-2.270)	(1.983)	(51.083)	(2.641)	(1.393)	(2.462)	(2.082)
3	0.073	0.899	8.371	0.333	0.156	1.209	1.947
	(0.235)	(5.435)	(110.227)	(3.271)	(2.167)	(5.430)	(2.720)
4	1.273	2.082	9.184	0.515	0.314	2.386	2.866
	(3.570)	(6.560)	(43.607)	(3.096)	(2.794)	(5.896)	(3.566)
5	5.757	6.413	11.808	1.146	0.929	6.924	5.542
	(6.015)	(6.297)	(21.476)	(2.760)	(2.468)	(6.383)	(4.839)
High-Low	9.769***	8.815***	2.314***	0.790**	0.790**	8.106***	4.951***
	(5.215)	(4.705)	(4.856)	(2.399)	(2.456)	(7.714)	(7.007)

Table 14. Results using the BCFF Inflation Forecast

This table reports the levels of inflation betas, as well as cross-sectional variation of inflation betas, ratings, and returns, using our main sample of corporate bond returns and the consensus forecast of the four-quarter-ahead inflation from Blue Chip Financial Forecasts (BCFF) as the inflation measure. Panel A reports the time-series average of cross-sectional value-weighted monthly beta estimates (in the row "Mean") for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$). Also reported are "% Positive Month", the fraction of months where the value-weighted beta is positive, and "% Positive Bond-Month", the fraction of bond-month observations with positive individual beta estimates. Panel B presents summaries of the corporate bond quintile portfolios that are sorted by bond excess return inflation beta (using the bond sample in the first five columns) and the firm quintile portfolios that are sorted by firm-level average bond credit component inflation beta (using the bond-stock matched sample in the last two columns). In the first five columns, we report the average of the bond excess return inflation beta ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), the credit component inflation beta ($\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$), bond rating, next-month excess return ($rx_{i,t+1}$), and the credit component of the next-month return ($rx_{i,t+1}^{\text{Credit}}$), for each quintile portfolio. In the last two columns, we report the average bond credit component inflation beta and the average stock inflation beta, for each quintile portfolio. Inflation betas and bond ratings are equally weighted, while returns are value weighted. The "High–Low" row provides the differences between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

A. Level

	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$
Mean	2.246	2.608	-0.362
t-stat	(0.712)	(0.870)	(-0.204)
% Positive Month	54.5%	64.7%	46.0%
% Positive Bond-Month	45.9%	53.7%	39.3%

B. Cross-Sectional Variation

	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx_{i,t+1}^{\text{Credit}}$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{Inflation}_t\right)$
1	-15.786	-13.743	10.236	0.425	0.201	-11.348	-1.979
	(-3.675)	(-2.511)	(17.145)	(2.029)	(0.946)	(-3.019)	(-0.341)
2	-2.933	-2.080	8.840	0.260	0.087	-1.845	1.110
	(-1.243)	(-0.816)	(21.415)	(2.294)	(0.698)	(-0.750)	(0.222)
3	1.883	1.929	8.472	0.358	0.180	1.732	2.853
	(0.712)	(0.825)	(77.096)	(2.828)	(2.142)	(0.710)	(0.588)
4	6.594	6.033	8.803	0.550	0.336	5.368	5.806
	(1.754)	(1.741)	(26.449)	(2.443)	(2.203)	(1.781)	(1.200)
5	21.260	20.046	10.852	0.963	0.746	16.484	14.820
	(2.739)	(2.596)	(14.673)	(2.027)	(1.811)	(3.386)	(3.250)
High-Low	37.046***	33.789***	0.616	0.538	0.545	27.832***	16.800***
	(4.595)	(3.930)	(0.518)	(0.980)	(1.068)	(7.078)	(7.968)

From columns (4)–(5) and (9)–(10) in Panel B of Table 11, we observe that both PPI and core CPI growth rates significantly and negatively affect future bond defaults, consistent with the results for headline CPI growth in Table 3. The regression R^2 using PPI growth is similar to that using headline CPI growth (4.8–5.5%), whereas the R^2 for core CPI growth is notably lower, at around 2.8%. Furthermore, Panel A shows that the innovation in PPI growth is highly correlated with that of headline CPI growth (approximately 74%), while the correlation between innovations in core and headline CPI growth rates is only about 32%.

Table 15 presents the analyses using PPI. We observe that all the key facts we document in the main analyses using headline CPI remain valid using PPI. For example, as seen from Panel A, inflation beta is predominantly positive for the credit component of corporate bond return. Moreover, as seen from Panel B, the cross-sectional variation in inflation beta, the effect of inflation beta on future bond returns in the cross section, and the cross-sectional positive relationship between bond and stock inflation betas also holds.

Table 16 presents the analyses using core CPI. We observe that the cross-sectional variation in inflation beta is primarily driven by variation in credit excess returns (from the first two columns of Panel B) and the bond and stock inflation betas are positively associated (from the last two columns of Panel B), similar to the results using headline CPI and PPI. However, we also observe some differences: in particular, inflation betas with respect to core CPI of credit excess returns tend to be on the negative side (from the second column of Panel A), higher-default risk bonds do not exhibit more pronounced positive inflation betas (the third column of Panel B), and the statistical significance of the effect of inflation beta on future bond returns is weaker (the fourth and fifth columns of Panel B).[38,39]

In sum, these analyses using the two additional measures of realized inflation broadly con-

[38] Consistent with the differences in the results using core CPI versus headline CPI, we find, in Appendix A.10, that the results using energy CPI are more similar to those using headline CPI.

[39] Some of these differences may depend on the approach used to construct the innovations of core CPI, possibly because core CPI is highly persistent. In Appendix A.6, we conduct additional analyses by constructing the innovation series using a VAR model following Fang et al. (2024). Indeed, we find that the inflation betas of credit excess returns with respect to core CPI tend to be positive, and bonds with higher default risk exhibit more pronounced positive inflation betas—similar to the results based on headline CPI and PPI—although the statistical significance is weaker (see Panel B of Tables A.9 and A.10).

Table 15. Results using the PPI

This table reports the levels of inflation betas, as well as cross-sectional variation of inflation betas, ratings, and returns, using our main sample of corporate bond returns and the Producer Price Index (PPI) as the inflation measure. Panel A reports the time-series average of cross-sectional value-weighted monthly beta estimates (in the row "Mean") for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$). Also reported are "% Positive Month", the fraction of months where the value-weighted beta is positive, and "% Positive Bond-Month", the fraction of bond-month observations with positive individual beta estimates. Panel B presents summaries of the corporate bond quintile portfolios that are sorted by bond excess return inflation beta (using the bond sample in the first five columns) and the firm quintile portfolios that are sorted by firm-level average bond credit component inflation beta (using the bond-stock matched sample in the last two columns). In the first five columns, we report the average of the bond excess return inflation beta ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), the credit component inflation beta ($\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$), bond rating, next-month excess return ($rx_{i,t+1}$), and the credit component of the next-month return ($rx_{i,t+1}^{\text{Credit}}$), for each quintile portfolio. In the last two columns, we report the average bond credit component inflation beta and the average stock inflation beta, for each quintile portfolio. Inflation betas and bond ratings are equally weighted, while returns are value weighted. The "High–Low" row provides the differences between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

A. Level			
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$
Mean	-0.024	0.393***	-0.417***
t-stat	(-0.338)	(3.411)	(-5.206)
% Positive Month	53.5%	80.2%	7.5%
% Positive Bond-Month	43.0%	70.4%	10.8%

B. Cross-Sectional Variation							
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx_{i,t+1}^{\text{Credit}}$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{Inflation}_t\right)$
1	-0.987	-0.323	8.808	0.306	0.048	-0.219	0.201
	(-6.072)	(-2.214)	(15.254)	(1.556)	(0.268)	(-2.718)	(0.754)
2	-0.281	0.111	8.152	0.285	0.108	0.142	0.455
	(-5.816)	(1.467)	(31.481)	(2.923)	(1.233)	(1.625)	(3.025)
3	-0.048	0.264	8.516	0.336	0.153	0.355	0.65
	(-0.924)	(2.710)	(234.893)	(2.970)	(2.068)	(2.889)	(3.970)
4	0.267	0.569	9.561	0.497	0.324	0.675	0.944
	(2.542)	(3.504)	(30.769)	(2.914)	(2.949)	(3.713)	(4.192)
5	1.47	1.793	12.179	1.157	0.977	1.872	2.295
	(4.776)	(5.290)	(22.249)	(2.568)	(2.430)	(6.678)	(4.372)
High-Low	2.456***	2.116***	3.371***	0.852*	0.928**	2.091***	2.093***
	(5.907)	(5.227)	(3.959)	(1.795)	(2.042)	(9.112)	(4.965)

Table 16. Results using the Core CPI

This table reports the levels of inflation betas, as well as cross-sectional variation of inflation betas, ratings, and returns, using our main sample of corporate bond returns and the core CPI as the inflation measure. Panel A reports the time-series average of cross-sectional value-weighted monthly beta estimates (in the row "Mean") for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$). Also reported are "% Positive Month", the fraction of months where the value-weighted beta is positive, and "% Positive Bond-Month", the fraction of bond-month observations with positive individual beta estimates. Panel B presents summaries of the corporate bond quintile portfolios that are sorted by bond excess return inflation beta (using the bond sample in the first five columns) and the firm quintile portfolios that are sorted by firm-level average bond credit component inflation beta (using the bond-stock matched sample in the last two columns). In the first five columns, we report the average of the bond excess return inflation beta ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), the credit component inflation beta ($\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$), bond rating, next-month excess return ($rx_{i,t+1}$), and the credit component of the next-month return ($rx_{i,t+1}^{\text{Credit}}$), for each quintile portfolio. In the last two columns, we report the average bond credit component inflation beta and the average stock inflation beta, for each quintile portfolio. Inflation betas and bond ratings are equally weighted, while returns are value weighted. The "High–Low" row provides the differences between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

	A. Level		
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$
Mean	-2.346***	-2.178*	-0.168
t-stat	(-2.630)	(-1.746)	(-0.173)
% Positive Month	21.9%	26.7%	35.8%
% Positive Bond-Month	35.6%	37.1%	40.2%

	B. Cross-Sectional Variation						
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx_{i,t+1}^{\text{Credit}}$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{Inflation}_t\right)$
1	-20.313	-18.953	11.000	0.427	0.190	-11.404	-10.315
	(-2.991)	(-2.742)	(17.187)	(1.631)	(0.772)	(-3.948)	(-4.492)
2	-5.278	-4.397	8.841	0.348	0.139	-3.631	-2.187
	(-3.723)	(-3.178)	(35.119)	(2.456)	(1.178)	(-3.011)	(-1.961)
3	-1.678	-1.651	8.276	0.305	0.129	-1.152	-0.751
	(-2.759)	(-2.120)	(111.038)	(3.183)	(1.663)	(-1.314)	(-0.826)
4	1.193	0.647	8.525	0.436	0.264	1.656	0.871
	(2.042)	(0.783)	(35.969)	(2.893)	(2.704)	(1.418)	(0.994)
5	10.955	9.667	10.592	0.958	0.763	11.426	8.446
	(3.808)	(2.980)	(16.313)	(2.547)	(2.373)	(3.345)	(2.966)
High-Low	31.268***	28.621***	-0.409	0.531	0.573	22.830***	18.762***
	(3.368)	(3.104)	(-0.397)	(1.187)	(1.366)	(4.922)	(11.277)

firm the robustness of our main findings. Perhaps more interestingly, the contrast in the significance of the positive inflation betas and their relationships with credit rating and future return—when using core CPI versus PPI—suggests that the effects of inflation risk on corporate bond returns likely operate through channels related to firm production, representing a promising direction for future research.[40]

7 Conclusion

In this paper, we document the first set of key facts about the systematic inflation risk exposures of individual corporate bonds within standard portfolio frameworks. We find that, from 2004 to 2002, (1) inflation betas of credit excess returns (relative to duration-matched Treasury returns) are uniformly positive, in striking contrast to the findings in the literature using standard excess returns (relative to T-bill rates); (2) The cross-sectional variation in the inflation beta of corporate bond returns is primarily driven by that of credit excess returns, with higher-default-risk bonds exhibiting more pronounced positive inflation betas; (3) Inflation beta affects future bond returns positively in the cross-section, and this effect is driven entirely by credit excess returns; (4) Firms with higher bond inflation betas also tend to have higher stock inflation betas.

Our results are essential for understanding the systematic inflation risk exposures of different corporate bond, beyond what could be indirectly inferred from the impact of inflation on credit spreads based on standard structural frameworks. In particular, our findings not only document the essential role of the negative relationship between inflation and default in driving corporate bond returns, but also offer guidance for future theoretical developments. Our results also inform portfolio management in practice—particularly in addressing growing concerns about inflation risk since 2021.

Given that our analyses focus on the most fundamental aspects of systematic inflation risk exposures of individual corporate bonds within standard portfolio frameworks, we view our results as a starting point for a broader set of fruitful future investigations. For instance, our

[40]Along this direction, we conduct analyses, in Appendix A.11, to understand the distribution of high- and low-inflation-beta bonds across industries.

findings indicate that the variation in inflation exposure across bonds is primarily driven by the credit component, suggesting that future research could further explore how inflation differentially impacts firms' business——such as production costs and revenues——and, consequently, their default risk. Moreover, while our additional analyses provide appealing contrasts between the pre-2004 and post-2004 periods, the number of distinct inflation regimes remains limited. To address this, future work could examine inflation risk and corporate bonds in international markets, where greater variation in the inflation—-default relationship is likely to be observed. Additionally, as longer samples become available in the coming years, a comprehensive study of the full post-2000 inflation period should yield valuable new insights.

References

Acharya, V. V., Y. Amihud, and S. T. Bharath (2013). Liquidity risk of corporate bond returns: conditional approach. *Journal of Financial Economics 110*(2), 358–386.

Ajello, A., L. Benzoni, and O. Chyruk (2019). Core and “Crust”: Consumer Prices and the Term Structure of Interest Rates. *Review of Financial Studies 33*(8), 3719–3765.

Ang, A., G. Bekaert, and M. Wei (2008). The term structure of real rates and expected inflation. *The Journal of Finance 63*(2), 797–849.

Ang, A., M. Brière, and O. Signori (2012). Inflation and individual equities. *Financial Analysts Journal 68*(4), 36–55.

Ang, A., R. J. Hodrick, Y. Xing, and X. Zhang (2006). The cross-section of volatility and expected returns. *Journal of Finance 61*(1), 259–299.

Ang, A. and M. Piazzesi (2003). A no-arbitrage vector autoregression of term structure dynamics with macroeconomic and latent variables. *Journal of Monetary Economics 50*(4), 745–787.

Asvanunt, A. and S. Richardson (2017). The credit risk premium. *Journal of Fixed Income 26*(3), 6–24.

Augustin, P., L. F. Cong, A. Corhay, and M. Weber (2024). Price rigidities and credit risk. *Chicago Booth Research Paper No. 21-14.*

Bai, J., T. G. Bali, and Q. Wen (2019). Retracted: Common risk factors in the cross-section of corporate bond returns. *Journal of Financial Economics 131*(3), 619–642.

Bali, T. G., A. Subrahmanyam, and Q. Wen (2023). The macroeconomic uncertainty premium in the corporate bond market—corrigendum. *Journal of Financial and Quantitative Analysis 58*(7), 3195–3200.

Bank for International Settlements (2016). Electronic trading in fixed income markets. *Report submitted by a Study Group established by the Markets Committee and chaired by Joachim Nagel (Deutsche Bundesbank).*

Bao, J. and K. Hou (2017). De Facto Seniority, Credit Risk, and Corporate Bond Prices. *Review of Financial Studies 30*(11), 4038–4080.

Bao, J., J. Pan, and J. Wang (2011). The illiquidity of corporate bonds. *Journal of Finance 66*(3), 911–946.

Bekaert, G. and X. Wang (2010). Inflation risk and the inflation risk premium. *Economic Policy 25*(64), 755–806.

Bhamra, H. S., C. Dorion, A. Jeanneret, and M. Weber (2022). High Inflation: Low Default Risk and Low Equity Valuations. *Review of Financial Studies 36*(3), 1192–1252.

Bhamra, H. S., A. J. Fisher, and L.-A. Kuehn (2011). Monetary policy and corporate default. *Journal of Monetary Economics 58*(5), 480–494.

Binder, C. and R. Kamdar (2022). Expected and realized inflation in historical perspective. *Journal of Economic Perspectives 36*(3), pp. 131–156.

Binsbergen, J. v., Y. Nozawa, and M. Schwert (2025). Duration-based valuation of corporate bonds. *The Review of Financial Studies 38*(1), 158–191.

Bonelli, D., B. Palazzo, and R. Yamarthy (2024). Good inflation, bad inflation: Implications for risky asset prices. *working paper*.

Boons, M., F. Duarte, F. De Roon, and M. Szymanowska (2020). Time-varying inflation risk and stock returns. *Journal of Financial Economics 136*(2), 444–470.

Bordalo, P., N. Gennaioli, Y. Ma, and A. Shleifer (2020). Overreaction in macroeconomic expectations. *American Economic Review 110*(9), 2748–82.

Boudoukh, J. and M. Richardson (1993). Stock returns and inflation: A long-horizon perspective. *American Economic Review 83*(5), 1346–1355.

Breach, T., S. D'Amico, and A. Orphanides (2020). The term structure and inflation uncertainty. *Journal of Financial Economics 138*(2), 388–414.

Campbell, J., R. Shiller, and L. Viceira (2009). Understanding inflation-indexed bond markets. *Brookings Papers on Economic Activity 40*(1 (Spring)), 79–138.

Campbell, J. Y., C. Pflueger, and L. M. Viceira (2020). Macroeconomic drivers of bond and equity risks. *Journal of Political Economy 128*(8), 3148–3185.

Ceballos, L. (2022). Inflation volatility risk and the cross-section of corporate bond returns. *working paper*.

Chaudhary, M. and B. Marrow (2024). Inflation expectations and stock returns. *working paper*.

Chen, N.-F., R. Roll, and S. A. Ross (1986). Economic forces and the stock market. *Journal of Business 59*(3), 383–403.

Chen, Q. and J. Choi (2024). Reaching for yield and the cross section of bond returns. *Management Science 70*(8), 5226–5245.

Christensen, J. H. E., J. A. Lopez, and G. D. Rudebusch (2010). Inflation expectations and risk premiums in an arbitrage-free model of nominal and real bond yields. *Journal of Money, Credit and Banking 42*(s1), 143–178.

Chung, K. H., J. Wang, and C. Wu (2019). Volatility and the cross-section of corporate bond returns. *Journal of Financial Economics 133*(2), 397–417.

Cieslak, A. and C. Pflueger (2023). Inflation and asset returns. *Annual Review of Financial Economics 15*, 433–448.

Coibion, O. and Y. Gorodnichenko (2015). Information rigidity and the expectations formation process: A simple framework and new facts. *American Economic Review 105*(8), 2644–78.

Collin-Dufresne, P., R. S. Goldstein, and S. Martin (2001). The determinants of credit spread changes. *Journal of Finance 56*(6), 2177–2207.

Corhay, A. and Tong (2025). Inflation risk and the finance-growth nexus. *Review of Economic Studies forthcoming.*

D'Acunto, F., U. Malmendier, and M. Weber (2023). Chapter 5 - what do the data tell us about inflation expectations? In R. Bachmann, G. Topa, and W. van der Klaauw (Eds.), *Handbook of Economic Expectations*, pp. 133–161. Academic Press.

D'Amico, S., D. H. Kim, and M. Wei (2018). Tips from tips: The informational content of treasury inflation-protected security prices. *Journal of Financial and Quantitative Analysis 53*(1), 395–436.

D'Amico, S. and T. King (2023). One asset does not fit all: Inflation hedging by index and horizon. *Working Papers, No. 2023-08 Federal Reserve Bank of Chicago.*

DeFiore, F., P. Teles, and O. Tristani (2011). Monetary policy and the financing of firms. *American Economic Journal: Macroeconomics 3*(4), 112–42.

Dick-Nielsen, J. (2014). How to clean enhanced trace data. Working paper.

Dick-Nielsen, J., P. Feldhütter, L. H. Pedersen, and C. Stolborg (2023). Corporate bond factors: Replication failures and a new framework. *Copenhagen Business School Working Paper*.

Dickerson, A., P. Mueller, and C. Robotti (2023). Priced risk in corporate bonds. *Journal of Financial Economics 150*(2).

Dickerson, A., C. Robotti, and G. Rossetti (2024). Common pitfalls in the evaluation of corporate bond strategies. *Working Paper*.

Elkamhi, R., C. Jo, and Y. Nozawa (2024). A one-factor model of corporate bond premia. *Management Science 70*(3), 1875–1900.

Elton, E. J., M. J. Gruber, D. Agrawal, and C. Mann (2001). Explaining the rate spread on corporate bonds. *Journal of Finance 56*(1), 247–277.

Fama, E. F. and K. R. French (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics 33*(1), 3–56.

Fama, E. F. and M. R. Gibbons (1984). A comparison of inflation forecasts. *Journal of Monetary Economics 13*(3), 327–348.

Fama, E. F. and J. D. MacBeth (1973). Risk, return, and equilibrium: Empirical tests. *Journal of Political Economy 81*(3), 607–636.

Fama, E. F. and G. Schwert (1977). Asset returns and inflation. *Journal of Financial Economics 5*(2), 115–146.

Fang, X., Y. Liu, and N. Roussanov (2024). Getting to the core: Inflation risks within and across asset classes. *Review of Financial Studies forthcoming*.

Feldhütter, P. and S. M. Schaefer (2018). The myth of the credit spread puzzle. *Review of Financial Studies 31*(8), 2897–2942.

Fisher, I. (1933). The debt-deflation theory of great depressions. *Econometrica 1*(4), 337–357.

Fleckenstein, M., F. A. Longstaff, and H. Lustig (2014). The tips-treasury bond puzzle. *Journal of Finance 69*(5), 2151–2197.

Gebhardt, W. R., S. Hvidkjaer, and B. Swaminathan (2005). The cross-section of expected corporate bond returns: Betas or characteristics? *Journal of Financial Economics 75*(1), 85–114.

Gomes, J., U. Jermann, and L. Schmid (2016). Sticky leverage. *American Economic Review 106*(12), 3800–3828.

Gürkaynak, R. S., B. Sack, and J. H. Wright (2007). The U.S. Treasury yield curve: 1961 to the present. *Journal of Monetary Economics 54*(8), 2291–2304.

Haubrich, J., G. Pennacchi, and P. Ritchken (2012). Inflation Expectations, Real Rates, and Risk Premia: Evidence from Inflation Swaps. *Review of Financial Studies 25*(5), 1588–1629.

He, Z., P. Khorrami, and Z. Song (2022). Commonality in Credit Spread Changes: Dealer Inventory and Intermediary Distress. *Review of Financial Studies 35*(10), 4630–4673.

He, Z., S. Nagel, and Z. Song (2022). Treasury inconvenience yields during the covid-19 crisis. *Journal of Financial Economics 143*, 57–79.

Hong, C. Y., J. Pan, J. Liu, and S. Tian (2025). Inflation forecasting from cross-sectional stocks. Working paper.

Houweling, P. and J. van Zundert (2017). Factor investing in the corporate bond market. *Financial Analysts Journal 73*(2), 100–115.

Hu, G. X., J. Pan, and J. Wang (2013). Noise as information for illiquidity. *Journal of Finance 68*(6), 2341–2382.

Huang, J.-Z. and M. Huang (2012). How much of the corporate-treasury yield spread is due to credit risk? *Review of Asset Pricing Studies 2*(2), 153–202.

Huang, J.-Z. and Z. Shi (2021). What do we know about corporate bond returns? *Annual Review of Financial Economics 13*, 363–399.

Israel, R., D. Palhares, and S. Richardson (2018). Common factors in corporate bond returns. *Journal of Investment Management 16*(2), 17–46.

Jostova, G., S. Nikolova, and A. Philipov (2024). Data uncertainty in corporate bonds. *working paper*.

Kang, J. and C. E. Pflueger (2015). Inflation risk in corporate bonds. *Journal of Finance 70*(1), 115–162.

Kelly, B., D. Palhares, and S. Pruitt (2023). Modeling corporate bond returns. *Journal of Finance 78*(4), 1967–2008.

Krishnamurthy, A. and A. Vissing-Jorgensen (2012). The aggregate demand for treasury debt. *Journal of Political Economy 120*(2), 233–267.

Lin, H., J. Wang, and C. Wu (2011). Liquidity risk and expected corporate bond returns. *Journal of Financial Economics 99*, 628–650.

Lintner, J. (1975). Inflation and security returns. *Journal of Finance 30*(2), 259–280.

Longstaff, F. A., S. Mithal, and E. Neis (2005). Corporate yield spreads: Default risk or liquidity? new evidence from the credit default swap market. *Journal of Finance 60*(5), 2213–2253.

Longstaff, F. A. and E. S. Schwartz (1995). A simple approach to valuing risky fixed and floating rate debt. *Journal of Finance 50*(3), 789–819.

Merton, R. (1974). On the pricing of corporate debt: The risk structure of interest rates. *Journal of Finance 29*(2), 449–70.

Newey, W. K. and K. D. West (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica 55*(3), 703–708.

Pflueger, C. (2025). Back to the 1980s or not? the drivers of inflation and real risks in treasury bonds. *Journal of Financial Economics 167*, 104–027.

Schaefer, S. M. and I. A. Strebulaev (2008). Structural models of credit risk are useful: Evidence from hedge ratios on corporate bonds. *Journal of Financial Economics 90*(1), 1–19.

Song, D. (2017). Bond Market Exposures to Macroeconomic and Monetary Policy Risks. *Review of Financial Studies 30*(8), 2761–2817.

U.S. SEC (1992). The corporate bond markets: Structure, pricing and trading. *U.S. Securities and Exchange Commission: Division of Market Regulation Washington, D.C.*

Wachter, J. A. (2006). A consumption-based model of the term structure of interest rates. *Journal of Financial Economics 79*(2), 365–399.

Internet Appendix for
"Inflation, Default, and Corporate Bond Returns"

In this appendix, we provide details of data and measures, and also conduct robustness checks and further analyses.

A.1 TRACE Data Cleaning and Filtering

In Panel A of Table A.1, we outline the detailed, step-by-step cleaning process of corporate bond transactions from the TRACE dataset, covering the period from July 2002 to March 2022. For each step, we report the remaining number of bonds (CUSIPs) and transactions after the cleaning is completed. The cleaning procedure is based on information contained in the TRACE data, as well as data obtained by matching with the Mergent Fixed Income Securities Database (FISD). The resulting sample comprises approximately 18 million transactions across 49,922 unique bonds.

Based on this cleaned sample of corporate bond transactions, we construct a sample of monthly corporate bond returns. In Panel B of Table A.1, we outline the detailed, step-by-step procedures used to compute monthly returns of individual corporate bonds. We not only compute the standard excess return but also decompose it into the credit and duration components. To align with the availability of inflation swap data, we use the sample starting from July 2004. The resulting sample includes 1,123,777 bond-month observations, covering a total of 33,209 unique bonds (the summary statistics of this sample are reported in Table 1). Finally, we restrict the sample to ensure valid estimation of inflation betas, resulting in 523,204 bond-month observations covering 13,786 unique bonds (the summary statistics of this sample are reported Panel A of Table A.2).

A.2 Bond Samples with Inflation Betas and Matched Stocks

In Panel A of Table A.2, we present the summary statistics for the sample of monthly corporate bond returns with valid inflation beta estimates. As discussed in Section 3, this sample is smaller than the one reported in Table 1 due to the additional restrictions required for valid beta estimation. Specifically, we observe that the number of bonds and bond-month observations are 13,786 and 523,204, respectively, whereas the sample summarized in Table 1 includes 33,209 bonds and 1,123,777 bond-month observations. Nevertheless, the characteristics of the two samples are quite comparable. For example, the mean excess return, credit component, and duration component are 0.51%, 0.34%, and 0.17%, respectively, in Panel A of Table A.2, compared to 0.52%, 0.35%, and 0.18%, respectively, in Table 1.

Moreover, in Section 5, we match the total sample of monthly corporate bond returns with valid inflation beta estimates (as summarized in Panel A of Table A.2) to the CRSP stock data. In Panel B of Table A.2, we present summary statistics for the sample of corporate bond returns with matched stocks. Among the 13,786 bonds and 523,204 bond-month observations in the total sample, we are able to find matched stocks for 11,286 bonds and 425,247 bond-month observations. The characteristics of this matched sample remain largely similar to those of the total sample.

A.3 Robustness to Call Options

The TRACE sample of corporate bonds we use in the main analyses contains bonds with call options, which may affect bond prices and returns. To check the robustness of our main findings to call options, we exclude bonds with conversion, put, or fixed-price call options, but similar to Bao et al. (2011), we retain bonds with make-whole call options because these options have negligible effects.

Tables A.3 and A.4 present the results using this sample, which are quite similar to the main results. Specifically, inflation beta is predominantly positive for the credit component of corporate bond return (from Panel A), the cross-sectional variation in inflation beta is primarily driven by variation in credit excess returns with higher-default-risk bonds exhibiting more positive inflation betas (from the first three columns of Panel B), inflation beta positively predicts future bond returns in the cross-section with the effect entirely driven by credit excess returns (from the fourth and fifth columns of Panel B), and firms with higher bond inflation betas also tend to have higher stock inflation betas (from the last two columns of Panel B).

A.4 Duration-Matched Returns

In this section, we first briefly discuss the computation of a corporate bond's duration-matched Treasury return, which follows the approach of Binsbergen et al. (2025) based on the concept of Macaulay duration. We then conduct robustness checks by computing a corporate bond's duration-matched return using interest rate swaps.

Duration-Matched Treasury Returns. Specifically, consider a corporate bond i at the end of month t, with the annual coupon rate C paid at semiannual frequency and time to maturity τ. Let K_τ be the total number of coupon payments and t_k be the time between t and the time of the k-th coupon payment (by default, $t_{K_\tau} = \tau$). The Macaulay duration of the bond is equal to

$$D_{i,t} = \frac{1}{P_{i,t}} \left[\sum_{k=1}^{K_\tau} \frac{C/2}{\left(1+Y_{i,t}/2\right)^{2t_k}} \times t_k + \frac{1}{\left(1+Y_{i,t}/2\right)^{2\tau}} \times \tau \right], \tag{A.1}$$

where $P_{i,t}$ is the price and $Y_{i,t}$ is the yield to maturity of the corporate bond.

Note that the Macaulay duration can be interpreted as the weighted average time it takes to receive all cash flows, with the weight equal to the cash flow discounted by the bond's yield to maturity. Accordingly, this weight is used to aggregate the returns of the individual zero-coupon Treasury bonds into the duration-matched Treasury return,

$$r^{Dur}_{i,t+1} = \frac{1}{P_{i,t}} \left[\sum_{k=1}^{K_\tau} \frac{C/2}{\left(1+Y_{i,t}/2\right)^{2t_k}} \times r_{zc,t+1,t_k} + \frac{1}{\left(1+Y_{i,t}/2\right)^{2\tau}} \times r_{zc,t+1,\tau} \right], \tag{A.2}$$

where $r_{zc,t+1,t_k}$ is the monthly simple return on the k-th zero-coupon Treasury bond corresponding to the corporate bond's k-th coupon payment:

$$r_{zc,t+1,t_k} = \frac{P_{zc,t+1,t_k-1}}{P_{zc,t,t_k}} - 1, \tag{A.3}$$

where P_{zc,t,t_k} is the (end of) month-t price of the synthetic zero-coupon Treasury bond with a time to maturity of t_k years, computed using the Treasury yield curve of Gürkaynak et al. (2007).

Duration-matched return using interest rate swaps. As discussed in Section 2.1, we compute the duration-matched return $r^{Tsy}_{i,t}$ for corporate bond i in month t using the Treasury yield curve of Gürkaynak et al. (2007). One potential concern with using the Treasury yield curve to measure the return component associated with duration risk is that Treasury securities have been shown to carry convenience premiums due to their role as safe assets (Krishnamurthy and Vissing-Jorgensen, 2012). Moreover, it has also been documented that long-term Treasury securities may also suffer from inconvenience discounts in market stress (He, Nagel, and Song, 2022). These components are beyond the returns due to duration risk and may confound the decomposition of corporate bond excess return into the duration and credit components.

To address this concern, we compute the duration-matched returns using interest rate swaps (IRS), which are little affected by the convenience premiums or inconvenience discounts. Specifically, we obtain monthly series of standard IRS rates from Bloomberg. We follow the procedure in Gürkaynak et al. (2007) to compute the zero-coupon yields based on the IRS rates, based on which we use the same procedure discussed in Section 2.1 to compute the duration-matched return for each corporate bond in each month.

Tables A.5 and A.6 present the analyses using the IRS-based duration matching. The results are similar to the main analyses (as presented in Tables 5 to 7 and 9). In particular, inflation beta is predominantly positive for the credit component of corporate bond return (from Panel A), the cross-sectional variation in inflation beta is primarily driven by variation in credit excess returns with higher-default-risk bonds exhibiting more pronounced positive inflation betas (from the first three columns of Panel B), inflation beta positively predicts future bond returns in the cross-section with the effect entirely driven by credit excess returns (from the fourth and fifth columns of Panel B), and firms with higher bond inflation betas also tend to have higher stock inflation betas (from the last two columns of Panel B).

A.5 Results using Credit Default Swaps

To mitigate concerns on the the infrequent trading and illiquidity of corporate bonds, we conduct analyses using credit default swaps (CDS) in this section. As insurance contracts tied to default events of firms, CDS capture the pricing of default risk. Moreover, they are traded more frequently by institutional investors (e.g., hedge funds, banks, insurance companies, and so on) and less susceptible to illiquidity issues (Longstaff et al., 2005).

We obtain monthly CDS quotes on individual U.S. corporations denominated in U.S. dollars from Markit from July 2004 to March 2022. We mainly use 5-year CDS contracts with modified restructuring (MR) clauses, which are the most frequently traded. We also match the CDS data with equity information from CRSP.

For each firm i and each month t in our CDS sample, we compute the price ($P_{i,t}$) of a synthetic five-year zero-coupon corporate bond using the corresponding CDS spread. We then compute the month $t+1$ price of this synthetic bond ($P_{i,t+1}$), which has a remaining time to maturity of four years and eleven months.[41] Finally, we compute the monthly gross return of this synthetic corporate bond as $(P_{i,t+1} - P_{i,t})/P_{i,t}$.

Tables A.7 and A.8 report the results using these CDS-implied corporate bond returns, which are quite similar to the main results (as presented in Tables 5 to 7 and 9). In particular, as shown in Table A.7, inflation beta is predominantly positive for the credit component of corporate bond return. In terms of the cross-sectional analysis, we have little cross-sectional variation in the duration component of the bond excess return given that we use 5-year CDS contracts. Hence, we focus on credit excess returns. As shown in Table A.8, the findings closely resemble those in the main analyses. Specifically, we observe large cross-sectional variation in inflation beta, with lower-rating bonds exhibiting more pronounced positive inflation betas. Moreover, inflation beta positively affects future credit excess return. Finally, firms with higher bond inflation betas also tend to have higher stock inflation betas.

[41] We linearly interpolate the four-year and five-year CDS spread in month $t+1$ to obtain the CDS spread of four-years and eleven months.

A.6 VAR-Based Inflation Innovations

In our baseline analysis, we construct the innovation series of monthly CPI growth using the ARMA(1,1) model. In this section, we conduct robustness checks using VAR-based inflation innovations, similar to Fang et al. (2024). In particular, we consider the following VAR system:

$$Y_t = c + AY_{t-1} + \varepsilon_t,$$

where Y_t includes the vector of core, food, and energy inflation, plus the risk-free rate, price-dividend ratio of the aggregate stock market portfolio, and the output gap. The first three elements of ε_t are extracted as the innovations to the three inflation variables in the vector of Y_t. We also obtain the innovation to headline inflation by regressing it on Y_t. We then replicate our baseline analysis using these VAR-based innovations for headline and core CPI growth, examining both the levels of inflation betas and their cross-sectional variation.

Tables A.9 and A.10 report the corresponding results. For headline CPI growth, the results based on VAR innovations closely resemble those obtained using the ARMA(1,1) residuals (as presented in Tables 5 to 7 and 9). In particular, inflation beta is predominantly positive for the credit component of corporate bond return (Panel A of Table A.9), the cross-sectional variation in inflation beta is primarily driven by variation in credit excess returns with higher-default-risk bonds exhibiting more pronounced positive inflation betas (from the first three columns of Panel A of Table A.10), inflation beta positively predicts future bond returns in the cross-section with the effect entirely driven by credit excess returns (from the fourth and fifth columns of Panel A of Table A.10), and firms with higher bond inflation betas also tend to have higher stock inflation betas (from the last two columns of Panel A of Table A.10).

For core CPI growth, the results based on VAR innovations show some minor differences. In particular, the inflation beta for the credit component of corporate bond returns is close to zero, in contrast to the marginally significant estimate of –2.178 (t-stat = –1.746) reported in Table 16. This result based on the VAR innovation is closer to the reported results in Fang et al. (2024). In addition, inflation betas are positively related to credit ratings in the cross-section, though the relationship is not statistically significant.

On the other hand, the cross-sectional variation in inflation betas continues to be primarily driven by differences in credit excess returns. Moreover, inflation betas positively predict future bond returns in the cross-section, but the statistical significance is weaker. These are consistent with the results based on the ARMA(1,1) residuals of core CPI growth reported in Table 16.

A.7 Inflation Beta and Credit Characteristics

As discussed in Section 4, since the effects of inflation beta on corporate bond returns primarily operate through the inflation—default relationship, its impact on future returns likely aligns with that of bond default characteristics. In this section, we check how much the effect of inflation beta for future bond returns overlaps with the effect of bond credit characteristics.

We form 5 × 5 portfolios based on bonds' credit rating and time-to-maturity and then subtract the returns of each bond by the average return of the rating×maturity portfolio to which this bond belongs. We report such returns of the inflation–beta-sorted portfolios in Panel A of Table A.11. We observe that the high-minus-low average spread in bond excess return is reduced by about 60%. Moreover, this reduction occurs mostly for the credit component. We also conduct similar analyses using the credit spread of a bond as its default characteristic. The results, as reported in Panel B of Table A.11, are the same as those using credit rating.

Overall, these analyses show that the effect of inflation beta for future bond returns indeed aligns with that of bond default characteristics broadly. This finding lends some support to the use of default characteristics as systematic *risk* measures of bonds in portfolio frameworks (Gebhardt et al., 2005).

A.8 Firm-Level Results

In this section, we examine whether our main findings—conducted at the bond-level—remain valid at the firm-level. Intuitively, if the inflation-default relationship is the primary driver of the effects of inflation risk on corporate bond returns, our main findings should remain similar at the firm-level because corporate bonds of the same firm typically share similar default risk.

Accordingly, we compute the value-weighted inflation betas, credit ratings, and returns using all bonds of each firm in each month. Using this firm-level sample, we conduct analyses similar to the main analyses and report the results in Table A.12. All of our main findings at the bond-level remain valid at the firm-level. In particular, inflation beta is predominantly positive for the credit component of corporate bond return (from Panel A),[42] the cross-sectional variation in inflation beta is primarily driven by variation in credit excess returns with higher-default-risk bonds exhibiting more pronounced positive inflation betas (from the first three columns of Panels B and C), and inflation beta positively predicts future bond returns in the cross-section with the effect entirely driven by credit excess returns (from the fourth and fifth columns of Panels B and C).

[42] We only report the "% Positive Issuer-Month" that is based on the issuer-month observations directly. We do not report the summaries that are based on the cross-sectional value-weighted monthly averages—-those reported in the first three rows of Table 4 particularly—because they are the same as those using bond-level observations.

A.9 Robustness Check using the BAML Corporate Bond Data

In this section, we use alternative data of corporate bond prices—specifically, the price quotes from Bank of America Merill Lynch (BAML) for bonds covered by ICE BofA corporate bond indices—to confirm the robustness of our main results. Different from the TRACE data used in our main analyses that contain actual transaction prices for any bonds being traded, the BAML data contain quoted prices for bonds with relatively larger issues. Such quotes are often used by institutional investors like bond mutual funds to mark their portfolios to market. They have also been used by Schaefer and Strebulaev (2008), Acharya, Amihud, and Bharath (2013), Feldhütter and Schaefer (2018), and Binsbergen et al. (2025), among others.

The BAML data are available starting from July 1997. To be consistent with our main analyses, we use the BAML sample from July 2004 to March 2022. Moreover, the BAML data provide daily price quotes, so we take the last quote of each month to compute the monthly return for each bond. In total, we have 897,584 bond-month observations from 19,978 bonds.

In Table A.13, we report the summary of the inflation beta estimates for the BAML sample. The results are very close to those reported in Table 4. In particular, whereas the inflation beta of the duration component of corporate bond return is predominantly negative, the inflation beta of the credit component is predominantly positive, consistent with the negative inflation–default relationship.

In Table A.14, we report results from analyses using the BAML data, similar to those presented in Tables 5 to 7 and 9 based on the TRACE data. In particular, the first three columns show that the cross-sectional variation in inflation beta is primarily driven by variation in credit excess returns, with bonds carrying higher default risk exhibiting more pronounced positive inflation betas. The fourth and fifth columns indicate that inflation beta positively predicts future bond returns in the cross-section, an effect entirely driven by credit excess returns. Finally, the last two columns reveal that firms with higher bond inflation betas also tend to have higher stock inflation betas.

In sum, although the BAML data differ from the TRACE data in both price type and bond coverage, all of our main findings based on the TRACE data remain valid and robust when using the BAML data.

A.10 Results using Energy CPI

Table A.15 presents the analyses using the monthly growth rate of the energy component of CPI. The results are similar to the main results using the headline CPI (as presented in Tables 4 to 7 and 9). In particular, inflation beta is predominantly positive for the credit component of corporate bond return (Panel A), the cross-sectional variation in inflation beta is primarily driven by variation in credit excess returns with higher-default-risk bonds exhibiting more pronounced positive inflation betas (the first three columns of Panel B), inflation beta positively predicts future bond returns in the cross-section with the effect entirely driven by credit excess returns (the fourth and fifth columns of Panel B), and firms with higher bond inflation betas also tend to have higher stock inflation betas (the last two columns of Panel B).

A.11 Industry Inflation Exposure

In this section, we examine the distribution of bond inflation exposure across industries. Specifically, we classify bonds based on the two-digit NAICS code of the issuing firm and compute industry-level inflation betas accordingly. For each industry and each month, we calculate the value-weighted average of individual bond inflation betas and then take the time-series average across months to obtain each industry's average inflation beta.

Table A.16 reports the five industries with the highest and lowest average credit-component inflation betas, $\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$, using the CPI growth rate (Panel A) and the inflation swap rate (Panel B), respectively. We observe that inflation betas are predominantly positive across industries, consistent with our main results.

Importantly, we find large cross-industry heterogeneity in inflation exposure. In particular, industries related to mining, quarrying, and oil and gas extraction exhibit the highest inflation betas. In contrast, industries such as transportation and warehousing, including storage, delivery, and related logistics, have much lower inflation beta, suggesting that their credit risk is less affected by inflation shocks. Moreover, the relative ranking of the industries in inflation beta remains largely consistent using the CPI growth or the inflation swap rate.[43]

[43] For related analyses using stock returns, see Boudoukh and Richardson (1993), Ang et al. (2012), and Hong et al. (2025).

Table A.1. Bond Sample Cleaning and Construction

This table reports step-by-step cleaning of the TRACE corporate bond transactions data. The original data sample is from July 2002 to March 2022 with canceled/corrected/duplicated trades excluded. Panel A reports the cleaning at the bond transaction level. The resulting sample is used to produce the bond-month sample in Panel B. The procedure in each cleaning step is described in the first column, and the resulting number of unique CUSIPs and total number of observations are reported in the second and third columns, respectively. The bond characteristics are from the Mergent Fixed Income Securities Database (FISD).

A. The Sample of Corporate Bond Transactions and Characteristics		# CUSIPs	# Transactions
A1.	Standard filtering of the enhanced TRACE data of corporate bond transactions from 07/01/2002 to 03/31/2022 for canceled/corrected/duplicated trades.	281,578	202,037,248
A2.	Remove transactions with principal trading amount less than $10,000, transactions with trade price less than $5 or greater than $1,000, transactions that are labeled as when-issued, locked- in, or have special sales conditions, and transactions that have more than a two-day settlement.	273,575	28,768,352
A3.	Merge the transactions with Mergent FISD bond characteristics; remove observations that cannot be matched in the Mergent FISD Data	230,302	26,300,648
A4.	Remove bonds that are not publicly traded in the U.S. market, or denominated in foreign currencies; remove bonds that are classified as structured notes, mortgage backed or asset backed, agency backed, equity linked or convertible; remove private placed bond under Rule 144A; remove bonds that have a floating coupon rate or have bi-monthly and unclassified coupons; remove bonds with missing values for key variables that are used to compute accrued interest (coupon type, coupon rate, dated date, and day count basis); exclude transactions for which the trading date is on or before the bond offering date, the rating is missing, the time-to-maturity is less than one year, or the amount outstanding is not positive.	49,922	18,323,055

B. The Sample of Monthly Corporate Bond Returns (Based on the sample after A4)		# CUSIPs	# Bond×Month
B1.	We calculate monthly bond returns based on the weighted average daily prices (see the detailed procedure in Section 2.1).	37,310	1,253,122
B2.	To align with the availability of inflation data, the sample period begins in July 2004. For each corporate bond i in each month t, we also compute the duration-matched Treasury return; we exclude the bond×month observation for which a valid duration-matched Treasury return is not available.	33,209	1,123,777
B3.	Furthermore, a bond-month is included in the final sample for inflation beta estimation only if it has at least 24 months of valid returns in the preceding 36 months as of the portfolio formation month.	13,786	523,204

Table A.2. Summary Statistics for Different Bond Samples

This table summarizes the sample of corporate bond returns with valid inflation beta estimates. Panel A provides summary statistics for bond-month observations with valid inflation beta estimates, while Panel B focuses on those with both valid inflation betas and matched stock data. For each panel, the table reports the total number of unique issuers, unique bonds, and bond-month observations. Panel B additionally reports the number of unique PERMNOs corresponding to matched stocks. Summary statistics include the mean, median, standard deviation, and the 10th, 25th, 75th, and 90th percentiles of the following bond characteristics: bond time-to-maturity (in years), age (in years), coupon rate (in percent), amount outstanding (in millions of dollars), credit rating, seasoning (age divided by original time-to-maturity), and monthly returns (in percent), across all bond-month observations. We include three measures of monthly returns—the standard excess return $rx_{i,t}$, the credit component $rx_{i,t}^{\text{Credit}}$, and the duration component $rx_{i,t}^{\text{Duration}}$. Ratings are converted into numerical scores, where 1 refers to an AAA rating and 21 refers to a C rating. The sample period spans from September 2006 to March 2022.

A. Bond sample with available beta estimation

#Issuers	2,258
#Bonds	13,786
#Bond*month	523,204

Statistics	Time to maturity	Age	Coupon	Outstanding ($mm)	Rating	Seasoning	$rx_{i,t}$	$rx_{i,t}^{\text{Credit}}$	$rx_{i,t}^{\text{Duration}}$
Mean	8.89	6.20	5.42	692.69	9.35	0.47	0.51	0.34	0.17
Median	5.58	5.00	5.40	500.00	9.00	0.46	0.24	0.15	0.05
Std	8.04	4.16	1.76	645.48	3.74	0.22	5.44	5.51	1.42
P10	1.83	2.67	3.15	130.00	5.00	0.19	-1.67	-1.74	-1.19
P25	3.08	3.42	4.13	300.00	7.00	0.30	-0.36	-0.39	-0.33
P75	12.58	7.50	6.63	850.00	11.00	0.64	1.21	0.98	0.61
P90	24.00	11.00	7.63	1499.10	15.00	0.78	2.86	2.57	1.64

B. Bond sample matched with stocks

#permno	1,162
#issuers	1,724
#bonds	11,286
#bond*month	425,247

Statistics	Time to maturity	Age	Coupon	Outstanding ($mm)	Rating	Seasoning	$rx_{i,t}$	$rx_{i,t}^{\text{Credit}}$	$rx_{i,t}^{\text{Duration}}$
Mean	9.17	6.22	5.31	718.61	8.94	0.47	0.43	0.26	0.17
Median	5.67	5.00	5.30	500.00	9.00	0.46	0.23	0.14	0.04
Std	8.26	4.21	1.72	660.31	3.47	0.22	4.03	4.09	1.45
P10	1.83	2.67	3.10	157.75	5.00	0.18	-1.58	-1.63	-1.24
P25	3.08	3.42	4.00	317.07	7.00	0.29	-0.35	-0.38	-0.34
P75	14.33	7.50	6.50	900.00	10.00	0.64	1.15	0.92	0.62
P90	24.42	11.17	7.50	1500.00	14.00	0.78	2.69	2.40	1.67

Table A.3. Robustness of the Main Results to Callable Bonds: Level of Inflation Betas

Using the bond sample that excludes callable bonds (except those with make-whole call options), this table presents summaries of the inflation betas for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$). Panel A presents inflation beta estimates with respect to the monthly headline CPI growth rate and Panel B presents those with respect to the 10-year inflation swap rate. We report the time-series average of cross-sectional value-weighted monthly beta estimates in the row labeled as "Mean", and the corresponding Newey-West t-statistics with 36 lags in parentheses. We also report two measures that capture the fraction of positive inflation beta estimates: "% of Positive Month" is the proportion of all months where the cross-sectional value-weighted beta is positive, and "% of Positive Bond-Month" is the proportion of all bond-month observations where the individual bond-month inflation beta estimates are positive. The sample period spans from July 2004 to March 2022. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

	(1)	(2)	(3)
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$
A. Monthly CPI Growth			
Mean	-0.564***	1.082***	-1.646***
t-stat	(-4.858)	(4.906)	(-9.910)
% of Positive Month	14.4%	90.9%	0.0%
% of Positive Bond-Month	34.7%	70.2%	2.2%
B. Inflation Swap Rate			
Mean	-0.808	5.076***	-5.884***
t-stat	(-0.945)	(6.417)	(-9.075)
% of Positive Month	37.4%	92.5%	0.0%
% of Positive Bond-Month	45.2%	89.5%	3.1%

Table A.4. Robustness of the Main Results to Callable Bonds: Cross-Sectional Variation

Using the bond sample that excludes callable bonds (except those with make-whole call options), this table presents summaries of the corporate bond quintile portfolios that are sorted by bond excess return inflation beta (using the bond sample in the first five columns) and the firm quintile portfolios that are sorted by firm-level average bond credit component inflation beta (using the bond-stock matched sample in the last two columns). We use the monthly headline CPI growth rate in Panel A and the 10-year inflation swap rates in Panel B. In the first five columns, we report the average of the bond excess return inflation beta ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), the credit component inflation beta ($\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$), rating, next-month excess return ($rx_{i,t+1}$), and the credit component of the next-month return ($rx_{i,t+1}^{\text{Credit}}$), for each quintile portfolio. In the last two columns, we report the average bond credit component inflation beta and the average stock inflation beta, for each quintile portfolio. Inflation betas and ratings are equally weighted, while returns are value weighted. The "High–Low" row provides the differences between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

	A. CPI Growth						
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx_{i,t+1}^{\text{Credit}}$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{Inflation}_t\right)$
1	-3.519	-0.944	8.645	0.426	0.165	-1.082	1.010
	(-9.889)	(-2.555)	(33.362)	(2.513)	(1.124)	(-5.356)	(1.556)
2	-1.319	0.266	8.113	0.322	0.123	0.315	2.052
	(-12.972)	(2.415)	(39.699)	(3.213)	(1.467)	(2.192)	(4.536)
3	-0.468	0.692	8.220	0.309	0.146	0.964	2.580
	(-5.172)	(4.788)	(52.623)	(3.427)	(2.187)	(4.292)	(4.505)
4	0.477	1.597	9.156	0.460	0.295	1.973	3.745
	(2.145)	(4.808)	(32.745)	(2.849)	(3.070)	(4.754)	(4.821)
5	4.298	5.574	11.896	1.020	0.842	6.050	8.603
	(5.196)	(5.916)	(27.778)	(2.710)	(2.613)	(5.837)	(3.062)
High-Low	7.818***	6.518***	3.251***	0.594*	0.677**	7.132***	7.594***
	(7.066)	(5.968)	(5.558)	(1.691)	(2.063)	(7.355)	(3.186)
	B. Inflation Swap Rates						
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx_{i,t+1}^{\text{Credit}}$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{Inflation}_t\right)$
1	-7.959	1.492	7.773	0.361	0.098	-0.383	11.882
	(-6.457)	(0.952)	(20.770)	(2.017)	(0.660)	(-0.382)	(3.219)
2	-2.859	2.418	7.817	0.324	0.134	2.635	12.892
	(-3.651)	(4.290)	(79.251)	(2.971)	(1.705)	(4.584)	(4.025)
3	-0.768	3.351	8.300	0.328	0.173	4.468	14.918
	(-1.126)	(6.185)	(54.032)	(3.407)	(2.493)	(6.660)	(3.998)
4	1.771	5.868	9.567	0.507	0.339	7.279	19.578
	(2.329)	(7.362)	(35.940)	(3.412)	(3.773)	(7.679)	(4.039)
5	11.529	16.264	12.617	0.981	0.797	17.176	36.588
	-7.506	(9.816)	(43.932)	(2.849)	(2.708)	(8.830)	(3.729)
High-Low	19.488***	14.772***	4.844***	0.620*	0.700**	17.559***	24.705***
	(9.707)	(6.489)	(11.618)	(1.948)	(2.438)	(11.172)	(3.648)

Table A.5. Duration-Matched Returns using Interest Rate Swaps: Level of Inflation Betas

Using duration-matched returns constructed with interest rate swaps, this table presents summaries of the inflation betas for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$). Panel A presents inflation beta estimates with respect to the monthly headline CPI growth rate and Panel B presents those with respect to the 10-year inflation swap rate. We report the time-series average of cross-sectional value-weighted monthly beta estimates in the row labeled as “Mean", and the corresponding Newey-West t-statistics with 36 lags in parentheses. We also report two measures that capture the fraction of positive inflation beta estimates: “% of Positive Month” is the proportion of all months where the cross-sectional value-weighted beta is positive, and “% of Positive Bond-Month” is the proportion of all bond-month observations where the individual bond-month inflation beta estimates are positive. The sample period spans from July 2004 to March 2022. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

	(1) $\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	(2) $\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	(3) $\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$
	A. Monthly CPI Growth		
Mean	-0.552***	1.362***	-1.914***
t-stat	(-4.954)	(4.720)	(-8.182)
% of Positive Month	13.4%	93.0%	0.0%
% of Positive Bond-Month	34.7%	74.2%	2.0%
	B. Inflation Swap Rate		
Mean	-0.727	5.527***	-6.254***
t-stat	(-0.869)	(7.521)	(-8.889)
% of Positive Month	43.3%	96.3%	0.0%
% of Positive Bond-Month	44.8%	89.4%	3.1%

Table A.6. Duration-Matched Returns using Interest Rate Swaps: Cross-Sectional Variation

Using duration-matched returns constructed with interest rate swaps, this table presents summaries of the corporate bond quintile portfolios that are sorted by bond excess return inflation beta (using the bond sample in the first five columns) and the firm quintile portfolios that are sorted by firm-level average bond credit component inflation beta (using the bond-stock matched sample in the last two columns). We use the monthly headline CPI growth rate in Panel A and the 10-year inflation swap rates in Panel B. In the first five columns, we report the average of the bond excess return inflation beta ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), the credit component inflation beta ($\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$), bond rating, next-month excess return ($rx_{i,t+1}$), and the credit component of the next-month return ($rx_{i,t+1}^{\text{Credit}}$), for each quintile portfolio. In the last two columns, we report the average bond credit component inflation beta and the average stock inflation beta, for each quintile portfolio. Inflation betas and bond ratings are equally weighted, while returns are value weighted. The "High–Low" row provides the differences between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

A. CPI Growth							
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx_{i,t+1}^{\text{Credit}}$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{Inflation}_t\right)$
1	-4.601	-1.756	9.324	0.437	0.151	-1.038	1.109
	(-4.680)	(-1.792)	(18.864)	(2.218)	(0.801)	(-4.087)	(1.497)
2	-1.422	0.501	8.248	0.337	0.119	0.566	2.098
	(-9.520)	(3.032)	(37.007)	(3.006)	(1.211)	(2.665)	(4.185)
3	-0.488	0.920	8.315	0.308	0.127	1.271	2.587
	(-5.925)	(5.107)	(82.707)	(3.337)	(1.746)	(4.112)	(4.508)
4	0.516	1.914	9.296	0.466	0.288	2.313	3.685
	(2.210)	(4.883)	(36.380)	(2.698)	(2.806)	(4.541)	(5.072)
5	4.744	6.306	12.095	1.063	0.876	6.752	8.812
	(5.077)	(5.839)	(24.876)	(2.598)	(2.534)	(5.902)	(3.289)
High-Low	9.345***	8.062***	2.772***	0.626*	0.725**	7.790***	7.702***
	(5.144)	(4.477)	(5.210)	(1.662)	(2.028)	(7.567)	(3.470)

B. Inflation Swap Rate							
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx_{i,t+1}^{\text{Credit}}$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Stock}}, \Delta\text{Inflation}_t\right)$
1	-9.416	0.415	8.361	0.409	0.133	-0.371	12.261
	(-4.693)	(0.175)	(13.358)	(2.039)	(0.736)	(-0.367)	(3.262)
2	-3.037	2.814	7.956	0.329	0.120	3.015	13.231
	(-3.674)	(5.340)	(61.088)	(2.688)	(1.276)	(5.528)	(4.039)
3	-0.754	3.752	8.384	0.338	0.162	4.970	15.054
	(-1.137)	(7.484)	(78.937)	(3.333)	(2.288)	(7.550)	(4.046)
4	1.963	6.521	9.815	0.508	0.317	7.884	20.003
	(2.632)	(8.314)	(60.151)	(3.194)	(3.372)	(8.096)	(4.281)
5	12.806	18.074	12.852	1.002	0.805	18.843	36.622
	(7.525)	(10.309)	(39.156)	(2.738)	(2.589)	(9.507)	(3.850)
High-Low	22.222***	17.659***	4.492***	0.592*	0.672**	19.214***	24.361***
	(6.892)	(5.071)	(10.834)	(1.877)	(2.317)	(10.932)	(3.861)

Table A.7. CDS-Implied Corporate Bond Returns: Level of Inflation Beta

This table presents summaries of the inflation betas for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$), using the returns of synthetic five-year zero-coupon corporate bonds implied from the Credit Default Swap (CDS). Panel A presents inflation beta estimates with respect to the monthly headline CPI growth rate and Panel B presents those with respect to the 10-year inflation swap rate. We report the time-series average of cross-sectional value-weighted monthly beta estimates in the row labeled as "Mean", and the corresponding Newey-West t-statistics with 36 lags in parentheses. Also reported are two measures that capture the fraction of positive inflation beta estimates: "% of Positive Month" is the proportion of all months where the cross-sectional value-weighted beta is positive, and "% of Positive Bond-Month" is the proportion of all bond-month observations where the individual bond-month inflation beta estimates are positive. The sample period spans from July 2004 to March 2022. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

	(1) $\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	(2) $\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	(3) $\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$
A. Monthly CPI Growth			
Mean	-0.311*	0.809***	-1.120***
t-stat	(-1.692)	(4.470)	(-8.305)
% Positive Month	41.5%	88.8%	2.1%
% Positive Bond-Month	23.0%	64.2%	3.1%
B. Inflation Swap Rate			
Mean	-0.770	2.696***	-3.467***
t-stat	(-0.867)	(5.242)	(-6.063)
% Positive Month	38.3%	96.3%	0.5%
% Positive Bond-Month	25.6%	76.0%	0.7%

Table A.8. CDS-Implied Corporate Bond Returns: Cross-Sectional Variation

Using the returns of synthetic five-year zero-coupon corporate bonds implied from the Credit Default Swap (CDS), this table presents summaries of the quintile portfolios that are sorted by bond excess return inflation beta (using the CDS sample in the first three columns) and the firm quintile portfolios that are sorted by firm-level average bond credit component inflation beta (using the CDS-stock matched sample in the last two columns). We use the monthly headline CPI growth rate in Panel A and the 10-year inflation swap rates in Panel B. In the first three columns, we report the average of the credit component inflation beta ($\beta(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t)$), bond ratings, and credit component returns ($rx^{\text{Credit}}_{i,t}$), for each quintile portfolio. In the last two columns, we report the average bond credit component inflation beta and the average stock inflation beta, for each quintile portfolio. Inflation betas and bond ratings are equally weighted, while returns are value weighted. The "High–Low" row provides the differences between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. The sample period spans from July 2004 to March 2022. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

	CDS			CDS Matched with Stocks	
	$\beta\left(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t\right)$	Rating	$rx^{\text{Credit}}_{i,t+1}$	$\beta\left(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx^{\text{Stock}}_{i,t}, \Delta\text{Inflation}_t\right)$
			A. CPI Growth		
1	-1.057	10.097	0.229	-0.979	0.321
	(-8.088)	(30.592)	(2.010)	(-7.499)	(0.849)
2	-0.007	7.95	0.067	0.002	1.460
	(-0.148)	(63.131)	(0.987)	(0.044)	(3.112)
3	0.233	8.085	0.139	0.213	1.817
	(2.257)	(97.633)	(3.024)	(2.455)	(3.811)
4	0.714	9.172	0.245	0.636	3.157
	(3.269)	(61.837)	(3.254)	(4.024)	(4.389)
5	4.119	11.858	0.599	3.697	7.115
	(6.047)	(100.618)	(3.618)	(5.790)	(4.674)
High-Low	5.175***	1.761***	0.370***	4.677***	6.794***
	(7.071)	(4.121)	(3.652)	(7.439)	(5.110)
			B Inflation Swap Rate		
1	-1.497	9.616	0.226	-1.310	11.532
	(-3.610)	(45.504)	(2.414)	(-4.031)	(2.812)
2	0.201	7.729	0.071	0.211	10.317
	(1.374)	(62.503)	(1.503)	(1.534)	(3.527)
3	0.839	8.252	0.130	0.791	12.695
	(3.234)	(100.001)	(2.919)	(3.796)	(4.048)
4	2.407	9.194	0.210	2.216	18.773
	(4.378)	(37.950)	(2.525)	(5.174)	(4.339)
5	11.444	12.322	0.646	10.785	30.892
	(7.639)	(144.577)	(3.298)	(7.665)	(4.115)
High-Low	12.940***	2.705***	0.420***	12.095***	19.360***
	(9.636)	(9.545)	(3.272)	(10.022)	(5.055)

Table A.9. VAR-Based Innovations: Level of Inflation Betas

Using the residuals from the VAR model instead of those from the ARMA(1,1) model as the innovations in CPI inflation, this table presents summaries of the inflation betas for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$). Panel A presents inflation beta estimates with respect to the monthly headline CPI growth rate and Panel B presents those with respect to the monthly core CPI growth rate. We report the time-series average of cross-sectional value-weighted monthly beta estimates in the row labeled as "Mean", and the corresponding Newey-West t-statistics with 36 lags in parentheses. We also report two measures that capture the fraction of positive inflation beta estimates: "% of Positive Month" is the proportion of all months where the cross-sectional value-weighted beta is positive, and "% of Positive Bond-Month" is the proportion of all bond-month observations where the individual bond-month inflation beta estimates are positive. The sample period spans from July 2004 to March 2022. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

	(1) $\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	(2) $\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	(3) $\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$
A. Headline CPI Growth			
Mean	-0.064***	0.112***	-0.176***
t-stat	(-4.577)	(5.955)	(-10.725)
% Positive Month	18.2%	87.2%	0.0%
% Positive Bond-Month	35.4%	72.5%	5.0%
B. Core CPI Growth			
Mean	0.060	0.154	-0.094
t-stat	(0.582)	(1.069)	(-1.118)
% Positive Month	40.6%	55.1%	34.2%
% Positive Bond-Month	45.3%	52.5%	34.6%

Table A.10. VAR-Based Innovations: Cross-Sectional Variation

Using the residuals from the VAR model instead of those from the ARMA(1,1) model as the innovations in CPI inflation, this table presents summaries of the corporate bond quintile portfolios that are sorted by bond excess return inflation beta (using the bond sample in the first five columns) and the firm quintile portfolios that are sorted by firm-level average bond credit component inflation beta (using the bond-stock matched sample in the last two columns). Panel A and B reports the results for the headline and the core CPI growth rate, respectively. In the first five columns, we report the average of the bond excess return inflation beta ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), the credit component inflation beta ($\beta(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t)$), rating, next-month excess return ($rx_{i,t+1}$), and the credit component of the next-month return ($rx^{\text{Credit}}_{i,t+1}$), for each quintile portfolio. In the last two columns, we report the average bond credit component inflation beta and the average stock inflation beta, for each quintile portfolio. Inflation betas and ratings are equally weighted, while returns are value weighted. The "High–Low" row provides the differences between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx^{\text{Credit}}_{i,t+1}$	$\beta\left(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx^{\text{Stock}}_{i,t}, \Delta\text{Inflation}_t\right)$
A. Headline CPI Growth							
1	-0.488	-0.226	9.163	0.455	0.182	-0.118	0.141
	(-3.719)	(-1.702)	(16.505)	(2.338)	(1.117)	(-3.093)	(2.434)
2	-0.153	0.024	8.231	0.347	0.142	0.038	0.226
	(-6.332)	(1.511)	(39.718)	(2.896)	(1.532)	(2.500)	(4.189)
3	-0.057	0.071	8.372	0.310	0.152	0.114	0.283
	(-5.530)	(6.316)	(71.078)	(3.283)	(2.365)	(4.801)	(4.831)
4	0.045	0.173	9.418	0.485	0.326	0.227	0.392
	(3.051)	(6.120)	(36.477)	(2.700)	(2.795)	(5.111)	(5.212)
5	0.459	0.601	12.127	1.012	0.832	0.675	0.844
	(5.720)	(6.400)	(24.740)	(2.617)	(2.470)	(5.669)	(3.480)
High-Low	0.947***	0.827***	2.965***	0.557	0.650**	0.793***	0.703***
	(4.943)	(4.309)	(5.129)	(1.649)	(2.046)	(7.183)	(3.438)
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx^{\text{Credit}}_{i,t+1}$	$\beta\left(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx^{\text{Stock}}_{i,t}, \Delta\text{Inflation}_t\right)$
B. Core CPI Growth							
1	-1.161	-0.937	10.061	0.634	0.377	-0.822	-0.708
	(-4.693)	(-3.196)	(21.860)	(3.061)	(2.183)	(-3.465)	(-2.591)
2	-0.244	-0.113	8.424	0.355	0.146	-0.099	-0.058
	(-3.153)	(-0.847)	(32.406)	(3.001)	(1.482)	(-0.620)	(-0.438)
3	0.052	0.133	8.285	0.362	0.176	0.165	0.029
	(0.491)	(0.866)	(84.517)	(3.165)	(2.342)	(0.898)	(0.248)
4	0.407	0.447	9.024	0.469	0.300	0.494	0.128
	(1.928)	(1.747)	(27.354)	(2.435)	(2.281)	(1.866)	(0.982)
5	1.687	1.652	11.378	0.750	0.576	1.529	0.624
	(2.629)	(2.444)	(14.749)	(2.719)	(2.488)	(3.171)	(3.225)
High-Low	2.848***	2.589***	1.317	0.115	0.199	2.351***	1.332***
	(3.477)	(3.183)	(1.219)	(0.660)	(1.204)	(4.471)	(8.259)

Table A.11. Inflation Beta and Credit Characteristics

This table reports average benchmark-adjusted next-month ($t+1$) returns—the excess return $rx_{i,t+1}$ and its credit and duration components $rx^{\text{Credit}}_{i,t+1}$ $rx^{\text{Duration}}_{i,t+1}$—of corporate bond quintile portfolios that are sorted by current-month (t) bond excess return inflation betas. In Panel A, the benchmark-adjusted return of a bond is calculated relative to the average return of the rating×maturity portfolio to which this bond belongs. In Panel B, the benchmark-adjusted return of a bond is calculated relative to the average return of the credit spread portfolio to which this bond belongs. Columns (1)–(3) use the monthly headline CPI growth rate as the inflation measure, while columns (4)–(6) use the 10-year inflation swap rate. The "High–Low" row shows the difference between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

A. Benchmark against Bond Rating×Maturity Characteristics						
	CPI Growth			Inflation Swap Rate		
	$rx_{i,t+1}$	$rx^{\text{Credit}}_{i,t+1}$	$rx^{\text{Duration}}_{i,t+1}$	$rx_{i,t+1}$	$rx^{\text{Credit}}_{i,t+1}$	$rx^{\text{Duration}}_{i,t+1}$
1	-0.031	-0.032	0.001	-0.029	-0.033	0.004
	(-0.442)	(-0.465)	(0.544)	(-0.455)	(-0.519)	(1.539)
2	-0.037	-0.038	0.001	-0.036	-0.035	-0.001
	(-1.615)	(-1.567)	(0.398)	(-1.266)	(-1.228)	(-0.799)
3	-0.039	-0.036	-0.003	-0.033	-0.03	-0.003
	(-1.895)	(-1.824)	(-1.507)	(-1.396)	(-1.247)	(-2.859)
4	-0.043	-0.041	-0.002	-0.026	-0.024	-0.002
	(-1.257)	(-1.145)	(-1.012)	(-0.683)	(-0.614)	(-1.010)
5	0.256	0.262	-0.006	0.215	0.222	-0.007
	(2.201)	(2.237)	(-2.901)	(2.116)	(2.174)	(-4.172)
High-Low	0.287*	0.294*	-0.007**	0.244*	0.255*	-0.011***
	(1.661)	(1.693)	(-2.601)	(1.681)	(1.733)	(-3.371)
B. Benchmark against Credit Spreads						
	CPI Growth			Inflation Swap Rate		
	$rx_{i,t+1}$	$rx^{\text{Credit}}_{i,t+1}$	$rx^{\text{Duration}}_{i,t+1}$	$rx_{i,t+1}$	$rx^{\text{Credit}}_{i,t+1}$	$rx^{\text{Duration}}_{i,t+1}$
1	-0.100	-0.108	0.008	-0.103	-0.113	0.010
	(-0.826)	(-1.098)	(0.306)	(-0.888)	(-1.262)	(0.307)
2	-0.020	-0.017	-0.003	-0.009	-0.010	0.000
	(-0.843)	(-0.949)	(-0.442)	(-0.343)	(-0.613)	(0.016)
3	-0.005	0.009	-0.015	0.009	0.023	-0.014
	(-0.513)	(1.268)	(-1.696)	(0.517)	(1.834)	(-1.357)
4	-0.005	0.018	-0.023	0.001	0.028	-0.027
	(-0.199)	(1.019)	(-1.689)	(0.031)	(1.198)	(-1.331)
5	0.174	0.209	-0.036	0.128	0.173	-0.045
	(1.875)	(2.372)	(-2.495)	(1.508)	(2.194)	(-1.848)
High-Low	0.273	0.317*	-0.043	0.231	0.286*	-0.055
	(1.298)	(1.728)	(-1.207)	(1.178)	(1.760)	(-1.047)

Table A.12. Firm-Level Results

This table reports the levels of inflation betas, as well as cross-sectional variation of inflation betas, ratings, and returns, using our main sample of corporate bond returns but at the firm (issuer) level. Value-weighted inflation betas, ratings, and returns are calculated for each issuer. Panel A reports the "% of Positive Issuer-Month", the fraction of issuer-month observations with positive issuer-level beta estimates, for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$). The first three columns use the CPI growth, while the last three columns use the 10-year inflation swap rate. Panels B and C present summaries of the corporate bond quintile portfolios that are sorted by issuer-level bond excess return inflation beta, using the CPI growth rate and the 10-year inflation swap rate, respectively. We report the average of the bond excess return inflation beta, the credit component inflation beta, bond rating, next-month excess return ($rx_{i,t+1}$), and the credit component of the next-month return ($rx_{i,t+1}^{\text{Credit}}$), for each quintile portfolio. The "High–Low" row provides the differences between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

A. Level

	CPI Growth			Inflation Swap rate		
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$
% of Positive Issuer-Month	39.2%	74.7%	1.9%	51.4%	90.1%	2.7%

B. Cross-Sectional Variation: CPI Growth

	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx_{i,t+1}^{\text{Credit}}$
1	-3.099	-1.108	9.696	0.363	0.148
	(-9.978)	(-3.647)	(22.666)	(2.352)	(1.001)
2	-1.194	0.355	8.988	0.332	0.134
	(-13.958)	(2.486)	(36.730)	(3.060)	(1.704)
3	-0.31	0.981	9.524	0.38	0.176
	(-2.105)	(4.093)	(111.031)	(3.114)	(1.930)
4	0.867	2.062	10.614	0.57	0.385
	(2.381)	(4.462)	(30.258)	(3.263)	(3.018)
5	5.338	6.511	13.272	1.166	0.992
	(5.148)	(5.754)	(29.191)	(2.498)	(2.351)
High-Low	8.437***	7.618***	3.576***	0.804*	0.844*
	(7.028)	(6.734)	(4.371)	(1.800)	(1.911)

C. Cross-Sectional Variation: Inflation Swap Rate

	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx_{i,t+1}^{\text{Credit}}$
1	-6.59	0.855	8.493	0.308	0.092
	(-5.293)	(0.618)	(16.862)	(1.920)	(0.658)
2	-2.382	2.915	8.563	0.326	0.122
	(-2.946)	(4.796)	(57.691)	(3.010)	(1.428)
3	-0.156	4.309	9.605	0.474	0.279
	(-0.194)	(6.420)	(90.932)	(3.400)	(3.051)
4	2.981	7.339	11.248	0.619	0.432
	(3.001)	(7.693)	(43.455)	(3.467)	(3.395)
5	14.224	18.496	14.178	1.07	0.908
	(8.050)	(9.972)	(59.530)	(2.654)	(2.512)
High-Low	20.814***	17.641***	5.685***	0.762**	0.815**
	(10.501)	(8.564)	(9.697)	(2.167)	(2.385)

Table A.13. BAML Sample: Level of Inflation Betas

This table presents summaries of the inflation betas for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx_{i,t}^{Credit}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx_{i,t}^{Duration}, \Delta\text{Inflation}_t)$), using the Bank of America Merrill Lynch (BAML) data of corporate bond prices. Panel A presents inflation beta estimates with respect to the monthly headline CPI growth rate and Panel B presents those with respect to the 10-year inflation swap rate. We report the time-series average of cross-sectional value-weighted monthly beta estimates in the row labeled as "Mean", and the corresponding Newey-West t-statistics with 36 lags in parentheses. We also report two measures that capture the fraction of positive inflation beta estimates: "% of Positive Month" is the proportion of all months where the cross-sectional value-weighted beta is positive, and "% of Positive Bond-Month" is the proportion of all bond-month observations where the individual bond-month inflation beta estimates are positive. The sample period spans from July 2004 to March 2022. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

	(1)	(2)	(3)
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx_{i,t}^{\text{Duration}}, \Delta\text{Inflation}_t\right)$
A. Monthly CPI Growth			
Mean	0.046	1.995***	-1.953***
t-stat	(0.183)	(6.711)	(-8.065)
% of Positive Month	48.4%	97.9%	0.0%
% of Positive Bond-Month	43.1%	89.3%	2.6%
B. Inflation Swap Rate			
Mean	0.547	6.841***	-6.300***
t-stat	(0.671)	(6.642)	(-7.516)
% of Positive Month	59.6%	100.0%	0.0%
% of Positive Bond-Month	47.4%	96.5%	0.7%

Table A.14. BAML Sample: Cross-Sectional Variation

This table presents summaries of the corporate bond quintile portfolios that are sorted by bond excess return inflation beta (using the bond sample in the first five columns) and the firm quintile portfolios that are sorted by firm-level average bond credit component inflation beta (using the bond-stock matched sample in the last two columns), based on the Bank of America Merrill Lynch (BAML) data of corporate bond prices. We use the monthly headline CPI growth rate in Panel A and the 10-year inflation swap rates in Panel B. In the first five columns, we report the average of the bond excess return inflation beta ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), the credit component inflation beta ($\beta(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t)$), bond rating, next-month excess return ($rx_{i,t+1}$), and the credit component of the next-month return ($rx^{\text{Credit}}_{i,t+1}$), for each quintile portfolio. In the last two columns, we report the average bond credit component inflation beta and the average stock inflation beta, for each quintile portfolio. Inflation betas and bond ratings are equally weighted, while returns are value weighted. The "High–Low" row provides the differences between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. The sample period is from July 2004 to March 2022. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

	BAML Corporate Bonds					BAML Corporate Bonds Matched with Stocks	
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx^{\text{Credit}}_{i,t+1}$	$\beta\left(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx^{\text{Stock}}_{i,t}, \Delta\text{Inflation}_t\right)$
			A. CPI Growth				
1	-2.428	0.842	7.386	0.348	0.021	0.114	1.03
	(-7.129)	(3.972)	(36.633)	(2.412)	(0.158)	(0.693)	(1.453)
2	-0.754	1.058	7.755	0.251	0.015	1.145	1.962
	(-3.009)	(6.156)	(46.403)	(2.472)	(0.155)	(4.306)	(3.697)
3	0.008	1.399	8.269	0.332	0.126	1.851	2.408
	(0.031)	(4.718)	(65.879)	(2.577)	(1.539)	(4.889)	(4.573)
4	0.92	2.303	9.163	0.48	0.288	2.866	3.668
	(2.437)	(4.518)	(33.017)	(2.512)	(2.232)	(5.619)	(4.737)
5	4.312	6.045	11.526	0.651	0.408	6.909	8.338
	(5.589)	(6.365)	(36.817)	(2.804)	(2.072)	(6.221)	(3.977)
High-Low	6.740***	5.203***	4.140***	0.303	0.387**	6.796***	7.308***
	(8.362)	(6.001)	(11.208)	(1.525)	(2.410)	(6.920)	(4.553)
			B. Inflation Swap Rate				
1	-6.102	4.293	7.072	0.438	0.054	1.409	13.429
	(-7.492)	(4.196)	(33.520)	(2.657)	(0.390)	(2.295)	(3.520)
2	-1.959	3.691	7.526	0.297	0.044	3.731	12.53
	(-2.773)	(5.685)	(179.981)	(3.004)	(0.550)	(4.716)	(3.743)
3	-0.118	4.222	7.974	0.297	0.117	5.648	14.081
	(-0.171)	(4.885)	(92.401)	(2.927)	(1.565)	(5.749)	(3.726)
4	2.059	6.667	9.417	0.395	0.202	8.356	19.085
	(2.434)	(5.948)	(50.124)	(2.858)	(2.162)	(6.897)	(4.405)
5	10.129	15.879	12.201	0.599	0.372	17.325	35.066
	(6.642)	(7.866)	(48.425)	(2.965)	(2.001)	(7.209)	(4.082)
High-Low	16.231***	11.586***	5.129***	0.162	0.318***	15.916***	21.637***
	(11.359)	(7.931)	(26.460)	(1.462)	(2.974)	(8.474)	(4.103)

Table A.15. Results using the Energy CPI

This table reports the levels of inflation betas, as well as cross-sectional variation of inflation betas, ratings, and returns, using our main sample of corporate bond returns and the energy CPI growth rate as the inflation measure. Panel A reports the time-series average of cross-sectional value-weighted monthly beta estimates (in the row "Mean") for the bond excess return ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), for the credit component of the bond return ($\beta(rx^{Credit}_{i,t}, \Delta\text{Inflation}_t)$), and for the duration component of the bond return ($\beta(rx^{Duration}_{i,t}, \Delta\text{Inflation}_t)$). Also reported are "% Positive Month", the fraction of months where the value-weighted beta is positive, and "% Positive Bond-Month", the fraction of bond-month observations with positive individual beta estimates. Panel B presents summaries of the corporate bond quintile portfolios that are sorted by bond excess return inflation beta (using the bond sample in the first five columns) and the firm quintile portfolios that are sorted by firm-level average bond credit component inflation beta (using the bond-stock matched sample in the last two columns). In the first five columns, we report the average of the bond excess return inflation beta ($\beta(rx_{i,t}, \Delta\text{Inflation}_t)$), the credit component inflation beta ($\beta(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t)$), bond rating, next-month excess return ($rx_{i,t+1}$), and the credit component of the next-month return ($rx^{\text{Credit}}_{i,t+1}$), for each quintile portfolio. In the last two columns, we report the average bond credit component inflation beta and the average stock inflation beta, for each quintile portfolio. Inflation betas and bond ratings are equally weighted, while returns are value weighted. The "High–Low" row provides the differences between the highest and lowest quintile portfolios. Newey-West t-statistics, computed with 36 lags, are reported in parentheses. Significance levels: *** for $p < 0.01$ and ** for $p < 0.05$, and * for $p < 0.1$, where p is the p-value.

A. Level			
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx^{\text{Duration}}_{i,t}, \Delta\text{Inflation}_t\right)$
Mean	-0.099***	0.126***	-0.226***
t-stat	(-5.492)	(5.547)	(-13.767)
% Positive Month	14.4%	96.3%	0.0%
% Positive Bond-Month	31.5%	70.5%	2.8%

B. Cross-Sectional Variation							
	$\beta\left(rx_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t\right)$	Rating	$rx_{i,t+1}$	$rx^{\text{Credit}}_{i,t+1}$	$\beta\left(rx^{\text{Credit}}_{i,t}, \Delta\text{Inflation}_t\right)$	$\beta\left(rx^{\text{Stock}}_{i,t}, \Delta\text{Inflation}_t\right)$
1	-0.623	-0.277	9.029	0.448	0.175	-0.149	0.008
	(-3.918)	(-1.749)	(17.833)	(2.334)	(1.112)	(-4.252)	(0.057)
2	-0.196	0.032	8.220	0.345	0.147	0.041	0.204
	(-7.002)	(2.449)	(47.798)	(2.984)	(1.634)	(2.815)	(2.365)
3	-0.079	0.081	8.364	0.317	0.156	0.123	0.263
	(-4.952)	(5.457)	(76.433)	(3.506)	(2.539)	(4.483)	(3.169)
4	0.039	0.196	9.510	0.487	0.323	0.254	0.439
	(1.484)	(5.368)	(46.343)	(2.868)	(2.943)	(4.701)	(4.634)
5	0.544	0.725	12.255	1.041	0.859	0.791	1.148
	(5.316)	(6.609)	(28.836)	(2.626)	(2.484)	(6.758)	(3.823)
High-Low	1.167***	1.003***	3.226***	0.593*	0.684**	0.940***	1.140***
	(4.664)	(3.988)	(8.539)	(1.781)	(2.183)	(7.569)	(3.931)

Table A.16. Bond Inflation Exposures by Industry

This table reports industry-level inflation betas of corporate bonds, classified according to the issuing firm's two-digit NAICS code. For each industry and each month, we compute value-weighted inflation betas and then take the time-series averages for each industry. The table presents the five industries with the highest and lowest average credit component inflation betas ($\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$). Panels A and B report results using the CPI growth rate and the 10-year inflation swap rate, respectively, as the inflation measure.

Panel A. CPI Growth Rate					
Rank	Top 5	$\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$	Rank	Bottom 5	$\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$
1	Mining, Quarrying, and Oil and Gas Extraction	3.311	1	Transportation and Warehousing (Storage, delivery, etc.)	0.525
2	Professional, Scientific, and Technical Services	2.531	2	Finance and Insurance	0.581
3	Construction	2.332	3	Agriculture, Forestry, Fishing and Hunting	0.600
4	Accommodation and Food Services	2.127	4	Other Services (except Public Administration)	0.859
5	Public Administration	2.080	5	Retail Trade	0.893

Panel B. Inflation Swap Rate					
Rank	Top 5	$\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$	Rank	Bottom 5	$\beta(rx_{i,t}^{\text{Credit}}, \Delta\text{Inflation}_t)$
1	Mining, Quarrying, and Oil and Gas Extraction	12.213	1	Transportation and Warehousing (Storage, delivery, etc.)	3.324
2	Construction	9.075	2	Finance and Insurance	3.715
3	Professional, Scientific, and Technical Services	8.982	3	Agriculture, Forestry, Fishing and Hunting	3.722
4	Transportation and Warehousing (Airline, railway, etc.)	8.036	4	Manufacturing	4.072
5	Accommodation and Food Services	7.246	5	Public Administration	4.566