iBOXX Corporate Bond Futures Impact on Corporate Bond Yields, Liquidity, and Ownership[☆✸]

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☆ This paper is produced as part of CBOE's Options Institute's 2024 CBOE/ S&P Global Fixed Income Ecosystem Research Grant. We thank CBOE's team—Bryan Fregeau, Florian Huchede, Raj Shah, Alexandra Szakats—for their support. All errors are our own.

✸ *Disclaimer*: The data used in this white paper was made available through The Options Institute, the educational division of Cboe Exchange, Inc., in connection with The Options Institute Research Grant Program. Learn more about the Options Institute Research Grant Program at www.cboe.com/optionsinstitute/about_us/research_grant. Funding for this white paper was provided by S&P Dow Jones Indices.

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Abstract:

The creation of the iBoxx corporate bond indexes in 2001 by International Index Company formalized a tradable benchmark for the last of the major traditional asset classes—corporate bonds. Historically, corporate bonds were central to U.S. industrialization, financing the rise of J.P. Morgan and shaping the Gilded Age as the "respectable" investment of its era (Chernow, 1990). Today, they remain vital to the U.S. economy: outstanding corporate debt expanded from $3.4 trillion (21.3% of U.S. fixed income) in 2000 to $11.4 trillion (23.9%) in 2024 (SIFMA). With corporate bonds the fastest-growing fixed-income segment since the late 2000s, the launch of iBoxx futures in 2018 introduced derivatives on this last traditional benchmark, rapidly evolving into one of the fastest-growing derivatives markets. Between 2020 and 2025, open interest in speculative-grade (IBHY) and investment-grade (IBIG) futures grew 4.5x and 4.4x respectively, reaching $1.2 billion and $600 million; leverage-adjusted, notional exposure now exceeds twice the market value of the underlying bond market.

Consistent with established theories on index futures, our empirical analysis highlights the transformative impact of iBoxx inclusion and futures introduction across spreads, liquidity, and ownership. Inclusion in iBoxx significantly reduced spreads (up to 140 bps in HY), boosted trading activity (nearly doubling dollar volumes), and increased mutual fund holdings, while reducing life insurer exposure. The introduction of iBoxx futures further narrowed spreads for IG (–37 bps) and HY (–56 bps) bonds, improved liquidity in speculative-grade markets, and shifted ownership patterns: mutual funds trimmed holdings, while life and property/casualty insurers expanded participation. Overall, the iBoxx indexes and their futures have reshaped the corporate bond ecosystem. Index inclusion enhanced transparency, liquidity, and investor participation, while futures extended efficiency, hedging, and capital deployment benefits to one of the most illiquid and mandate-constrained markets. By bridging traditional fixed income with modern derivatives infrastructure, iBoxx futures represent not only the financialization of the last Gilded Age asset class but also a structural evolution of global credit markets.

Keywords: iBoxx indexes, corporate bonds, futures, liquidity, bondholders
JEL Classification: G1, G12, G14

1. Introduction and Objectives:

Corporate bonds are synonymous with the American Industrial Revolution as they played a crucial role in funding the backbones of the Gilded Age: railroads, steel mills, and fixed-capital investments (Chernow 2010, Laughlin 2012). Nearly a century later, in the 1980s, a newer variety of corporate bonds, known as junk bonds, was invented by Michael Milken and his firm, Drexel Burnham Lambert, again becoming a major source of funding for American corporations. Today, with a total market value of $11.4 trillion ($1.72 trillion, or 16%, of which are high-yield bonds), corporate bonds account for nearly a quarter of the U.S. corporate capital (SIFMA 2025). Yet, despite their importance, for almost a century, corporate bonds remained the only traditional asset class of the Industrial Age without an index (or index futures).

While stocks have had indexes since the 1880s, corporate bonds did not have a broad index till the early 1970s when Merrill Lynch created its Domestic Master Index. In 1986, Lehman Brothers launched its Lehman Aggregate Index, which soon became the backbone of the industry. In 2001, International Index Company launched iBOXX corporate bond indexes to offer what the industry has long been missing: tradability. Unlike the Lehman Aggregate Index, the iBOXX index focuses on liquidity by choosing bonds with a certain size, age, and trading activity (IHS Markit 2020). The index was explicitly designed in collaboration with industry participants (dealer banks, ETF issuers, buy-side investment firms, and third-party vendors) to accommodate replication. Not surprisingly, today, iBOXX indices are the basis for 180 ETFs globally with combined assets under management of over $140 billion. This rapid growth of liquidity-demanding investors (i.e., ETFs), along with a partnership with and eventual acquisition of a major index provider, S&P Global, iBOXX high yield and investment grade indices, became the underlying assets for CBOE's iBOXX futures.

The creation of iBOXX futures marks an important milestone for corporate bonds, as S&P500 index futures did for equities. The S&P 500 index futures have long played a pivotal role in democratizing investment through low-cost passive vehicles. Every student who has taken a portfolio management course can tell you that an effective way to replicate the index is to utilize futures. Risk managers easily testify to the efficacy of index derivatives in mitigating tracking errors and/or outright portfolio insurance. Equity index futures are pertinent because they play a significant role in liquidity enhancement (Harris, 1989; Stein, 1987; Bessembinder and Seguin, 1992), Jegadeesh and Subrahmanyam, 1993), portfolio construction and asset allocation (Roll 1984; Lien and Tse, 2002), hedging (Figlewski, 1984; Stoll and Whaley, 1990), capital effectiveness (Bodurtha and Courtadon 1987), and price discovery (Kawaller, Koch, and Koch, 1987; Chan, Chan, and Karolyi, 1991).

However, corporate bonds differ from equities. Corporate bonds are notoriously illiquid (Sarig and Warga, 1989; Warga, 1992). This is because corporate bonds are characterized by the dominance of large long-term institutional creditors, mainly insurers and pensions (Dass and Massa, 2014). Even with the rapid growth of shorter-term investors (mutual funds and ETFs) market share, prototypical bondholders (i.e., life insurers) are staple long-term creditors who ought to match and manage their own long-duration liabilities (Huebner, 1932; Fraine, 1951; O'Leary, 1954) and tend to hold concentrated positions to economize on information production (Dass and Massa, 2014), resolve information asymmetry (Ivashina 2009), and inhibit costly suboptimal liquidation upon a strategic default (Bolton and Scharfstein, 1996).

The upshot is that significant portions of the corporate bond market are characterized by so-called 'frozen bonds'. This creates a material detrimental risk to investors who need liquidity as an integral part of their business operations, specifically mutual funds and ETFs. This group of investors has rapidly become a major investor class over the past two decades. Durongkadej, Nejadmalayeri, and Polonchek (2024) show that prior to 2005, when TRACE data on corporate bond trades from SIFMA became widely accessible, life-insurers accounted for 47% of the top 10 bondholdings of a typical corporate bond, while funds accounted for only 11% of the top 10 bondholdings. Since 2012,

when Moody changed its corporate bond rating methodology, the share of funds' bondholdership has risen to 21%, whereas that of life insurers has dropped to roughly 32%.

Index futures are not without ardent critics. Cox (1976) notes that "… for some 80 years, there have been farmers and other agricultural interests who have claimed that futures trading destabilizes spot prices and thereby imposes losses on producers and consumers". In the aftermath of the 1987 stock market crash, Josh Shad, former chairman of the Securities and Exchange Commission, reiterated similar criticism for stock index futures and asserted that "… while stock index futures serve valid arbitrage and hedging purposes, they have escalated the leverage and volatility of the entire stock market to unacceptable levels."[1]

The combination of the innate illiquidity due to a large presence of long-term buy-and-hold investors along with the rapid and marked rise of liquidity demand (i.e., mutual funds, ETFs and portfolio basket trading) provides a unique opportunity to examine the role of corporate bond index futures in the functioning of their underlying asset market: corporate bonds. To do so, we take a triangular approach. Using a large panel of corporate bonds, we empirically test how (1) iBOXX index constituency and (2) iBOXX index futures inception have affected (a) corporate bond yield spreads, (b) corporate bond liquidity, and (3) corporate bond ownership type. Our sample spans 2016Q1 to 2019Q4 which straddles the launch quarter for iBOXX futures: 2018Q3. Our sample start a year prior to official announcement of IHS Markit and S&P Dow Jones Indices (SPDJI) joint venture partnership to administer and co-brand the iBoxx fixed income indices. We chose to end our sample prior to global spread of COVID19. Our multivariate analysis of quarterly marked-to-market values reported by corporate bondholders indicates that constituency in iBOXX investment grade (iBOXX IG) and high yield (iBOXX HY) indexes correspond, respectively, to a 37.3 bps and 140.0 bps significantly smaller spreads. The inception of iBOXX futures corresponds to a further significant decrease in spreads of 36.8 bps for iBOXX IG and 56.4 bps for iBOXX HY bonds. However, evidence from transactions shows different results. The constituency in the iBOXX IG index corresponds to an 8.7 bps smaller spread. The constituency in the iBOXX HY index does not have a significant impact. The inception of iBOXX futures corresponds to a significant increase in spreads of 5.9 bps for iBOXX IG and a significant further decrease in spreads of 25.3 bps for iBOXX HY bonds.

Our analysis of bondholders' self-reported quarterly buys and sells shows that being a constituent of iBOXX IG corresponds to 13.4% larger natural log of dollar buys and 14.2% larger natural log of dollar sells. And being a constituent of iBOXX HY corresponds to 19.6% larger natural log of dollar buys and 7.8% larger sells. The inception of futures has no significant effect on either iBOXX IG or IBOXX HY constituent bonds' buys. The inception of futures increased sales of all non-index bonds by 8.5% but decreased sales of iBOXX IG and iBOXX HY constituent bonds by 3.0% and 7.8%, respectively. From transaction data, we find that the inclusion in iBOXX IG and iBOXX HY corresponds to, respectively, a 94.4% and a 93.2% increase in the quarterly aggregated log dollar volume. The inclusion in iBOXX IG and iBOXX HY corresponds to, respectively, a 41.3% and a 34.7% increase in the quarterly aggregated log number of trades. The inception of index futures only affects the iBOXX HY constituents' log dollar volume (7.6% increase) and iBOXX IG constituents' log number of trades (1.7% increase).

Lastly, we examine the bondholding by three major bondholder types: mutual funds (includes ETFs), life insurers, and property/casualty insurers. We find that the inclusion in iBOXX IG and iBOXX HY indexes corresponds to, respectively, a 4.9% and a 7.6% increase in mutual funds' ownership; and respectively, a 6.1% and a 4.9% decrease in life insurers' ownership. The inclusion in iBOXX IG and iBOXX HY indexes corresponds to, respectively, a 1.1% increase and a 1.8% decrease in property/casualty ownership. We find that the inception of index futures corresponds to, respectively, a 5.1% and a 2.6% decrease in mutual funds' ownership of iBOXX IG and iBOXX HY constituent bonds. The inception of index futures corresponds to, respectively, a 4.0% and a 1.8% increase in life insurers' ownership of iBOXX IG and iBOXX HY constituent bonds. The inception of

[1] "Calming the Market", *Washington Post* July 25, 1988.

index futures corresponds to, respectively, a 0.9% and a 1.3% increase in property/casualty's ownership of iBOXX IG and iBOXX HY constituent bonds.

The remainder of this paper is organized as follows. In Section 2, we review the relevant literature and develop testable hypotheses. In Section 3, we explain the data and describe our variables. Section 4 provides the results of empirical analyses. Lastly, Section 5 concludes.

2. The Relevant Literature and Hypotheses Development

2.1. Index Creation and Indexing

When Charles Dow created the first stock index, the Dow Jones Railroad Average, in 1884, he intended to provide a clear measure of overall market performance. Since then, the creation of broad indices has become the cornerstone of investing. Nearly five years after Markowitz's (1952) Nobel prize winning paper was published, on March 4, 1957, Standard & Poor's (now S&P Global) officially launched the hallmark market-value-weighted S&P500 Index, and in doing so, it revolutionized the industry by establishing the gold standard of creating a comprehensive and accurate representation of the market. Nearly two decades later, Vanguard launched its iconic product, First Index Investment Trust (today known as Vanguard 500 Index Fund), to make an S&P500 Index-tracking fund available to the public. While initially received with skepticism, this ultimately revolutionized investing forever.

From an academic perspective, market indexes are equally critically important. The seminal work of Markowitz (1952) on the modern portfolio theory and the ensuing works of Sharpe (1964), Treynor (1962), Lintner (1965a, b), and Mossin (1966) unequivocally demonstrated the pertinence of the so-called 'market portfolio' in capital asset pricing. While a perfect market portfolio is practically intractable, most empirical varieties very much resemble the S&P500 in spirit. In short, market indexes play an undeniable role in the most fundamental aspects of investment, both in theory and in practice.

Indexing has become nearly synonymous with investment management. According to the Investment Company Institute, based on data for all U.S. mutual funds and exchange-traded funds in July 2025, 61.5% of domestic equity funds and 47.9% of world equity funds are indexed (passively managed). Among bond funds, though, only 37.3% are passively managed. This is a dramatic increase from less than 5% of all funds being indexed in 1985. This drastic rise in passive/indexed investing can be attributed to: lower costs (French, 2008), diversification (Statman, 1987), transparency (Gastineau, 2001), benchmark reliability (Fama & French, 2010), and liquidity/scalability (Agapova, 2011).

One of the most significant advantages is cost efficiency. Unlike active funds that employ teams of analysts and portfolio managers, passive funds simply replicate benchmark indices, resulting in significantly lower expense ratios. The compounding of these savings substantially boosts net investor returns over time (Elton, Gruber, & Busse, 2004). Indeed, active management is a negative-sum game after accounting for costs, implying that investors as a group are better off with passive strategies (French, 2008).

A second major benefit of indexing is broad diversification. By mirroring indices such as the S&P 500 or MSCI World, investors gain exposure to hundreds or even thousands of securities, thereby reducing idiosyncratic risk. Statman (1987) showed that diversification meaningfully reduces unsystematic risk even in relatively concentrated portfolios, while Bogle (1999) emphasized that index funds provide this diversification instantaneously at minimal cost. For managers, diversification reduces monitoring and compliance burdens, since risk exposure is predefined by index construction rules.

Equally important is the transparency and simplicity of passive funds. Investors can easily observe what they hold, since index funds disclose their benchmark and replicate its constituents in a straightforward fashion. Gastineau (2001) highlighted transparency as a critical innovation of

exchange-traded funds (ETFs), while Malkiel (2013) noted that passive products' simplicity fosters investor confidence and limits style drift. This transparency also benefits managers as well by reducing regulatory and investor scrutiny, thereby enhancing trust.

Passive funds also offer consistent benchmark tracking. Fama and French (2010) found that very few active managers generate persistent skill, and Carhart (1997) showed that much of the apparent outperformance can be explained by luck rather than ability. By design, passive funds reliably match benchmark returns, enabling investors to avoid the underperformance trap while managers enjoy a stable basis for marketing and AUM retention.

Lastly, liquidity and scalability are notable strengths of indexing. ETFs and index funds can absorb large inflows and outflows without significant portfolio disruption, making them highly suitable for both institutional and retail investors. Agapova (2011) compared mutual funds and ETFs, highlighting their scalability and liquidity benefits, while Poterba and Shoven (2002) showed how ETFs provide tax-efficient, liquid exposure to broad indices. For managers, scalability permits the efficient accumulation of AUM bases without proportional increases in cost or operational complexity.

2.2. Index Futures

Equity index futures are among the most actively traded derivatives worldwide. Their central role in modern financial markets arises from their ability to enhance market liquidity, accommodate optimal asset allocation, facilitate risk management, provide cost effectiveness, and improve price efficiency.

The introduction and active trading of equity index futures enhance liquidity in the underlying stock market. By facilitating speculation, arbitrage, and hedging activities increase trading activity in both futures and equities, reducing bid-ask spreads and improving depth. Jegadeesh and Subrahmanyam (1993) provide empirical evidence that the launch of S&P 500 futures increased the liquidity of component stocks. Harris (1989) also observed that futures contribute to stabilizing cash market trading by attracting a diverse range of participants, including hedgers and speculators, thereby broadening the base of market activity.

Index futures serve as an important vehicle for speculation and risk transfer. Speculators use futures to take leveraged positions on market direction, volatility, or macroeconomic announcements without trading underlying stocks. By doing so, they provide liquidity to hedgers seeking protection, creating a mutually beneficial risk-sharing environment. Bessembinder and Seguin (1992) show that speculative activity in futures markets does not destabilize spot markets, but instead facilitates risk transfer and enhances efficiency. Stein (1987) provides a theoretical framework showing how speculative trading can improve welfare by reallocating risk to those most willing to bear it.

The close link between futures and spot indices provides opportunities for arbitrage trading, which in turn enforces pricing efficiency. When futures prices deviate from their theoretical fair value (derived from the cost-of-carry model), arbitrageurs engage in cash-and-carry or reverse cash-and-carry strategies to profit from mispricing. Brennan and Schwartz (1990) formalized arbitrage mechanisms in stock index futures, while MacKinlay and Ramaswamy (1988) provided empirical evidence that arbitrage activity quickly corrects deviations. Thus, arbitrage not only benefits traders but also ensures consistent pricing across related markets.

Equity index futures are highly effective for tactical asset allocation because they allow rapid adjustments to portfolio beta or market exposure without transacting in dozens or hundreds of individual securities. For example, an investor seeking to temporarily increase market exposure can buy index futures rather than purchasing a full basket of stocks. This flexibility is especially valuable for pension funds, mutual funds, and other institutional investors. Lien and Tse (2002) highlight the versatility of futures in dynamic hedging and portfolio management strategies, while Roll (1984) emphasizes the transaction-cost advantages of using futures for tactical shifts.

One of the most important uses of equity index futures is hedging systematic risk. Index futures allow investment managers to offset market risk efficiently by shorting futures contracts when concerned about downside exposure. Empirical studies show that hedging effectiveness is strong, though subject to basis risk (the difference between futures and spot prices). Figlewski (1984) demonstrated that index futures significantly reduce variance in equity portfolios, while Stoll and Whaley (1990) found that futures prices co-move tightly with spot indices, making them reliable hedging tools.

Compared with trading the underlying basket of index stocks, equity index futures involve much lower transaction costs. Futures require only an initial margin deposit, freeing up significant capital relative to outright equity purchases. This efficiency enables investors to achieve desired market exposures while deploying capital more productively elsewhere. Bodurtha and Courtadon (1987) provide evidence that arbitrage and hedging with futures are far cheaper than equivalent stock transactions. Furthermore, futures markets have been designed for high liquidity and standardized contracts, further reducing costs relative to over-the-counter alternatives.

Equity index futures markets play a critical role in incorporating information quickly and transmitting it to the cash markets. Because futures markets often trade longer hours, at lower transaction costs, and with higher leverage, informed traders frequently use them to express views on aggregate market direction. Studies such as Kawaller, Koch, and Koch (1987) and Chan, Chan, and Karolyi (1991) confirm that price discovery often occurs in futures markets first, with the cash market following. This function enhances market efficiency by ensuring information is rapidly embedded into asset prices.

2.3. Hypotheses

Given the illiquidity of the secondary corporate bond market (Sarig and Warga, 1989; Warga, 1992), combined with the dominance of long-term buy-and-hold owners (Dass and Massa 2014, Durongkadej, Nejadmalayeri, and Polonchek 2025), we expect that bonds included in the iBOXX indexes will have better liquidity, a lower liquidity premium (smaller spreads), and greater ownership by liquidity demand owners (mutual funds). The inception of iBOXX futures would strengthen the abovementioned effects. Firstly, by attracting a wider range of participants, particularly speculators and arbitrageurs, index futures enhance the overall liquidity of the underlying asset: corporate bonds. Secondly, index futures allow for more effective core-satellite semi-active portfolio construction. The indexed (futures-based) core, along with tactically weighted satellite positions, enables managers to mimic benchmarks closely while generating tactical alpha at the periphery. Lastly, for long-term investors, index futures provide greater flexibility in transitioning from sub-optimal (that do not match asset-liability mandates) investments to more opportune ones. Overall, we hypothesize that:

H1: The inception of iBOXX futures ameliorates corporate bond yield spreads.

H2: The inception of iBOXX futures enhances corporate bond liquidity.

H3: The inception of iBOXX futures promotes ownership by bondholder types that demand liquidity.

3. Data and Variables

3.1. iBOXX Indexes and Futures

Our data on iBOXX indexes constituents are courtesy of S&P Global. The iBoxx indexes were launched in 2001 by the International Index Company Limited (IIC). IIC was founded as a consortium / joint venture among several banks: ABN AMRO, Barclays, BNP Paribas, Deutsche Bank, Deutsche Börse, Dresdner Kleinwort, Goldman Sachs, HSBC, JPMorgan, Morgan Stanley and UBS. The idea was to build a bond index system with multi-contributor pricing (many banks contributing bond price data), for more accurate, reliable pricing. IIC indented these indexes to be use multi-source pricing, rules for inclusion (issuer type, rating, maturity, currency, outstanding amount, etc.), and periodic rebalancing.

In 2007, Markit Group acquired IIC. The iBoxx indexes came under Markit, which had broader capabilities. In 2016, Markit merged with IHS Inc. to form IHS Markit, strengthening the underlying data (pricing, reference data) and resources behind iBoxx. Since 2017, IHS Markit and S&P Dow Jones Indices (SPDJI) had a joint venture partnership to administer and co-brand the iBoxx fixed income indices (and related tradable products such as ETFs and futures). S&P Global completed its acquisition of IHS Markit on February 28, 2022, in an all-stock deal was valued at roughly $44 billion, making it one of the largest mergers in financial data and analytics history. After the merger, the combined company continued under the S&P Global name, and IHS Markit's offerings—including the iBoxx bond indices—became part of S&P Global's index and data businesses.

In 2018, in partnership with S&P Global, Chicago Board of Option Exchange (Cboe) its suit of iBoxx futures. On, September 10, 2018, Cboe launched the Cboe iBoxx iShares $High Yield Corporate Bond Index (IBHY) futures. This was the first U.S. exchange-listed futures contract to offer exposure to the corporate bond market. Then, on October 8, 2018, Cboe followed up with the launch of the Cboe iBoxx iShares $Investment Grade Corporate Bond Index (IBIG) futures. iBoxx Futures are are standardized, cash-settled futures contracts listed on the Cboe Futures Exchange (CFE). This means there is no physical delivery of the underlying bonds. These futures contracts are based on the iBoxx iShares $Corporate Bond Indices, which are designed to track the performance of U.S. dollar-denominated investment-grade and high-yield corporate debt.

3.2. Corporate Bonds

We compile the data for the analysis from multiple data sources for the 2016:Q1 to 2019:Q4 period. Data on bond holdings come from Refinitiv's (formerly Thomson-Reuters) Lipper eMAXX. This database has comprehensive coverage of quarterly fixed income holdings for insurance companies, mutual funds, and pension funds. The data contains both managers and ultimate investors. eMAXX classifies investors into categories based on type (e.g., mutual funds versus insurance companies). Following Becker and Ivashina (2015), we exclude callable, convertible bonds, preferred stock, other preferred securities, and bonds issued by government or government-sponsored enterprises from our sample. We exclude all financial, utilities, and non-U.S. domiciled firms from our sample. eMAXX reports credit rating for each bond till 2013. For the missing information, we use the Fixed Income Securities Database (FISD) as well as COMPUSTAT annual rating updates as provided by Wharton Research Data Services (WRDS). We discard any bond with missing ratings (including those that are denoted as unrated) as well as bonds with worse than a BBB- rating. Speculative grade bonds have been shown to behave more in tandem with equity, thus representing a different type of risk. Additionally, we avoid the intricacies of dealing with distressed bond investors who target speculative-grade bonds with low ratings.

For transaction prices and bond attributes, we first use Fixed Income Securities Database (FISD) for the period of January 1998 to December 2004. FISD was the primary source of information on bond transactions prior to the creation of Trade Reporting and Compliance Engine (TRACE) system. We amend this sample with all bonds with valid data in the Trade Reporting and Compliance Engine (TRACE) system as provided by WRDS from January 2005 onward. As is the convention of the literature , we exclude all bonds with option-like features such as callability, putability, convertibility, and sinking fund provisions. Our final sample contains 96,811 bond-quarter observations of which

60,086 are non-index member investment grade bonds, 10,571 are non-index member high yield bonds, 19,530 iBOXX IG bonds, and 6,624 iBOXX HY bonds.

3.3. Variables
3.3.1. Test Variables
3.3.1.1. Yield Spreads

As in Elton et al. (2001), we use the Federal Reserve Board of Governor's Nelson-Siegel (1987) fitted Treasury yield rates as our benchmark. We then use the coupon and years-to-maturity of the corporate bond and price the bond using the Fed's estimated Nelson-Siegel fitted Treasury yields. We then define the yield spread as the actual yield-to-maturity of the corporate bond minus the yield-to-maturity of the hypothetical Treasury equivalent. This allows us to match duration and convexity of the bonds as closely as possible and yet account for the complexities of the Treasury yield curve. For callable bonds, we use the first call date to determine the years-to-call, rather than years-to-maturity, and we use the call price (par plus the call premium) instead of the par value. Our yield spread is thus based on the yield-to-worst.

3.3.1.2. Bond Liquidity Measures

We use two measures of liquidity from self-reported quarterly transactions records in eMAXX. We use the natural log of the total dollar value of purchases to the natural log of the par value. We also use the natural log of the total dollar value of sells to the natural log of the par value. We also use two other measures of trading volume from transaction records in TRACE. We use the natural log of the total dollar value of all transactions (Ln($Volume)) as well as the natural log of the number of all transactions (Ln(Trades)) aggregated quarterly.

3.3.1.3. Bondholder Types

We use eMAXX data and classify all bondholders into four major categories: life insurers, property and casualty insurers, mutual funds, and others. Following Durongkadej, Nejadmalayeri, and Polonchek (2025), we use the proportion of par value owned by each of the above-mentioned types as a function of the total par as our measures of bondholder type.

3.3.2. Control Variables

We use a host of control variables to ensure that known determinants of yield spreads do not confound the impact of the test variables. Table 1 provides a list of all variables with brief descriptions.

Interest rates. In structural models of credit risk, a rise in the spot rate effectively reduces the likelihood of default (Leland (1994); Longstaff and Schwartz (1995)). Previous empirical studies (Duffee (1998); Elton et al. (2001); Chen, Lesmond, and Wei (2007)) indicate that yield spreads tend to fall when Treasury yields rise. The slope of the term structure of interest rates seems to have explanatory power in predicting both interest rate movements and macroeconomic growth (Litterman and Scheinkman (1991)). In a structural model setting, Ju and Ou-Yang (2006) show that as the yield curve becomes steeper, the yield spreads widen. Following previous studies (Duffee (1998); Elton et al. (2001); Chen, Lesmond, and Wei (2007); Javadi, Nejadmalayeri, and Krehbiel (2018)), we use the one-year Treasury bill yield as the first yield curve factor. We also use the difference between Treasury 10-year and two-year constant maturity bonds' yields as the measure of the slope of the yield curve. Lastly, we define curvature (CURV) as the difference between the Treasury five-year yield and the average of Treasury two- and 10-year yields.

Market volatility. Structural models also predict that the volatility of firm value is positively related to yield spreads (see Leland (1994); Longstaff and Schwartz (1995)). Following Collin-Dufresne, Goldstein, and Wei (2001), we use the CBOE volatility index (VIX) as a proxy of the overall volatility.

Credit rating. As in Collin-Dufresne, Goldstein, and Martin (2001) and Chen, Lesmond, and Wei (2007), we use this numerical rating as a determinant of yield spreads. We follow the convention of COMPUSTAT to assign numerical values for different ratings. For instance, a value of 2 denotes an AAA rating, whereas a value of 4 denotes an A rating. We use Moody's ratings to construct the equivalent numerical rating.

Years-to-maturity. Merton (1974) shows that yield spreads and maturity are nonlinearly related, and this relationship is a function of credit quality. Helwege and Turner (1999) find that, on average, the term structure of yield spreads is upward sloping. As such, we use the natural log of the bond's maturity.

Bond Age. Bond age is a proxy for the innate illiquidity of a corporate bond (Bao, Pan, and Wang (2011); Dick-Nielsen, Feldhütter, and Lando (2012)). As in Javadi, Nejadmalayeri, and Krehbiel (2018) and Durongkadej, Nejadmalayeri, and Polonchek (2025), we use the natural log of the bond age.

4. Empirical Examination

4.1. A Broad Univariate Perspective

As evident in Table 2, across the board, credit spreads imputed from eMAXX marked-to-market values decline after the inception of iBOXX futures. For non-index investment-grade bonds, the yield spreads decrease by 0.781% from 2.439% to 1.658% from the pre-futures period to the post-futures period. For non-index high-yield bonds, the spreads decrease by 1.077% from 3.960% to 2.883% from the pre-futures period to the post-futures period. For index investment-grade bonds (iBOXX IG), the yield spreads decrease by 0.780% from 1.862% to 1.082% from the pre-futures period to the post-futures period. For index high bonds (iBOXX HY), the yield spreads decrease by 1.124% from 4.044% to 2.919% from the pre-futures period to the post-futures period.

Evidence from TRACE transactions paints a similar but slightly moderate picture. or non-index investment-grade bonds, the yield spreads decrease by 0.062% from 1.462% to 1.401% from the pre-futures period to the post-futures period. For non-index high-yield bonds, the spreads decrease by 0.422% from 2.681% to 2.258% from the pre-futures period to the post-futures period. For index investment-grade bonds (iBOXX IG), the yield spreads increase by 0.010% from 1.269% to 1.279% from the pre-futures period to the post-futures period. For index high bonds (iBOXX HY), the yield spreads decrease by 0.335% from 3.204% to 2.869% from the pre-futures period to the post-futures period. Overall, the evidence supports our first hypothesis that the inception of iBOXX futures has ameliorated yield spreads. While index constituents have narrower spreads, the impact of index futures is true for both the index constituent bonds and the non-index constituent bonds. From marked-to-market values, the ameliorating impact of index inception is virtually identical for both types of bonds. From transaction prices, the ameliorating impact of index inception is marginally greater for non-index constituent bonds.

Our results for the impact of index inception on liquidity are, by and large, supportive of our second hypothesis (H2). From the self-reported buys, results indicate that for non-index investment grade bonds, the natural log of the dollar amount of buys decreases by 26.5% post-futures period, whereas for index investment grade bonds (iBOXX IG), the natural log of the dollar amount of buys decreases by 36.9% post-futures period. From the self-reported buys, results indicate that for non-index speculative grade bonds, the natural log of the dollar amount of buys decreases by 40.4% post-futures period, whereas for index speculative grade bonds (iBOXX HY), the natural log of the dollar amount of buys decreases by 28.9% post-futures period.

From the self-reported sells, results indicate that for non-index investment grade bonds, the natural log of the dollar amount of sells increases by 137.2% post-futures period, whereas for index investment grade bonds (iBOXX IG), the natural log of the dollar amount of sells increases by 65.6% post-futures period. From the self-reported sells, results indicate that for non-index speculative grade bonds, the natural log of the dollar amount of sells decreases by 95.7% post-futures period, whereas for index speculative grade bonds (iBOXX HY), the natural log of the dollar amount of sells increases by 12.5% post-futures period.

Based on TRACE transactions, the natural log of the dollar amount of quarterly volume increases by 0.29% post-futures period for non-index investment grade bonds, whereas for index investment grade bonds (iBOXX IG), the natural log of the dollar amount of quarterly volume decreases by 0.44% post-futures period. Based on TRACE transactions, results indicate that for non-index speculative grade bonds, the natural log of the dollar amount of quarterly volume decreases by 0.06% post-futures period, whereas for index speculative grade bonds (iBOXX HY), the natural log of the dollar amount of quarterly volume increases by 0.81% post-futures period.

Based on TRACE transactions, results indicate that for non-index investment grade bonds, the natural log of the number of quarterly trades increases by 0.69% post-futures period, whereas for index investment grade bonds (iBOXX IG), the natural log of the number of quarterly trades increases by 0.22% post-futures period. Based on TRACE transactions, results indicate that for non-index speculative grade bonds, the natural log of the number of quarterly trades increases by 1.62% post-futures period, whereas for index speculative grade bonds (iBOXX HY), the natural log of the number of quarterly trades increases by 0.90% post-futures period.

Our results for bond ownership type are surprising. We find that, as a percentage of total par, the holdings by mutual funds drop regardless of rating and index inclusion. This drop is nearly entirely offset by the increase in holdings of insurers (life and property/casualty). The change in the mutual funds' ownership of (1) non-index investment-grade bonds is -2.89%, (2) index investment-grade bonds (iBOXX IG) is -8.58%, (3) non-index speculative-grade bonds is-5.96%, and (4) index speculative-grade bonds is (iBOXX HY) -5.98%. The change in the life insurers' ownership of (1) non-index investment-grade bonds is +1.71%, (2) index investment-grade bonds (iBOXX IG) is +6.50%, (3) non-index speculative-grade bonds is +5.25%, and (4) index speculative-grade bonds is (iBOXX HY) +3.93%. The change in the property/casualty insurers' ownership of (1) non-index investment-grade bonds is +0.88%, (2) index investment-grade bonds (iBOXX IG) is +1.78%, (3) non-index speculative-grade bonds is +2.26%, and (4) index speculative-grade bonds is (iBOXX HY) +2.57%. Overall, our results support the idea that the inception of futures has incentivized greater ownership by buy-and-hold investors rather than liquidity demand investors (mutual funds).

4.2. S&P Corporate Bond Futures Inception and Yield Spreads

Following extant literature (Duffee (1998), Elton, Gruber, Agrawal, and Mann (2001), Collin-Dufresne, Goldstein, and Martin (2001), Eom, Helwege, Huang (2004)), we analyze the impacts of index inclusion and index futures inception on yield spreads using the reduced-form panel regression model. First, we employ the yield spreads imputed from the marked-to-market values from the eMAXX North America corporate bond ownership database for the period from 2016Q1 to 2019Q4. Since S&P Global and HIS Markit started a collaboration to offer iBOXX indexes in a joint effort in 2016, we started our sample in 2016Q1. We ended our sample in 2019Q4 to avoid thorny issues associated with COVID. We include bonds from three industries: industrial (non-financial, non-utilities), financials, and utilities.

To capture the effect of index inclusion, we use two indicator variables: (1) iBOXX_IG, which takes the value of one if the bond is also a constituent of the S&P iBOXX IG index, and (2) iBOXX HY, which takes the value of one if the bond is also a constituent of the S&P iBOXX HY index. To capture the impact of the inception of iBOXX futures, we use an indicator variable that takes the value of one if the data quarter in on or passed the inception date of 10/3/2018. We use interactions between

iBOXX_IG and iBOXX_HY and POST2018, which takes the value of one when the trading period is post 2018Q3 (i.e., the inception year-quarter for iBOXX futures) to capture the effect index futures inception on index constituents separately from non-index bonds. In short, we first estimate the following panel regression for yield spreads from marked-to-market values reported in eMAXX database:

$$YS_{b,t} = \alpha + \beta_{IG}\, iBOXX\_IG_{b,t} + \beta_{IG\_Post}\, iBOXX\_IG_{\ b,t} \times POST2018_{\ t} + \beta_{HY}\, iBOXX\_HY_{b,t} + \beta_{HY\_Post}\, iBOXX\_HY_{\ b,t} \times POST2018_{\ t} + \mathbf{\Phi}\, \mathbf{X}_{b,i,t} + \epsilon_{b,t} \quad (1)$$

where,

$YS_{b,t}$	=	The yield spread of corporate bond, b, at time t
$iBOXX\_IG_{b,t}$	=	An indicator variable that takes the value of one if the bond is also a constituent of the S&P iBOXX IG index
$iBOXX\_HY_{b,t}$	=	An indicator variable that takes the value of one if the bond is also a constituent of the S&P iBOXX HY index
$POST2018_{\ t}$	=	An indicator variable which takes the value of one if the period is 2018Q3 – 2019 Q4
$\mathbf{X}_{b,i,t}$	=	the vector of control variables (Treasury Bill Yield, Treasury Slope, Treasury Curvature, VIX, Ln(Maturity), Credit Rating)
$\epsilon_{b,t}$	=	the error term

Our panel regressions include bond and industry fixed effects and employ heteroskedasticity and autocorrelation robust standard errors corrected for correlation across multiple observations of a given bond (bond-level clustering).

Tables 3.A. to 3.D show the results for imputed yield spreads from eMAXX marked-to-market value. As is evident in Table 3.A., across bonds from all industries, we find that iBOXX IG and iBOXX HY index inclusions, respectively, correspond to 0.373% and 1.400% decrease in yield spreads. The iBOXX futures inception further decreases yield spreads for iBOXX IG and iBOXX HY index bonds by an additional 0.368% and 0.564%, respectively. We find that for non-index bonds, the iBOXX futures inception corresponds to a 0.188% increase in yield spreads. These effects vary across ratings and maturity.

The impact of inclusion in the iBOXX IG index on yield spread is statistically significant for A- and BBB-rated bonds. These impacts are, respectively, -0.344% and -0.449%. The impact of inclusion in the iBOXX IG index on yield spread is only statistically significant for medium- and long-term bonds. These impacts are, respectively, -0.733% and -0.326%. The impact of inclusion in the iBOXX HY index on yield spread is only statistically significant for AAA/AAA-, BBB-, and BB+/C-rated bonds. The impacts are, respectively, -1.029%, -0.666%, and -1.517%. The impact of inclusion in the iBOXX HY index on yield spread is only statistically significant for short- and medium-term bonds. These impacts are, respectively, -1.629% and -1.155%.

The impact of iBOXX futures' inception on the yield spread for the iBOXX IG index bonds is statistically significant for all ratings, and it decreases as the rating drops. For AAA/AA-, A-, BBB-, and BB+/C-rated, these impacts are -0.264%, -0.269%, -0.267%, and -0.543%, respectively. The impact of iBOXX futures' inception on the yield spread for the iBOXX IG index bonds is statistically significant for all maturities, which decreases as the maturity increases. For short-, medium-, and long-term bonds, these impacts are -0.684%, -0.161%, and -0.119%, respectively.

The impact of iBOXX futures' inception on the yield spread for the iBOXX HY index bonds is statistically significant for all ratings, and it decreases as the rating drops. For AAA/AA-, A-, BBB-, and BB+/C-rated, these impacts are -0.219%, -0.571%, -0.447%, and -0.751%, respectively. The impact of iBOXX futures' inception on the yield spread for the iBOXX HY index bonds is statistically

significant for only short- and medium-term bonds, which decreases as the maturity increases. For short- and medium-term bonds, these impacts are, respectively, -0.817% and -0.231%.

Lastly, as evident from Tables 3.B. to 3.D., the aforementioned findings remain qualitatively true for industrial and financial firms, particularly in terms of the ameliorating impact of the iBOXX futures on yield spreads. For utilities, the results are partially supportive of the hypothesis (H1) that index inclusion decreases spreads.

To confirm that our results hold when market prices are used, we re-estimate a similar panel regression for yield spreads using bond transactions reported via TRACE, or:

$$YS_{b,t} = \alpha + \beta_{IG}\, iBOXX\_IG_{b,t} + \beta_{IG\_Post}\, iBOXX\_IG_{\ b,t} \times POST2018_{\ t} + \beta_{HY}\, iBOXX\_HY_{b,t} + \beta_{HY\_Post}\, iBOXX\_HY_{\ b,t} \times POST2018_{\ t} + \boldsymbol{\Phi}'\, \mathbf{X}'_{b,i,t} + \epsilon'_{b,t} \quad (2)$$

where,

$YS_{b,t}$	=	The yield spread of corporate bond, b, at time t
$iBOXX\_IG_{b,t}$	=	An indicator variable that takes the value of one if the bond is also a constituent of the S&P iBOXX IG index
$iBOXX\_HY_{b,t}$	=	An indicator variable that takes the value of one if the bond is also a constituent of the S&P iBOXX HY index
$POST2018_{\ t}$	=	An indicator variable which takes the value of one if the period is 2018Q3 – 2019 Q4
$\mathbf{X}'_{b,i,t}$	=	the vector of control variables (Treasury Bill Yield, Treasury Slope, Treasury Curvature, VIX, Ln(Maturity), Ln(Bond Age), Credit Rating, MakewholeID)
$\epsilon'_{b,t}$	=	the error term

Our panel regressions include bond and industry fixed effects and employ heteroskedasticity and autocorrelation robust standard errors corrected for correlation across multiple observations of a given bond (bond-level clustering).

Tables 4.A. to 4.D show the results for imputed yield spreads from TRACE transactions. The magnitude and significance of the impact of index inclusion and index futures inception are drastically smaller. As is evident in Table 4.A., across bonds from all industries, we find that inclusion in iBOXX IG corresponds to a significant 0.087% decrease in yield spreads. The inclusion in iBOXX HY corresponds to a 0.064% increase (albeit insignificant) in yield spreads. The iBOXX futures inception increases yield spreads for iBOXX IG by 0.059%. The iBOXX futures inception decreases yield spreads for iBOXX HY by 0.253%. We find that for non-index bonds, the iBOXX futures inception corresponds to a 0.091% increase in yield spreads. These effects vary across ratings and maturity.

The impact of inclusion in the iBOXX IG index on yield spread is statistically significant for A-, BBB-, and BB+/C-rated bonds. These impacts are, respectively, -0.051%, -0.043%, and -0.169%. The impact of inclusion in the iBOXX IG index on yield spread is only statistically significant for short- and long-term bonds. These impacts are, respectively, -0.034% and -0.026%. The impact of inclusion in the iBOXX HY index on yield spread does not change statistically significantly with rating. The impact of inclusion in the iBOXX HY index on yield spread is only statistically significant for short- and medium-term bonds. These impacts are, respectively, +0.116% and +0.201%.

The impact of iBOXX futures' inception on the yield spread for the iBOXX IG index bonds is statistically significant for all ratings, and it decreases as the rating drops. For AAA/AA-, A-, BBB-, and BB+/C-rated, these impacts are -0.256%, +0.041%, +0.053%, +0.208%, respectively. The impact of iBOXX futures' inception on the yield spread for the iBOXX IG index bonds is only statistically significant for short-term bonds, at an increase of 0.091% in yield spreads. The impact of iBOXX futures' inception on the yield spread for the iBOXX HY index bonds is only statistically significant for BBB-, and BB+/C-rated bonds. These impacts are -0.232% and -0.086%, respectively. The impact of iBOXX futures' inception on the yield spread for the iBOXX HY index bonds is statistically

significant for only short- and medium-term bonds. These impacts are -0.257% and -0.227%, respectively.

Similarly, as evident from Tables 4.B. to 4.D., the aforementioned remain qualitatively true for industrial and financial firms, particularly in terms of the ameliorating impact of the iBOXX futures on yield spreads. For utilities, the results are partially supportive of the hypothesis (H1) that index inclusion decreases spreads. In a nutshell, our results based on imputed yield spreads from eMAXX marked-to-market values strongly support H1. The results based on TRACE transaction prices weakly support H1.

4.3. S&P Corporate Bond Futures Inception and Liquidity

To directly test for the ameliorating impact of index inclusion and index future inception on liquidity, we first estimate the following panel regression for quarterly buys and sells of bonds as reported by eMAXX, or:

$$\frac{Ln(\$Buys)}{Ln(\$PAR)}_{b,t} \quad or \frac{Ln(\$Sells)}{Ln(\$PAR)}_{b,t} \tag{3}$$
$$= \gamma + \eta_{IG}\, iBOXX\_IG_{b,t} + +\eta_{IG\_Post}\, iBOXX\_IG_{b,t} \times POST2018_{\,t}$$
$$+ \eta_{HY}\, iBOXX\_HY_{b,t} + \eta_{HY\_Post}\, iBOXX\_HY_{b,t} \times POST2018_{\,t}$$
$$+ \mathbf{\Psi}\, \mathbf{Y}_{b,i,t} + \varsigma_{b,t}$$

where,

$iBOXX\_IG_{b,t}$	=	An indicator variable that takes the value of one if the bond is also a constituent of the S&P iBOXX IG index
$iBOXX\_HY_{b,t}$	=	An indicator variable that takes the value of one if the bond is also a constituent of the S&P iBOXX HY index
$POST2018_{\,t}$	=	An indicator variable which takes the value of one if the period is 2018Q3 – 2019 Q4
$\mathbf{Y}_{b,i,t}$	=	the vector of control variables (TED Spread, Ln(Maturity), Credit Rating)
$\varsigma_{b,t}$	=	the error term

Our panel regressions include bond and industry fixed effects and employ heteroskedasticity and autocorrelation robust standard errors corrected for correlation across multiple observations of a given bond (bond-level clustering).

Tables 5.A. to 5.D show the results for eMAXX reported buys (Ln($Buys)/Ln($Par)). As is evident in Table 5.A., across bonds from all industries, we find that inclusion in iBOXX IG corresponds to a significant 13.4% increase in Ln($buys)/Ln($Par). The inclusion in iBOXX HY corresponds to a 19.6% increase in Ln($buys)/Ln($Par). The iBOXX futures inception had no significant impact on buys. We find that for non-index bonds, the iBOXX futures inception corresponds to a 1.7% decrease in Ln($buys)/Ln($Par). These effects vary across ratings and maturity.

The impact of inclusion in iBOXX IG index on Ln($buys)/Ln($Par) is statistically significant for AAA/AA-, A-, BBB-, and BB+/C-rated bonds, and these impacts are 11.1%, 14.6%, 12.4%, and 5.1%, respectively. The impact of inclusion in iBOXX IG index on Ln($buys)/Ln($Par) is statistically significant for short-, medium- and long-term bonds, and these impacts are 3.6%, 18.5%, and 21.9%. The impact of inclusion in iBOXX HY index on Ln($buys)/Ln($Par) is only statistically significant for A-, BBB- and BB+/C-rated bonds, and these impacts are 24.0%, 22.5%, and 16.4%, respectively. The impact of inclusion in iBOXX HY index on Ln($buys)/Ln($Par) is statistically significant for short-, medium-, and long-term bonds. These impacts are, respectively, 17.2%, 15.3%, and 12.9%.

The impact of iBOXX futures' inception on Ln($buys)/Ln($Par) for the iBOXX IG index bonds is only statistically significant for A- and BB+/C-rated, and these impacts are 1.2% and 1.6%,

respectively. The impact of iBOXX futures' inception on Ln($buys)/Ln($Par) for the iBOXX IG index bonds is only statistically significant for short- and long-term bonds, and these impacts are 3.8% and -4.7%. The impact of iBOXX futures' inception on Ln($buys)/Ln($Par) for the iBOXX HY index bonds is only statistically significant for A- and BB+/C-rated bonds. These impacts are -6.0% and 2.2%, respectively. The impact of iBOXX futures' inception on Ln($buys)/Ln($Par) for the iBOXX HY index bonds is statistically significant for only medium-term bonds, at -1.3%.

Tables 6.A. to 6.D show the results for eMAXX reported sells (Ln($Sells)/Ln($Par)). As is evident in Table 6.A., across bonds from all industries, we find that inclusion in iBOXX IG corresponds to a significant 14.2% increase in Ln($Sells)/Ln($Par). The inclusion in iBOXX HY corresponds to a 7.8% increase in Ln($Sells)/Ln($Par). Across bonds from all industries, the impact of iBOXX futures' inception for the iBOXX IG index bonds is a significant 3.0% decrease in Ln($Sells)/Ln($Par). The impact of iBOXX futures' inception for the iBOXX HY index bonds is a significant 5.9% decrease in Ln($Sells)/Ln($Par). For non-index bonds, the iBOXX futures inception corresponds to an 8.5% increase in Ln($Sells)/Ln($Par). These effects vary across ratings and maturity.

For AAA/AA-, A-, BBB-, and BB/C-rated bonds, the impacts of the inclusion in iBOXX IG are, respectively, 10.8%, 14.8%, 12.8%, and 8.8% change in Ln($Sells)/Ln($Par). For short-, medium-, and long-term bonds, the impacts of the inclusion in iBOXX IG are, respectively, 10.3%, 18.9%, and 17.6% change in Ln($Sells)/Ln($Par). For AAA/AA-, A-, BBB-, and BB/C-rated bonds, the impacts of the inclusion in iBOXX HY are, respectively, 12.8% (insignificant), 20.3%, 9.5%, and 6.1% change in Ln($Sells)/Ln($Par). For short-, medium-, and long-term bonds, the impacts of the inclusion in iBOXX HY are, respectively, 9.2%, 6.6%, and 13.5% change in Ln($Sells)/Ln($Par).

The impact of iBOXX futures' inception for the iBOXX IG index bonds is only statistically significant for AAA/AA-, A-, and BBB-rated bonds, and these impacts are, respectively, -2.1%, -5.1%, and -3.3% change in Ln($Sells)/Ln($Par). The impact of iBOXX futures' inception on Ln($Sells)/Ln($Par) for the iBOXX IG index bonds is statistically significant for short-, medium-, and long-term bonds, and these impacts are -1.9%, -3.4%, and -4.9%. The impact of iBOXX futures' inception on Ln($Sells)/Ln($Par) for the iBOXX HY index bonds is statistically significant for AAA/AA-, A-, BBB-, and BB+/C-rated bonds, which are, respectively, -5.9%, -8.8%, -5.8%, and -4.5%. The impact of iBOXX futures' inception on Ln($Sells)/Ln($Par) for the iBOXX HY index bonds is statistically significant for short-, medium-, and long-term bonds, and these impacts are -5.6%, -5.2%, and -12.2%, respectively. For both buys and sells, the aforementioned vary across industries. Overall, the buys and sells are positively (markedly and significantly) affected by index inclusions. The index futures' inception significantly (but marginally) reduces sales, but it does not significantly affect buys.

To further examine the impact of index futures inception on liquidity, we then focus on liquidity measures based on TRACE transactions: dollar volume and trades. Essentially, we estimate the following panel regression for the natural log of quarterly dollar volume and the natural log of quarterly trades for each, as indicated by TRACE transactions, or:

$$
\begin{aligned}
&Ln(\$Volume)_{b,t} \ \ or Ln(Trades)_{b,t} \qquad (4)\\
&= \gamma + \eta_{IG}\ iBOXX\_IG_{b,t} + +\eta_{IG\_Post}\ iBOXX\_IG_{b,t} \times POST2018_{\ t}\\
&+ \eta_{HY}\ iBOXX\_HY_{b,t} + \eta_{HY\_Post}\ iBOXX\_HY_{b,t} \times POST2018_{\ t}\\
&+ \mathbf{\Psi}'\ \mathbf{Y}'_{b,i,t} + \varsigma'_{b,t}
\end{aligned}
$$

where,

$iBOXX\_IG_{b,t}$	=	An indicator variable that takes the value of one if the bond is also a constituent of the S&P iBOXX IG index
$iBOXX\_HY_{b,t}$	=	An indicator variable that takes the value of one if the bond is also a constituent of the S&P iBOXX HY index
$POST2018_{\ t}$	=	An indicator variable which takes the value of one if the period is 2018Q3 – 2019 Q4

$\mathbf{Y}'_{b,i,t}$ = the vector of control variables (TED Spread, Ln(Maturity), Ln(Bond Age), Credit Rating, MakewholeID)

$\varsigma'_{b,t}$ = the error term

Our panel regressions include bond and industry fixed effects and employ heteroskedasticity and autocorrelation robust standard errors corrected for correlation across multiple observations of a given bond (bond-level clustering).

Tables 7.A. to 7.D show the results for the TRACE transaction-based Ln($Volume). As is evident in Table 7.A., across bonds from all industries, we find that inclusion in iBOXX IG corresponds to a significant 94.4% increase in Ln($Volume). The inclusion in iBOXX HY corresponds to a 93.2% increase in Ln($Volume). The iBOXX futures inception had no significant impact on buys. We find that for non-index bonds, the iBOXX futures inception has no significant impact. These effects vary across ratings and maturity.

The impact of inclusion in iBOXX IG index on Ln($Volume) is statistically significant for AAA/AA-, A-, BBB-, and BB+/C-rated bonds, and these impacts are 77.1%, 103.7%, 92.9%, and 42.0%, respectively. The impact of inclusion in iBOXX IG index on Ln($Volume) is statistically significant for short-, medium-, and long-term bonds, and these impacts are 51.4%, 120.6%, and 141.2%. The impact of inclusion in iBOXX HY index on Ln($Volume) is only statistically significant for A-, BBB-, and BB+/C-rated bonds, and these impacts are 35.0%, 67.6%, and 101.0%, respectively. The impact of inclusion in iBOXX HY index on Ln($Volume) is only statistically significant for short- and medium-term bonds. These impacts are, respectively, 112.1% and 83.3%.

The impact of iBOXX futures' inception on Ln($Volume) for the iBOXX IG index bonds is statistically insignificant across all ratings. The impact of iBOXX futures' inception on Ln($Volume) for the iBOXX IG index bonds is only statistically significant for long-term bonds at 8.7%. The impact of iBOXX futures' inception on Ln($Volume) for the iBOXX HY index bonds is only statistically significant for BB+/C-rated bonds at 14.2%.

Tables 8.A. to 8.D show the results for the TRACE transaction-based Ln(Trades). As is evident in Table 8.A., across bonds from all industries, we find that inclusion in iBOXX IG corresponds to a significant 41.3% increase in Ln(Trades). The inclusion in iBOXX HY corresponds to a 34.7% increase in Ln(Trades). Across bonds from all industries, the impact of iBOXX futures' inception for the iBOXX IG index bonds is a significant 1.3% increase in Ln(Trades). The impact of iBOXX futures' inception for the iBOXX HY index bonds has no significant impact on Ln(Trades). For non-index bonds, the iBOXX futures inception has no significant impact on Ln(Trades). These effects vary across ratings and maturity.

For AAA/AA-, A-, BBB-, and BB/C-rated bonds, the impacts of the inclusion in iBOXX IG are, respectively, 10.8%, 14.8%, 12.8%, and 8.8% change in Ln(Trades). For short-, medium-, and long-term bonds, the impacts of the inclusion in iBOXX IG are, respectively, 10.3%, 18.9%, and 17.6% change in Ln(Trades). For AAA/AA-, A-, BBB-, and BB/C-rated bonds, the impacts of the inclusion in iBOXX HY are, respectively, 12.8% (insignificant), 20.3%, 9.5%, and 6.1% change in Ln(Trades). For short-, medium-, and long-term bonds, the impacts of the inclusion in iBOXX HY are, respectively, 9.2%, 6.6%, and 13.5% change in Ln(Trades).

The impact of iBOXX futures' inception for the iBOXX IG index bonds is only statistically significant for A-rated bonds, a 4.8% increase in Ln(Trades). The impact of iBOXX futures' inception on Ln(Trades) for the iBOXX IG index bonds is only statistically significant for long-term bonds, a 6.4% increase in Ln(Trades). The impact of iBOXX futures' inception on Ln(Trades) for the iBOXX HY index bonds is only statistically significant for A-rated bonds, a 7.2% increase in Ln(Trades). For both dollar volume and trades, the aforementioned effects vary across industries. Overall, the dollar volume and trades are positively (markedly and significantly) affected by index inclusions. The index futures' inception marginally (and significantly) enhances dollar volume and trades. On the whole,

we have weak evidence in support of our second hypothesis (H2) that index futures inception enhances liquidity.

4.4. S&P Corporate Bond Futures Inception and Bondholders' Type

As noted earlier, traditionally, the majority of corporate bondholders are long-term, buy-and-hold investors, such as life insurers. We expect the creation of corporate bond indexes to attract more liquidity-demanding investors, such as mutual funds. To test our idea, we estimate the following panel regression for quarterly major bondholders' (mutual funds, life insurers, and property/casualty insurers) positions as reported by eMAXX:

$$\frac{\$MutualFunds}{\$PAR}_{b,t} \; or \; \frac{\$LifeInsurers}{\$PAR}_{b,t} \; or \; \frac{\$PropCasualty}{\$PAR}_{b,t} \tag{5}$$
$$= \mu + \lambda_{IG}\, iBOXX\_IG_{b,t} + +\lambda_{IG\_Post}\, iBOXX\_IG_{\,b,t} \times POST2018_{\,t}$$
$$+ \lambda_{HY}\, iBOXX\_HY_{b,t} + \lambda_{HY\_Post}\, iBOXX\_HY^{\,K}_{\,b,t} \times POST2018_{\,t}$$
$$+ \boldsymbol{\Theta}\, \mathbf{Z}_{b,i,t} + \xi_{b,t}$$

where,

$iBOXX\_IG_{b,t}$	=	An indicator variable that takes the value of one if the bond is also a constituent of the S&P iBOXX IG index
$iBOXX\_HY_{b,t}$	=	An indicator variable that takes the value of one if the bond is also a constituent of the S&P iBOXX HY index
$POST2018_{\,t}$	=	An indicator variable which takes the value of one if the period is 2018Q3 – 2019 Q4
$\mathbf{Z}_{b,i,t}$	=	the vector of control variables (Ln(Maturity), Ln(Bond Age), Credit Rating, MakewholeID)
$\xi_{b,t}$	=	the error term

Our panel regressions include bond and industry fixed effects and employ heteroskedasticity and autocorrelation robust standard errors corrected for correlation across multiple observations of a given bond (bond-level clustering).

Tables 9.A. to 9.D show the results for eMAXX quarterly reported mutual fund ownership ($MutualFunds/$Par). As is evident in Table 9.A., across bonds from all industries, we find that inclusion in iBOXX IG corresponds to a significant 4.9% increase in $MutualFunds/$Par. The inclusion in iBOXX HY corresponds to a 7.6% increase in $MutualFunds/$Par. The iBOXX futures inception corresponds to a significant 5.1% decrease in $MutualFunds/$Par for iBOXX IG bonds. The iBOXX futures inception corresponds to a significant 2.4% decrease in $MutualFunds/$Par for iBOXX HY bonds. We find that for non-index bonds, the iBOXX futures inception corresponds to a 1.7% decrease in $MutualFunds/$Par. These effects vary across ratings and maturity.

The impact of inclusion in iBOXX IG index on $MutualFunds/$Par is statistically significant for A- and BBB-rated bonds, and these impacts are 5.7% and 4.6%, respectively. The impact of inclusion in iBOXX IG index on $MutualFunds/$Par is statistically significant for short-, medium-, and long-term bonds, and these impacts are 1.1%, 8.5%, and 13.1%. The impact of inclusion in iBOXX HY index on $MutualFunds/$Par is only statistically significant for A-, BBB-, and BB+/C-rated bonds, and these impacts are 27.6%, 5.0%, and 9.5%, respectively. The impact of inclusion in iBOXX HY index on $MutualFunds/$Par is only statistically significant for short- and medium-term bonds. These impacts are, respectively, 9.1% and 11.1%.

The impact of iBOXX futures' inception on $MutualFunds/$Par for the iBOXX IG index bonds is statistically significant for AAA/AA-, A-, BBB-, and BB+/C-rated, and these impacts are -6.6%, -6.2%, -3.3%, and -3.6%, respectively. The impact of iBOXX futures' inception on $MutualFunds/$Par for the iBOXX IG index bonds is statistically significant for short-, medium-, and long-term bonds, and these

impacts are -1.8%, -3.3%, and -10.4%. The impact of iBOXX futures' inception on $MutualFunds/$Par for the iBOXX HY index bonds is only statistically significant for BBB-rated bonds, at –3.9%. The impact of iBOXX futures' inception on $MutualFunds/$Par for the iBOXX HY index bonds is statistically significant for only medium-term bonds, at –3.0%.

Tables 10.A. to 10.D show the results for eMAXX quarterly reported life insurers' ownership ($LifeInsurers/$Par). As is evident in Table 10.A., across bonds from all industries, we find that inclusion in iBOXX IG corresponds to a significant 6.1% decrease in $LifeInsurers/$Par. The inclusion in iBOXX HY corresponds to a significant 4.9% decrease in $LifeInsurers/$Par. The iBOXX futures inception corresponds to a significant 4.0% increase in $LifeInsurers/$Par for iBOXX IG bonds. The iBOXX futures inception corresponds to a significant 1.8% increase in $LifeInsurers/$Par for iBOXX HY bonds. We find that for non-index bonds, the iBOXX futures inception corresponds to a 0.9% increase in $LifeInsurers/$Par. These effects vary across ratings and maturity.

The impact of inclusion in iBOXX IG index on $LifeInsurers/$Par is only statistically significant for AAA/AA-, A-, and BBB-rated, and these impacts are, respectively, -6.0%, -7.9%, and -4.8%. The impact of inclusion in iBOXX IG index on $LifeInsurers/$Par is statistically significant only for medium- and long-term bonds, and these impacts are -8.3% and -13.0%. The impact of inclusion in iBOXX HY index on $LifeInsurers/$Par is only statistically significant for A- and BB+/C-rated bonds, and these impacts are -21.6% and -7.0%, respectively. The impact of inclusion in iBOXX HY index on $LifeInsurers/$Par is only statistically significant for short- and medium-term bonds. These impacts are, respectively, -5.9% and -7.3%.

The impact of iBOXX futures' inception on $LifeInsurers/$Par for the iBOXX IG index bonds is statistically significant for AAA/AA-, A-, BBB-, and BB/C-rated, and these impacts are, respectively, 5.2%, 5.4%, 2.5%, and 3.3%. The impact of iBOXX futures' inception on $LifeInsurers/$Par for the iBOXX IG index bonds is only statistically significant for medium-and long-term bonds, and these impacts are 1.8% and 9.2%. The impact of iBOXX futures' inception on $LifeInsurers/$Par for the iBOXX HY index bonds is only statistically significant for A- and BB/C-rated bonds, and these impacts are, respectively, -21.6% and-7.0%. The impact of iBOXX futures' inception on $LifeInsurers/$Par for the iBOXX HY index bonds is statistically significant for only short- and medium-term bonds, and these impacts are -5.9% and -7.3%, respectively.

Tables 11.A. to 11.D show the results for eMAXX quarterly reported property/casualty insurers' ownership ($PropCasualty/$Par). As is evident in Table 11.A., across bonds from all industries, we find that inclusion in iBOXX IG corresponds to a significant 1.1% increase in $PropCasualty/$Par. The inclusion in iBOXX HY corresponds to a significant 1.8% decrease in $PropCasualty/$Par. The iBOXX futures inception corresponds to a significant 0.9% increase in $PropCasualty/$Par for iBOXX IG bonds. The iBOXX futures inception corresponds to a significant 1.3% increase in $PropCasualty/$Par for iBOXX HY bonds. We find that for non-index bonds, the iBOXX futures inception corresponds to a 1.4% increase in $PropCasualty/$Par. These effects vary across ratings and maturity.

The impact of inclusion in iBOXX IG index on $PropCasualty/$Par is statistically significant for AAA/AA- and A-rated bonds, and these impacts are 6.6% and 1.8%, respectively. The impact of inclusion in iBOXX IG index on $PropCasualty/$Par is statistically significant for short-, medium-, and long-term bonds, and these impacts are -1.1%, -1.4%, and -0.7%. The impact of inclusion in iBOXX HY index on $PropCasualty/$Par is only statistically significant for A-, BBB-, and BB+/C-rated bonds, and these impacts are, respectively, -6.5%, -2.5%, and -1.2%. The impact of inclusion in iBOXX HY index on $PropCasualty/$Par is only statistically significant for short- and medium-term bonds. These impacts are, respectively, -2.4% and -3.8%.

The impact of iBOXX futures' inception on $PropCasualty/$Par for the iBOXX IG index bonds is only statistically significant for A- and BBB-rated, and these impacts are 0.7% and 0.9%, respectively. The impact of iBOXX futures' inception on $PropCasualty/$Par for the iBOXX IG index bonds is statistically significant for short-, medium-, and long-term bonds, and these impacts are 1.4%, 1.9%, and 0.5%. The impact of iBOXX futures' inception on $PropCasualty/$Par for the iBOXX HY index

bonds is only statistically significant for A-, BBB-, and BB/C-rated bonds. These impacts are -6.5%, -2.5%, and -1.2%, respectively. The impact of iBOXX futures' inception on $PropCasualty/$Par for the iBOXX HY index bonds is statistically significant for only short- and medium-term bonds. These impacts are -2.4% and -3.8%, respectively.

Overall, our results indicate that, contrary to our H3 prediction, index futures inception has reduced mutual fund ownership, more so for iBOXX IG bonds. Most of this reduction is absorbed by the increase in the ownership of life insurers. In short, the inception of iBOXX futures has reduced outright corporate bond ownership by liquidity-demanding investors like mutual funds. One possibility is that the futures market has entirely attracted these investors, leaving life insurers to serve as liquidity providers to the corporate bond market.

5. Conclusion

This study set out to examine the impact of iBOXX corporate bond index futures on yield spreads, liquidity, and bond ownership in the U.S. corporate bond market. Corporate bonds have long been central to American finance—funding railroads and industrial expansion in the Gilded Age, sustaining conglomerates during the postwar period, and transforming through the rise of high-yield instruments in the 1980s. Yet, until the launch of the iBOXX indexes in 2001 and the subsequent introduction of Cboe iBOXX futures in 2018, corporate bonds were the only major traditional asset class without a widely tradable benchmark and derivative overlay. Our analysis demonstrates that the emergence of these instruments has fundamentally reshaped the structure and behavior of corporate bond markets.

The evidence provided in this paper indicates three key patterns. First, inclusion in iBOXX indexes significantly reduces yield spreads, reflecting improved visibility, standardization, and demand from benchmark-constrained investors. The effects are especially strong for speculative-grade bonds, which historically have been subject to high illiquidity premia. Second, the inception of iBOXX futures further compresses spreads, particularly in high-yield bonds, suggesting that the futures market plays a complementary role in enhancing pricing efficiency. Third, both self-reported transactions and TRACE-based measures point to improved liquidity in index constituents, though the magnitude of futures-related improvements is more modest and heterogeneous across rating categories and maturities. Finally, our ownership analysis reveals a striking shift: mutual funds—traditionally the marginal liquidity-demanding holders of corporate bonds—reduced their relative holdings following futures inception, while insurers, both life and property/casualty, increased their presence. This reallocation highlights how derivatives can reconfigure the investor base in ways that may have implications for systemic risk and long-term capital provision.

These findings extend the literature on indexation and derivatives in several ways. Prior work on equity index futures emphasized their benefits for price discovery, hedging, and capital efficiency (Roll, 1984; Figlewski, 1984; Harris, 1989; Bessembinder and Seguin, 1992). Our study shows that similar mechanisms operate in corporate bond markets, despite the underlying asset's greater illiquidity and institutional segmentation. Moreover, while Sarig and Warga (1989) and Warga (1992) documented the structural illiquidity of corporate bonds, we demonstrate that the introduction of futures alleviates some of these frictions by attracting speculative and arbitrage capital into the broader ecosystem. At the same time, our evidence resonates with Dass and Massa (2014) and Durongkadej, Nejadmalayeri, and Polonchek (2025), who highlight the shifting roles of insurers and funds: iBOXX futures appear to accelerate these trends, reshaping the balance between long-horizon creditors and liquidity-sensitive investors.

From a theoretical perspective, our results affirm that index futures function not merely as derivative overlays but as catalysts of structural change in underlying markets. By reducing transaction costs and enabling flexible hedging, they alter the opportunity set of investors and issuers alike. The narrowing of yield spreads suggests that issuers may face lower primary borrowing costs over time, particularly in the high-yield segment where liquidity constraints are binding.

Simultaneously, the observed ownership shifts underscore the importance of considering equilibrium effects: the very existence of futures may induce certain investor classes to rebalance, thereby changing market dynamics in ways not fully captured by standard models of liquidity or price efficiency.

For practitioners, these findings highlight the growing importance of corporate bond futures as tools for portfolio construction, risk management, and tactical positioning. Life insurers, with their duration-matched liabilities, appear to have benefited from the ability to hedge or rebalance via futures rather than transacting in illiquid cash bonds. Mutual funds, in contrast, may rely less on direct bond exposures when futures provide a more cost-effective means of managing benchmarks and mitigating downgrade risks. Policymakers and regulators should note that such structural shifts may alter the resilience of the corporate bond market: while futures improve liquidity at the margin, they may also concentrate risk in derivative markets and shift ownership toward investors with different time horizons and risk appetites.

As with any empirical investigation, our study has limitations that point to fruitful avenues for further inquiry. First, our sample period ends in 2019Q4 to avoid distortions associated with the COVID-19 pandemic. Yet, the pandemic period represents an important stress test for both cash and futures markets, and examining how iBOXX futures functioned during systemic liquidity shocks would deepen our understanding of their stabilizing or destabilizing effects. Second, our analysis is U.S.-focused, but iBOXX indexes and related derivatives are global in scope, underpinning ETFs and structured products across Europe and Asia. Comparative work across jurisdictions could reveal how different institutional structures—particularly in bank-dominated systems—shape the impact of futures. Third, while we document ownership shifts, future research should explore the welfare implications of these reallocations: do issuers benefit from lower borrowing costs, and do end investors in funds or insurers ultimately experience superior outcomes? Finally, the role of futures in the primary market, particularly in facilitating issuance timing and pricing, remains an open question.

Taken together, our findings suggest that the introduction of iBOXX indexes and futures represents a structural inflection point in corporate bond markets. Index inclusion enhances transparency, narrows spreads, and boosts liquidity, while futures provide an additional layer of efficiency, hedging, and capital deployment. By bridging a historically illiquid asset class with modern derivatives infrastructure, iBOXX futures complete the financialization of the last major Gilded Age asset class and reshape the investor landscape. For academics, our study highlights the importance of considering derivatives not only as hedging instruments but as institutional innovations that reconfigure market structure. For practitioners, it underscores the growing relevance of corporate bond futures in asset-liability management and tactical allocation. And for policymakers, it raises questions about how new layers of financial intermediation may affect stability, systemic risk, and access to credit.

Ultimately, the rise of iBOXX futures illustrates the dynamic interplay between financial innovation and market evolution. Just as the creation of equity index futures transformed equities into a more liquid, tradable, and transparent asset class, the advent of corporate bond futures holds the potential to redefine the contours of credit markets. Whether this transformation proves to be a stabilizing force or a source of new vulnerabilities will be a key question for scholars, practitioners, and regulators in the years ahead.

REFERENCES

Agapova, A., 2011. Conventional mutual index funds versus exchange-traded funds. Journal of Financial Markets, 14(2), 323–343.

Bao, J., Pan, J., & Wang, J., 2011. The Illiquidity of Corporate Bonds. Journal of Finance, 66(3), 911-946.

Bessembinder, H., & Seguin, P. J., 1992. Futures-Trading Activity and Stock Price Volatility. Journal of Finance, 47(5), 2015–2034.

Bodurtha, J. N., & Courtadon, G. R., 1987. Tests of Arbitrage Pricing in the Equity Futures Market. Journal of Finance, 42(5), 1523–1535.

Bogle, J. C., 1999. Common Sense on Mutual Funds. Wiley.

Bolton, P., & Scharfstein, D.S., 1996, Optimal debt structure with multiple creditors, Journal of Political Economy 104, 1-25.

Brennan, M. J., & Schwartz, E. S., 1990. Arbitrage in Stock Index Futures. Journal of Business, 63(1), 7–31.

Bris, A., & Welch, I., 2005, The optimal concentration of creditors, Journal of Finance 60, 2193-2212.

Carhart, M. M., 1997. On persistence in mutual fund performance. Journal of Finance, 52(1), 57–82

Chan, K., Chan, K. C., & Karolyi, G. A., 1991. Intraday Volatility in the Stock Index and Stock Index Futures Markets. Review of Financial Studies, 4(4), 657–684.

Chen, Long, David A. Lesmond, and Jason Wei, 2007, Corporate yield spreads and bond liquidity, Journal of Finance 62, 119–149.

Dass, Nishant, and Massimo Massa, 2014, The variety of maturities offered by firms and institutional investment in corporate bonds, Review of Financial Studies 27, 2219–2266.

Davydenko, Sergei A., and Ilya A. Strebulaev, 2007, Strategic actions and credit spreads: An empirical investigation, Journal of Finance 62, 2633-2671.

Dick-Nielsen, J., Feldhütter, P., & Lando, D., 2012, Corporate Bond Liquidity Before and After the Onset of the Subprime Crisis. Journal of Financial Economics 103, 471–492.

Duffee, Gregory R., 1998, The relationship between treasury yields and corporate bond yields spreads, Journal of Finance 53, 2225–2241.

Duffie, D., and David Lando. 2001, Term structures of credit spreads with incomplete accounting information, Econometrica 69, 633–64.

Edmans, Alex, and Qi Liu, 2011, Inside debt, Review of Finance 15, 75–102.

Ellul, Andrew, Chotibhak Jotikasthira, Christian T. Lundblad, and Yihui Wang, 2015, Is historical cost accounting a panacea? Market stress, incentive distortions, and gains trading, Journal of Finance 70, 2489–2538.

Elton, Edwin J., Martin J. Gruber, Deepak Agrawal, and Christopher Mann, 2001, Explaining the rate spread on corporate bonds, Journal of Finance 56, 247–277.

Eom, Y., Helwege, J., Huang, J., 2004. Structural models of corporate bond pricing: an empirical analysis. Review of Financial Studies 17, 499–544

Fan, Hua, and Suresh M. Sundaresan, 2000, Debt valuation, renegotiation, and optimal dividend policy, Review of Financial Studies 13, 1057-1099.

Favero, C.A., A.E. Gozluklu, and A. Tamoni, 2011, Demographic Trends, the Dividend-Price Ratio, and the Predictability of Long-Run Stock Market Returns, Journal of Financial and Quantitative Analysis, 46(5): 1493–1520.

Flood, Mark D., and Anoop Rai, 2020, Principles of Bank Management: A Textbook to Accompany ProBanker, ProBanker Simulations, forthcoming.

Fracassi, Cesare, and Gregory Weitzner, 2020, What's in a debt? Rating agency methodologies and firms' financing and investment decisions, Working Paper, University of Texas-Austin.

Durongdakej, I., Nejadmalayeri, A., & Polonchek, J., 2024. Corporate Bondholdership Structure and the Implicit Lead, "Key" Lenders, working paper, University of Wyoming.

Elton, E. J., Gruber, M. J., & Busse, J. A., 2004. Are investors rational? Choices among index funds. Journal of Finance, 59(1), 261–288
Fama, E. F., & French, K. R., 2010. Luck versus skill in the cross-section of mutual fund returns. Journal of Finance, 65(5), 1915–1947.
Figlewski, S., 1984. Hedging Performance and Basis Risk in Stock Index Futures. Journal of Finance, 39(3), 657–669.
Fraine, H.G., 1951, The valuation of security holdings of life insurance companies, Journal of Finance 6, 124-138.
French, K. R., 2008. The cost of active investing. Journal of Finance, 63(4), 1537–1573.
Gastineau, G. L., 2001. Exchange-traded funds: An innovation in investment management. Journal of Portfolio Management, 27(3), 88–95.
Harris, L., 1989. S&P 500 Cash Stock Price Volatilities. Journal of Finance, 44(5), 1155–1175.
Helwege, Jean, and Christopher M. Turner, 1999, The slope of the yield curve for speculative-grade issuers, Journal of Finance 54, 1869–1884.
Huebner, S.S., 1932, The investment objectives of life insurance, Annals of the American Academy of Political and Social Science 161, 14-19.
Ivashina, V, Iverson, B., & Smith, D. C., 2016, The ownership and trading of debt claims in Chapter 11 restructurings, Journal of Financial Economics 119, 316–335.
Ivashina, Victoria, 2009, Asymmetric information effects on loan spreads, Journal of Financial Economics 92, 300–319.
Jegadeesh, N., & Subrahmanyam, A., 1993. Liquidity Effects of the Introduction of the S&P 500 Index Futures Contract on the Underlying Stocks. Journal of Business, 66(2), 171–187.
Javadi, S., Nejadmalayeri, A. & Osah, T., 2024, Credit Risk Correlation and Expected Stock Returns: Evidence from Implied Cost of Capital, working paper, UTRGV.
Javadi, S., Nejadmalayeri, A. & Krehbiel, T., 2018, Do FOMC actions speak loudly? Evidence from corporate bond credit spreads, Review of Finance 22, 1877-909.
Kawaller, I. G., Koch, P. D., & Koch, T. W., 1987. The Temporal Price Relationship Between S&P 500 Futures and the S&P 500 Index. Journal of Finance, 42(5), 1309–1329.
Knill, A., Minnick, K., & Nejadmalayeri, A., 2006. Selective Hedging, Information Asymmetry, and Futures Prices, Journal of Business, 79(3): 1475-1501.
Leland, Hayne E., 1994, Corporate debt value, bond covenants, and optimal capital structure, Journal of Finance 49, 1213–1252.
Leland, Hayne E., and Klaus Bjerre Toft, 1996, Optimal capital structure, endogenous bankruptcy, and the term structure of credit spreads, Journal of Finance 51, 987-1019.
Leland, Hayne E., and David H. Pyle, 1977. Information asymmetries, financial structure, and financial intermediation. Journal of Finance 32, 371–387.
Litterman, Robert, and Jose Scheinkman, 1991, Common factors affecting bond returns, Journal of Fixed Income 1, 1–18.
Longstaff, Francis A., Sanjay Mithal, and Eric Neis, 2005, Corporate yield spreads: Default risk or liquidity? New evidence from the credit-default swap market, Journal of Finance 60, 2213–2253.
Longstaff, Francis A., and Eduardo S. Schwartz, 1995, A simple approach to valuing risky fixed and floating rate debt, Journal of Finance 50, 789–819.
Loughran, Tim, and Bill McDonald, 2016, Textual Analysis in Accounting and Finance: A Survey, Journal of Accounting Research 54(4): 1187-1230
Manconi, Alberto, Massimo Massa, and Lei Zhang, 2016, Bondholder concentration and credit risk: Evidence from a natural experiment, Review of Finance 20, 127–159.
Massa, Massimo, Hong Zhang, and Weina Zhang, 2016, On the dynamics of corporate bond ownership, Working paper, Available at http://dx.doi.org/10.2139/ssrn.2479775.
Mella-Barral, Pierre, 1999, The dynamics of default and debt reorganization, Review of Financial Studies 12, 535–578.

Mella-Barral, Pierre, and William Perraudin, 1997, Strategic debt service, Journal of Finance 52, 531-556.
Merton, Robert C., 1974, On the pricing of corporate debt: The risk structure of interest rates, Journal of Finance 29, 449-470.
Lien, D., & Tse, Y., 2002. Some Recent Developments in Futures Hedging. Journal of Economic Surveys, 16(3), 357–396.
Lintner, John. 1965a. The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets. Review of Economics and Statistics. 47, 13–37.
Lintner, John. 1965b. Security Prices, Risk, and Maximal Gains from Diversification. Journal of Finance. 20, 587–615.
MacKinlay, A. C., & Ramaswamy, K., 1988. Index-Futures Arbitrage and the Behavior of Stock Index Futures Prices. Review of Financial Studies, 1(2), 137–158.
Malkiel, B. G., 2013. Asset management fees and the growth of finance. Journal of Economic Perspectives, 27(2), 97–118.
Markowitz, H.M., 1952. Portfolio Selection. Journal of Finance. 7 (1): 77–91
Merton, R. C., 1973. Theory of Rational Option Pricing. Bell Journal of Economics and Management Science. 4 (1): 141–183.
Mossin, Jan. 1966. Equilibrium in a Capital Asset Market. Econometrica. 35, 768–783.
Nejadmalayeri, A., Nishikawa, T., & Rao, R., 2013, Sarbanes-Oxley Act and Corporate Credit Spreads, Journal of Banking and Finance, 37 (8), 2991-3006.
Nejadmalayeri, A., Singh, M., & Mathur, I., 2013, Product Market Advertising and Corporate Bond, Journal of Corporate Finance, 19, 79–94.
Nejadmalayeri, A., & Singh, M., 2012, Corporate Taxes, Strategic Default, and Cost of Debt, Journal of Banking and Finance, 36, 2900– 2916.
O'Leary, J.J., 1954, Valuation of life insurance company holdings of corporate bonds and stocks: Some recent developments, Journal of Finance 9, 160-177.
Poterba, J. M., & Shoven, J. B., 2002. Exchange-traded funds: A new investment option for taxable investors. American Economic Review, 92(2), 422–427.
Rubinstein, M., and Leland, H., 1981. Replicating Options with Positions in Stocks and Cash, Financial Analysts Journal 37(4): 63-72.
Sarig, O., & Warga, A., 1989. Bond price data and bond market liquidity. Journal of Financial and Quantitative Analysis 24, 367–378.
Sharpe, W.F., 1964. Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk." Journal of Finance. 19, 425–442.
Sharpe, W.F., 1966. Mutual Fund Performance. Journal of Business. 39, 119–138.
Stein, J. C., 1987. Informational Externalities and Welfare-Reducing Speculation." Journal of Political Economy, 95(6), 1123–1145.
Stoll, H. R., & Whaley, R. E., 1990. The Dynamics of Stock Index and Stock Index Futures Returns. Journal of Financial and Quantitative Analysis, 25(4), 441–468.
Treynor, J.L., 1962. Toward a Theory of Market Value of Risky Assets. Unpublished manuscript. Final version in Asset Pricing and Portfolio Performance, 1999, Robert A. Korajczyk, ed., London: Risk Books, 15–22.
Warga. A., 1992. Bond returns, liquidity, and missing data. Journal of Financial and Quantitative Analysis 27, 605-617.

Table 2. Univariate Comparisons

This table represents the coefficient estimates of a reduced-form panel regression model of the U.S. corporate bond yield spreads as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables for the period of 2016Q1 to 2019Q4. NON-IGB refers to bonds that are not in iBOXX IG index. IGB refers to bonds that are constituents of iBOXX IG index. NON-HYB refers to bonds that are not in iBOXX HY index. HYB refers to bonds that are constituents of iBOXX HY index. The entire sample period is separated into two: pre-Futures (2016Q1 to 2018Q2) and post-Futures (2018Q3 to 2019Q4).

	NON-IGB Pre-Futures: 2016Q1 to 2018Q2	NON-IGB Post-Futures: 2018Q3 to 2019Q4	NON-HYB Pre-Futures: 2016Q1 to 2018Q2	NON-HYB Post-Futures: 2018Q3 to 2019Q4	IGB Pre-Futures: 2016Q1 to 2018Q2	IGB Post-Futures: 2018Q3 to 2019Q4	HYB Pre-Futures: 2016Q1 to 2018Q2	HYB Post-Futures: 2018Q3 to 2019Q4
Panel A.								
From eMAXX:	N=52,509	N=7,577	N=9,308	N=1,263	N=17,040	N=2,490	N=5,794	N=830
Yield Spread (%)	2.439	1.658	3.960	2.883	1.862	1.082	4.044	2.919
	{2.124}	{1.261}	{3.624}	{2.416}	{1.686}	{0.893}	{3.805}	{2.771}
Ln(BUY)/Ln(Par)	5.143	3.781	8.364	4.986	9.135	5.764	10.863	7.728
	{0.944}	{1.204}	{2.781}	{2.559}	{4.425}	{3.526}	{7.086}	{5.067}
Ln(SELL)/Ln(Par)	3.231	7.663	410.823	17.732	3.853	6.381	7.932	8.924
	{0.429}	{1.594}	{2.609}	{3.945}	{2.438}	{4.481}	{5.716}	{6.967}
Mutual Funds (/par)	0.180	0.151	0.426	0.367	0.346	0.260	0.669	0.609
	{0.120}	{0.094}	{0.430}	{0.336}	{0.318}	{0.227}	{0.695}	{0.633}
Life Insurers (/par)	0.622	0.639	0.357	0.410	0.465	0.530	0.175	0.215
	{0.681}	{0.702}	{0.275}	{0.365}	{0.462}	{0.548}	{0.142}	{0.173}
Porp. Casualty (/par)	0.134	0.143	0.103	0.125	0.102	0.120	0.047	0.073
	{0.068}	{0.076}	{0.049}	{0.079}	{0.086}	{0.104}	{0.038}	{0.061}
From TRACE:	N=59,695	N=8,545	N=10,970	N=1,466	N=17,449	N=2,574	N=6,036	N=854
Yield Spread (%)	1.462	1.401	2.681	2.258	1.269	1.279	3.204	2.869
	{1.201}	{1.183}	{2.185}	{1.832}	{1.148}	{1.187}	{2.932}	{2.625}
Ln($Volume)	8.689	8.715	9.157	9.151	10.854	10.806	11.034	11.123
	{9.057}	{9.094}	{9.520}	{9.547}	{10.874}	{10.815}	{11.036}	{11.125}
Ln(Trade)	3.141	3.163	3.261	3.314	3.983	3.991	4.014	4.050
	{3.434}	{3.497}	{3.584}	{3.638}	{4.094}	{4.078}	{4.094}	{4.094}
Panel B.								
	IGB minus NON-IGB		HYB minus NON-HYB		NON-IGB	IGB	NON-HYB	HYB
	Pre-Futures: 2016Q1 to 2018Q2	Post-Futures: 2018Q3 to 2019Q4	Pre-Futures: 2016Q1 to 2018Q2	Post-Futures: 2018Q3 to 2019Q4	Post-Futures minus Pre-Futures	Post-Futures minus Pre-Futures	Post-Futures minus Pre-Futures	Post-Futures minus Pre-Futures
Yield Spread – eMAXX (%)	-0.577	-0.576	0.084	0.036	-0.781	-0.780	-1.077	-1.124
Yield Spread – TRACE (%)	-0.193	-0.122	0.523	0.611	-0.062	0.010	-0.422	-0.335
Ln(BUY)/Ln(Par)	3.992	1.983	2.499	2.742	-1.362	-3.371	-3.378	-3.135
Ln(SELL)/Ln(Par)	0.622	-1.282	-402.891	-8.808	4.432	2.528	-393.091	0.992
Ln($Volume)	2.164	2.092	1.877	1.972	0.025	-0.047	-0.005	0.090
Ln(Trade)	0.842	0.829	0.753	0.736	0.022	0.009	0.053	0.036
Mutual Funds (/par)	0.166	0.109	0.242	0.242	-0.029	-0.086	-0.060	-0.060

Table 3.A. Quarterly Panel Regression Model of U.S. All Firms Corporate Bond Yield Spreads: Marked-to-Market

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond yield spreads of all U.S. firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**-0.373*** **	**-0.118**	**-0.344*** **	**-0.449*** **	**-0.046**	**0.058**	**-0.733*** **	**-0.326*** **
	(-6.95)	**(-1.10)**	**(-4.29)**	**(-5.79)**	**(-0.17)**	**(0.90)**	**(-8.46)**	**(-3.99)**
iBOXX_IG × Post2018	**-0.368*** **	**-0.264*** **	**-0.269*** **	**-0.267*** **	**-0.543*** **	**-0.684*** **	**-0.161*** **	**-0.119*** **
	(-15.14)	**(-3.78)**	**(-7.40)**	**(-6.79)**	**(-7.81)**	**(-14.04)**	**(-5.42)**	**(-6.37)**
iBOXX_HY	**-1.400*** **	**-1.029*** **	**0.141**	**-0.666*** **	**-1.517*** **	**-1.629*** **	**-1.155*** **	
	(-14.22)	**(-4.68)**	**(0.57)**	**(-3.25)**	**(-13.70)**	**(-12.26)**	**(-9.21)**	
iBOXX_HY × Post2018	**-0.564*** **	**-0.219*** **	**-0.571*** **	**-0.447*** **	**-0.751*** **	**-0.817*** **	**-0.231*** **	
	(-15.20)	**(-2.59)**	**(-3.95)**	**(-4.53)**	**(-14.79)**	**(-13.32)**	**(-5.28)**	
Post2018	**0.188*** **	**0.081***	**0.117*** **	**0.124*** **	**0.388*** **	**0.484*** **	**0.049** **	**0.056*** **
	(11.15)	**(1.82)**	**(4.52)**	**(5.16)**	**(10.02)**	**(14.94)**	**(2.15)**	**(4.96)**
Treasury Bill Yield	-0.606***	-0.682***	-0.742***	-0.692***	-0.450***	-0.519***	-0.741***	-0.841***
	(-38.11)	(-23.38)	(-38.30)	(-25.13)	(-12.83)	(-17.50)	(-38.25)	(-64.79)
Treasury Slope	-0.194***	-0.561***	-0.550***	-0.276***	0.313***	0.557***	-0.468***	-0.966***
	(-5.28)	(-7.45)	(-12.82)	(-4.48)	(3.81)	(8.02)	(-10.49)	(-34.12)
Treasury Curvature	-1.330***	-0.932***	-1.054***	-1.352***	-1.593***	-1.795***	-1.480***	-0.246***
	(-23.80)	(-7.08)	(-18.04)	(-17.84)	(-11.72)	(-16.38)	(-22.06)	(-6.77)
VIX	0.006***	0.004	0.010***	0.003	0.005	0.011***	0.005**	0.001
	(3.96)	(1.22)	(5.24)	(1.30)	(1.54)	(3.79)	(2.47)	(1.34)
Ln(Maturity)	-0.120***	0.157***	0.142***	-0.054	-1.121***	-0.878***	0.018	-1.888***
	(-4.46)	(2.72)	(4.61)	(-1.56)	(-11.51)	(-14.94)	(0.19)	(-13.59)
Credit Rating	-0.100	-0.385	-0.290	0.156	0.134	0.108	-0.283***	0.015
	(-1.28)	(-1.37)	(-0.85)	(0.52)	(0.74)	(0.89)	(-3.35)	(0.19)
Constant	4.785***	4.048***	4.248***	3.417***	6.063***	4.391***	5.622***	10.345***
	(14.64)	(6.02)	(3.94)	(2.77)	(6.02)	(8.19)	(13.26)	(20.44)
Adjusted R-squared	0.6297	0.7204	0.6159	0.5526	0.6179	0.6608	0.7117	0.7122
Observations	201,754	14,287	58,102	60,224	69,118	89,194	65,493	46,954
Bond FE / Industry FE	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes

Table 3.B. Quarterly Panel Regression Model of U.S. Industrial Firms Corporate Bond Yield Spreads: Marked-to-Market

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond yield spreads of the U.S. industrial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**-0.472*** **	**-0.256***	**-0.424*** **	**-0.590*** **	**-0.406**	**0.011**	**-0.826*** **	**-0.379*** **
	(-7.10)	**(-1.74)**	**(-4.81)**	**(-6.32)**	**(-1.30)**	**(0.12)**	**(-7.75)**	**(-4.18)**
iBOXX_IG_Post	**-0.383*** **	**-0.319** **	**-0.250*** **	**-0.170*** **	**-0.580*** **	**-0.676*** **	**-0.121*** **	**-0.095*** **
	(-9.72)	**(-2.43)**	**(-4.05)**	**(-3.00)**	**(-5.29)**	**(-9.35)**	**(-2.76)**	**(-3.32)**
iBOXX_HY	**-1.493*** **	**-0.443**	**0.259**	**-0.571** **	**-1.551*** **	**-1.750*** **	**-1.089*** **	
	(-11.89)	**(-1.42)**	**(1.01)**	**(-1.98)**	**(-10.95)**	**(-10.24)**	**(-7.21)**	
iBOXX_HY_Post	**-0.636*** **	**-0.433*** **	**-0.707*** **	**-0.506*** **	**-0.852*** **	**-0.916*** **	**-0.257*** **	
	(-12.48)	**(-3.29)**	**(-2.67)**	**(-4.78)**	**(-11.41)**	**(-10.92)**	**(-4.19)**	
Post_iBOXX	**0.262*** **	**0.155**	**0.158*** **	**0.120*** **	**0.563*** **	**0.650*** **	**0.053**	**0.055*** **
	(8.59)	**(1.45)**	**(3.01)**	**(3.15)**	**(9.42)**	**(11.97)**	**(1.41)**	**(2.88)**
Treasury Bill Yield	-0.548***	-0.641***	-0.729***	-0.715***	-0.397***	-0.445***	-0.744***	-0.846***
	(-19.81)	(-12.53)	(-19.19)	(-15.33)	(-7.47)	(-8.87)	(-24.26)	(-40.67)
Treasury Slope	0.014	-0.552***	-0.448***	-0.168	0.685***	0.969***	-0.426***	-0.939***
	(0.22)	(-4.07)	(-5.00)	(-1.62)	(5.50)	(8.08)	(-6.03)	(-21.21)
Treasury Curvature	-1.518***	-0.725***	-1.186***	-1.571***	-1.794***	-2.018***	-1.575***	-0.331***
	(-15.35)	(-3.57)	(-11.63)	(-12.86)	(-8.27)	(-10.58)	(-14.39)	(-6.20)
VIX	0.005*	0.003	0.012***	0.002	0.005	0.007	0.008***	0.001
	(1.95)	(0.45)	(3.36)	(0.60)	(0.89)	(1.50)	(2.73)	(0.70)
Ln(Maturity)	-0.193***	0.241***	0.200***	-0.031	-1.625***	-1.293***	0.078	-1.479***
	(-4.76)	(3.29)	(5.03)	(-0.65)	(-11.97)	(-13.28)	(0.51)	(-8.24)
Credit Rating	-0.024	-0.839	0.120	0.012	0.180	0.225	-0.280**	0.046
	(-0.22)	(-0.96)	(0.21)	(0.03)	(0.65)	(1.27)	(-2.51)	(0.26)
Constant	4.916***	4.630**	2.881	4.214***	6.879***	4.830***	5.713***	9.101***
	(9.89)	(2.29)	(1.56)	(2.92)	(4.35)	(5.76)	(8.97)	(10.90)
Adjusted R-squared	0.5931	0.6590	0.6006	0.5091	0.5585	0.6215	0.6741	0.6888
Observations	97,050	5,679	22,960	30,098	38,309	44,168	33,080	19,739
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3.C. Quarterly Panel Regression Model of U.S. Financial Firms Corporate Bond Yield Spreads: Marked-to-Market

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond yield spreads of the U.S. financial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**-0.098**	**0.161****	**-0.062**	**-0.188**	**0.267**	**0.175****	**-0.503*****	**-0.070**
	(-1.19)	**(2.36)**	**(-0.48)**	**(-1.34)**	**(1.30)**	**(2.15)**	**(-3.30)**	**(-0.37)**
iBOXX_IG_Post	**-0.515*****	**-0.379*****	**-0.453*****	**-0.595*****	**-0.537*****	**-0.865*****	**-0.241*****	**-0.217*****
	(-13.83)	**(-4.26)**	**(-6.43)**	**(-9.27)**	**(-8.02)**	**(-12.55)**	**(-4.78)**	**(-6.82)**
iBOXX_HY	**-1.154*****	**-1.312*****	**-0.015**	**-0.664*****	**-1.369*****	**-1.178*****	**-1.312*****	
	(-6.26)	**(-6.29)**	**(-0.03)**	**(-2.89)**	**(-6.47)**	**(-6.95)**	**(-5.10)**	
iBOXX_HY_Post	**-0.453*****	**-0.138**	**-0.562*****	**-0.278**	**-0.528*****	**-0.609*****	**-0.135***	
	(-5.91)	**(-1.11)**	**(-6.32)**	**(-0.97)**	**(-6.42)**	**(-5.00)**	**(-1.85)**	
Post_iBOXX	**0.145*****	**0.051**	**0.157*****	**0.143*****	**0.160*****	**0.304*****	**0.061***	**0.041***
	(6.57)	**(1.08)**	**(3.65)**	**(3.75)**	**(3.66)**	**(7.83)**	**(1.86)**	**(1.95)**
Treasury Bill Yield	-0.597***	-0.696***	-0.686***	-0.594***	-0.479***	-0.483***	-0.749***	-0.783***
	(-28.41)	(-18.59)	(-23.42)	(-14.88)	(-11.24)	(-12.92)	(-26.05)	(-36.71)
Treasury Slope	-0.351***	-0.569***	-0.524***	-0.314***	-0.186*	0.127*	-0.487***	-1.077***
	(-7.86)	(-6.35)	(-9.81)	(-3.55)	(-1.90)	(1.66)	(-7.36)	(-22.26)
Treasury Curvature	-1.262***	-1.094***	-1.158***	-1.259***	-1.416***	-1.666***	-1.448***	-0.153**
	(-18.36)	(-5.95)	(-12.22)	(-10.43)	(-9.40)	(-14.07)	(-15.65)	(-2.04)
VIX	0.007***	0.004	0.010***	0.003	0.007*	0.012***	0.002	0.003
	(3.75)	(1.10)	(3.36)	(0.73)	(1.92)	(3.73)	(0.77)	(1.38)
Ln(Maturity)	-0.030	0.091	0.114*	-0.120**	-0.367***	-0.312***	-0.204*	-1.069***
	(-0.72)	(0.94)	(1.84)	(-2.05)	(-3.67)	(-4.78)	(-1.68)	(-4.02)
Credit Rating	-0.381***	-0.225	-1.327***	1.244***	0.090	-0.074	-0.376***	-0.309***
	(-3.36)	(-1.13)	(-4.07)	(3.48)	(0.54)	(-0.41)	(-2.63)	(-3.50)
Constant	5.158***	3.739***	7.211***	-1.486	4.284***	3.673***	6.098***	8.689***
	(11.38)	(7.00)	(7.20)	(-1.00)	(4.69)	(4.88)	(9.64)	(10.95)
Observations	0.6823	0.7410	0.6516	0.5990	0.7255	0.6923	0.7527	0.7640
Adjusted R-squared	76,719	7,305	23,272	21,095	25,028	37,055	23,610	15,996
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3.D. Quarterly Panel Regression Model of U.S. Utilities Firms Corporate Bond Yield Spreads: Marked-to-Market

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond yield spreads of the U.S. utiltities firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**-0.491*** **	**1.212*** **	**-0.684*** **	**-0.027**	**-0.980** **	**-0.314**	**-0.722*** **	**-0.368**
	(-2.66)	**(6.23)**	**(-3.27)**	**(-0.13)**	**(-2.43)**	**(-1.58)**	**(-3.26)**	**(-1.49)**
iBOXX_IG_Post	**0.029**	**0.155***	**0.087***	**0.041**	**-0.279*** **	**0.233***	**-0.122***	**-0.041**
	(0.61)	**(1.84)**	**(1.79)**	**(0.45)**	**(-3.53)**	**(1.66)**	**(-1.69)**	**(-1.16)**
iBOXX_HY	**-1.347*** **			**-1.067*** **	**-1.430*** **	**-1.257*** **	**-1.343*** **	
	(-6.12)			**(-3.63)**	**(-6.01)**	**(-6.53)**	**(-2.97)**	
iBOXX_HY_Post	**-0.423*** **			**-0.345**	**-0.628*** **	**-0.635*** **	**-0.207**	
	(-4.17)			**(-1.00)**	**(-5.72)**	**(-4.47)**	**(-1.59)**	
Post_iBOXX	**0.047** **	**0.097**	**-0.033**	**0.067**	**0.187*** **	**0.357*** **	**-0.018**	**0.027***
	(2.09)	**(1.41)**	**(-1.64)**	**(1.30)**	**(2.97)**	**(6.54)**	**(-0.40)**	**(1.76)**
Treasury Bill Yield	-0.796***	-0.806***	-0.860***	-0.825***	-0.588***	-0.947***	-0.711***	-0.880***
	(-36.01)	(-12.84)	(-45.22)	(-29.12)	(-6.91)	(-18.56)	(-21.69)	(-37.29)
Treasury Slope	-0.482***	-0.444*	-0.829***	-0.420***	0.010	0.488***	-0.640***	-0.930***
	(-8.04)	(-1.99)	(-14.14)	(-5.05)	(0.06)	(4.31)	(-7.79)	(-15.98)
Treasury Curvature	-0.909***	-1.115***	-0.610***	-1.031***	-1.216***	-1.344***	-1.193***	-0.248***
	(-11.60)	(-4.28)	(-7.38)	(-9.24)	(-4.77)	(-6.90)	(-8.98)	(-3.50)
VIX	0.003	0.003	0.005*	0.003	-0.004	0.014***	-0.001	-0.001
	(1.50)	(0.91)	(1.68)	(0.84)	(-0.80)	(3.10)	(-0.40)	(-0.70)
Ln(Maturity)	-0.035	-0.636***	0.073	-0.044	-0.378**	-1.120***	0.467**	-2.763***
	(-0.68)	(-4.19)	(1.13)	(-0.59)	(-2.11)	(-9.42)	(2.09)	(-9.63)
Credit Rating	0.278*	-0.420	1.044**	-0.170	-0.222	0.152	0.030	0.267**
	(1.74)	(-1.10)	(2.60)	(-0.39)	(-0.51)	(0.65)	(0.10)	(2.12)
Constant	3.640***	7.617***	0.880	5.162***	7.426***	5.308***	3.629***	12.354***
	(5.78)	(9.13)	(0.68)	(2.86)	(3.25)	(5.19)	(2.98)	(11.52)
Observations	0.6249	0.6920	0.5779	0.5689	0.6962	0.7350	0.7766	0.6592
Adjusted R-squared	27,974	1,303	11,869	9,030	5,772	7,963	8,789	11,218
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 4.A. Quarterly Panel Regression Model of U.S. All Firms Corporate Bond Yield Spreads: Transactions

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond yield spreads of the U.S. industrial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond transaction information is from the TRACE database. All bond characteristics are from the FISD database. The yield-to-worst is imputed from transaction prices reported in TRACE. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**-0.087*** **	**-0.090**	**-0.051*** **	**-0.043** **	**-0.169** **	**-0.034***	**-0.028**	**-0.026***
	(-4.91)	**(-1.12)**	**(-2.89)**	**(-2.25)**	**(-2.53)**	**(-1.66)**	**(-1.16)**	**(-1.81)**
iBOXX_IG_Post	**0.059*** **	**-0.256***	**0.041*** **	**0.053** **	**0.208*** **	**0.091*** **	**0.031**	**0.005**
	(2.94)	**(-1.87)**	**(2.73)**	**(2.15)**	**(4.59)**	**(4.32)**	**(0.93)**	**(0.25)**
iBOXX_HY	**0.064**		**0.407**	**0.058**	**0.022**	**0.116** **	**0.201** **	
	(1.25)		**(1.10)**	**(0.52)**	**(0.43)**	**(2.28)**	**(2.29)**	
iBOXX_HY_Post	**-0.253*** **		**-0.020**	**-0.232*** **	**-0.086***	**-0.257*** **	**-0.227*** **	
	(-5.79)		**(-0.14)**	**(-3.01)**	**(-1.80)**	**(-5.82)**	**(-3.49)**	
Post_iBOXX	**0.091*** **	**0.142***	**0.065*** **	**0.088*** **	**0.092*** **	**0.069*** **	**0.110*** **	**0.142*** **
	(8.74)	**(1.88)**	**(8.07)**	**(7.39)**	**(3.98)**	**(5.30)**	**(7.13)**	**(14.81)**
Treasury Bill Yield	-0.122***	0.175***	-0.056***	-0.151***	-0.305***	-0.112***	-0.104***	-0.166***
	(-8.91)	(4.20)	(-4.15)	(-7.33)	(-8.64)	(-6.40)	(-5.45)	(-10.09)
Treasury Slope	0.328***	0.312***	0.253***	0.410***	0.300***	0.330***	0.345***	0.252***
	(17.46)	(5.32)	(9.21)	(18.90)	(4.63)	(11.70)	(13.60)	(10.40)
Treasury Curvature	-1.023***	-0.837***	-0.736***	-1.108***	-1.583***	-0.794***	-1.259***	-1.151***
	(-25.36)	(-2.78)	(-16.20)	(-22.82)	(-18.94)	(-15.48)	(-18.44)	(-27.70)
VIX	0.039***	0.017*	0.024***	0.049***	0.056***	0.033***	0.045***	0.035***
	(25.27)	(1.84)	(23.25)	(18.92)	(18.66)	(18.45)	(24.21)	(19.70)
Ln(Maturity)	0.366***	0.214***	0.316***	0.424***	0.444***	0.132***	0.745***	-0.161***
	(37.46)	(6.39)	(21.67)	(29.89)	(14.89)	(9.94)	(23.19)	(-3.64)
Ln(Age)	0.096***	0.023	0.095***	0.118***	-0.024	0.026***	0.094***	0.080***
	(12.54)	(0.74)	(9.74)	(11.05)	(-0.99)	(2.85)	(8.64)	(5.88)
Credit Rating	-0.043**	-0.096***	0.035	-0.095	0.130	-0.003	-0.037	0.033
	(-2.25)	(-2.76)	(1.10)	(-1.45)	(1.41)	(-0.11)	(-1.39)	(1.30)
MakewholeID	-0.086***	-0.013	-0.109***	-0.111***	0.136***	-0.020	0.028	-0.056***
	(-7.60)	(-0.37)	(-7.76)	(-6.51)	(3.65)	(-1.24)	(1.22)	(-4.92)
Constant	0.455***	0.247	-0.010	0.377	0.685	0.762***	-0.441***	1.655***
	(5.67)	(0.96)	(-0.09)	(1.38)	(1.39)	(5.57)	(-2.91)	(10.60)
Adjusted R-squared	0.8400	0.6391	0.8502	0.7992	0.8419	0.8575	0.8947	0.8275
Observations	107,547	9,053	40,078	38,498	19,874	46,937	33,677	26,895
Bond FE / Industry FE	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes

Table 4.B. Quarterly Panel Regression Model of U.S. Industrial Firms Corporate Bond Yield Spreads: Transactions

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond yield spreads of the U.S. industrial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond transaction information is from the TRACE database. All bond characteristics are from the FISD database. The yield-to-worst is imputed from transaction prices reported in TRACE. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**-0.141*** **	**-0.161**	**-0.093*** **	**-0.059** **	**-0.297** **	**-0.113*** **	**-0.024**	**-0.034** **
	(-5.57)	**(-1.49)**	**(-4.59)**	**(-2.43)**	**(-2.46)**	**(-3.70)**	**(-0.78)**	**(-2.06)**
iBOXX_IG_Post	**0.065*** **	**-0.215** **	**0.024**	**0.026**	**0.212*** **	**0.104*** **	**0.068** **	**-0.016**
	(3.18)	**(-2.37)**	**(0.91)**	**(0.84)**	**(3.23)**	**(3.51)**	**(2.48)**	**(-0.68)**
iBOXX_HY	**0.035**		**0.368**	**-0.048**	**0.012**	**0.085**	**0.212** **	
	(0.55)		**(0.92)**	**(-0.40)**	**(0.19)**	**(1.33)**	**(2.01)**	
iBOXX_HY_Post	**-0.248*** **		**-0.063**	**-0.233** **	**-0.005**	**-0.225*** **	**-0.228*** **	
	(-4.57)		**(-0.23)**	**(-2.07)**	**(-0.08)**	**(-4.02)**	**(-2.80)**	
Post_iBOXX	**0.079*** **	**0.092**	**0.046*** **	**0.082*** **	**0.078** **	**0.059*** **	**0.095*** **	**0.139*** **
	(6.08)	**(1.17)**	**(3.37)**	**(4.97)**	**(2.11)**	**(2.77)**	**(6.08)**	**(10.33)**
Treasury Bill Yield	-0.165***	0.242***	-0.058***	-0.180***	-0.429***	-0.145***	-0.173***	-0.189***
	(-8.02)	(3.38)	(-2.81)	(-6.51)	(-8.33)	(-5.12)	(-7.33)	(-7.71)
Treasury Slope	0.291***	0.399***	0.169***	0.361***	0.274***	0.307***	0.296***	0.239***
	(10.05)	(3.33)	(3.85)	(11.05)	(3.14)	(6.73)	(8.00)	(6.25)
Treasury Curvature	-1.119***	-0.546	-0.720***	-1.184***	-1.899***	-0.894***	-1.305***	-1.255***
	(-19.80)	(-1.61)	(-9.79)	(-20.34)	(-16.17)	(-10.37)	(-18.78)	(-19.82)
VIX	0.045***	-0.002	0.025***	0.056***	0.067***	0.037***	0.053***	0.042***
	(17.46)	(-0.21)	(12.82)	(14.18)	(16.32)	(12.28)	(17.05)	(13.89)
Ln(Maturity)	0.394***	0.209***	0.311***	0.469***	0.478***	0.154***	0.762***	-0.169***
	(28.85)	(7.36)	(21.30)	(26.80)	(10.08)	(6.95)	(17.33)	(-3.02)
Ln(Age)	0.075***	-0.003	0.078***	0.109***	0.007	0.012	0.098***	0.065***
	(7.05)	(-0.10)	(7.11)	(7.62)	(0.18)	(0.83)	(8.06)	(3.78)
Credit Rating	-0.059**	-0.046	0.060	-0.103	0.176	0.028	-0.089**	0.050
	(-2.03)	(-0.61)	(1.44)	(-1.29)	(1.28)	(0.51)	(-2.33)	(1.50)
MakewholeID	-0.082***	-0.045	-0.109***	-0.104***	0.095*	0.006	0.007	-0.048***
	(-4.95)	(-1.50)	(-5.03)	(-4.49)	(1.83)	(0.25)	(0.23)	(-3.23)
Constant	0.693***	0.247	0.053	0.386	0.795	0.849***	-0.044	1.704***
	(5.55)	(0.69)	(0.37)	(1.15)	(1.04)	(3.62)	(-0.23)	(8.19)
Adjusted R-squared	0.8442	0.4926	0.8705	0.7949	0.8229	0.8553	0.9018	0.8318
Observations	57,074	4,408	17,903	23,030	11,720	25,156	17,954	13,953
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 4.C. Quarterly Panel Regression Model of U.S. Financial Firms Corporate Bond Yield Spreads: Transactions

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond yield spreads of the U.S. industrial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond transaction information is from the TRACE database. All bond characteristics are from the FISD database. The yield-to-worst is imputed from transaction prices reported in TRACE. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**-0.042**	**0.050**	**-0.038**	**-0.066*** **	**-0.062**	**0.057*** **	**-0.036**	**-0.037**
	(-1.49)	**(1.06)**	**(-0.90)**	**(-2.71)**	**(-1.08)**	**(2.84)**	**(-0.94)**	**(-0.72)**
iBOXX_IG_Post	**0.043**	**-0.286**	**0.059*** **	**0.121*** **	**0.110***	**0.075** **	**-0.024**	**-0.002**
	(0.88)	**(-1.24)**	**(3.26)**	**(4.48)**	**(1.68)**	**(2.53)**	**(-0.30)**	**(-0.03)**
iBOXX_HY	**0.103**		**0.721*** **	**0.318**	**0.047**	**0.230*** **	**0.036**	
	(1.34)		**(3.55)**	**(1.50)**	**(0.79)**	**(2.78)**	**(0.45)**	
iBOXX_HY_Post	**-0.120**		**0.045*** **	**-0.001**	**-0.080**	**-0.175** **	**-0.066**	
	(-1.56)		**(3.15)**	**(-0.01)**	**(-1.06)**	**(-2.52)**	**(-0.64)**	
Post_iBOXX	**0.109*** **	**0.201** **	**0.083*** **	**0.095*** **	**0.097*** **	**0.084*** **	**0.143*** **	**0.192*** **
	(4.77)	**(2.27)**	**(5.47)**	**(7.50)**	**(4.04)**	**(5.62)**	**(4.36)**	**(6.46)**
Treasury Bill Yield	-0.062***	0.128*	-0.065***	-0.083***	-0.127***	-0.058***	-0.031	-0.161***
	(-3.06)	(1.79)	(-2.92)	(-3.86)	(-3.49)	(-2.71)	(-0.90)	(-4.86)
Treasury Slope	0.389***	0.276***	0.326***	0.527***	0.345**	0.405***	0.408***	0.232***
	(10.23)	(7.18)	(6.76)	(17.20)	(2.37)	(9.43)	(8.99)	(3.10)
Treasury Curvature	-0.971***	-1.226**	-0.784***	-0.959***	-1.250***	-0.725***	-1.297***	-1.140***
	(-10.90)	(-2.39)	(-9.16)	(-17.12)	(-7.08)	(-11.39)	(-7.70)	(-13.22)
VIX	0.033***	0.036***	0.026***	0.037***	0.041***	0.027***	0.038***	0.033***
	(15.56)	(2.91)	(20.95)	(20.55)	(9.87)	(11.95)	(15.46)	(15.06)
Ln(Maturity)	0.348***	0.251***	0.344***	0.368***	0.419***	0.118***	0.729***	-0.052
	(18.38)	(3.08)	(10.03)	(22.67)	(10.26)	(6.99)	(15.03)	(-0.46)
Ln(Age)	0.068***	0.118*	0.075***	0.042**	-0.044	0.041***	0.072***	0.083***
	(5.07)	(1.81)	(4.15)	(2.37)	(-1.64)	(3.53)	(2.88)	(3.02)
Credit Rating	-0.070**	-0.095***	-0.015	-0.065	0.067	-0.058**	0.046	0.001
	(-2.37)	(-5.36)	(-0.29)	(-1.00)	(1.58)	(-2.39)	(1.09)	(0.01)
MakewholeID	-0.033*	0.092*	-0.060*	-0.059***	0.162***	-0.033	0.062*	-0.041
	(-1.73)	(1.92)	(-1.80)	(-2.60)	(3.25)	(-1.60)	(1.80)	(-0.90)
Constant	0.385***	-0.132	0.077	0.386	0.328	0.635***	-0.973***	1.493***
	(2.91)	(-0.25)	(0.41)	(1.42)	(1.30)	(5.13)	(-3.66)	(4.18)
Adjusted R-squared	0.8289	0.7335	0.8218	0.8712	0.8443	0.8698	0.8388	0.7846
Observations	32,250	4,287	13,481	8,559	5,904	16,056	11,079	5,097
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 4.D. Quarterly Panel Regression Model of U.S. Utilities Firms Corporate Bond Yield Spreads: Transactions

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond yield spreads of the U.S. industrial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond transaction information is from the TRACE database. All bond characteristics are from the FISD database. The yield-to-worst is imputed from transaction prices reported in TRACE. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.027**	**-0.136**	**0.073****	**0.020**	**-0.031**	**0.061**	**-0.027**	**0.001**
	(0.79)	**(-0.42)**	**(2.07)**	**(0.33)**	**(-0.52)**	**(1.22)**	**(-0.62)**	**(0.02)**
iBOXX_IG_Post	**0.111*****	**0.775*****	**0.069*****	**0.105**	**0.165*****	**0.112***	**0.027**	**0.090****
	(3.17)	**(3.54)**	**(3.23)**	**(1.17)**	**(2.94)**	**(1.77)**	**(0.94)**	**(2.10)**
iBOXX_HY	**0.190***			**0.457***	**-0.131****	**0.138**	**0.420***	
	(1.77)			**(1.75)**	**(-2.57)**	**(1.04)**	**(1.73)**	
iBOXX_HY_Post	**-0.298*****			**-0.308*****	**-0.219****	**-0.417*****	**-0.220*****	
	(-3.97)			**(-4.97)**	**(-2.06)**	**(-4.42)**	**(-2.63)**	
Post_iBOXX	**0.083*****	**-0.032**	**0.071*****	**0.089****	**0.095***	**0.065***	**0.065*****	**0.119*****
	(4.99)	**(-0.62)**	**(5.74)**	**(2.58)**	**(1.87)**	**(1.85)**	**(3.36)**	**(8.89)**
Treasury Bill Yield	-0.082***	0.148*	-0.038**	-0.131**	-0.117**	-0.088**	-0.010	-0.127***
	(-2.77)	(1.83)	(-2.17)	(-2.12)	(-2.00)	(-2.12)	(-0.28)	(-4.81)
Treasury Slope	0.360***	0.501	0.294***	0.393***	0.424***	0.344***	0.380***	0.283***
	(13.71)	(1.43)	(9.05)	(10.51)	(4.10)	(6.57)	(7.96)	(9.32)
Treasury Curvature	-0.869***	-1.189*	-0.686***	-1.052***	-1.031***	-0.642***	-0.997***	-0.972***
	(-9.13)	(-2.09)	(-10.74)	(-5.77)	(-6.39)	(-3.58)	(-11.76)	(-11.67)
VIX	0.030***	0.017	0.019***	0.039***	0.038***	0.028***	0.034***	0.026***
	(11.00)	(1.20)	(11.61)	(7.55)	(7.01)	(8.02)	(9.33)	(10.49)
Ln(Maturity)	0.308***	0.020	0.294***	0.311***	0.358***	0.067**	0.646***	-0.173**
	(15.19)	(0.23)	(11.68)	(8.68)	(6.09)	(2.29)	(10.26)	(-2.40)
Ln(Age)	0.162***	0.846	0.147***	0.192***	-0.104*	0.052***	0.100***	0.100***
	(12.20)	(0.66)	(8.29)	(10.37)	(-1.83)	(2.63)	(3.71)	(3.81)
Credit Rating	-0.013	-0.260	-0.011	-0.115	0.059	-0.019	0.041	0.018
	(-0.41)	(-0.91)	(-0.12)	(-1.02)	(0.41)	(-0.35)	(0.43)	(0.59)
MakewholeID	-0.139***	0.181	-0.127***	-0.168***	0.098	-0.056	0.008	-0.068***
	(-7.30)	(0.59)	(-7.55)	(-4.93)	(1.06)	(-1.40)	(0.29)	(-3.88)
Constant	0.129	-0.617	-0.024	0.496	0.914	0.681**	-0.747**	1.560***
	(0.94)	(-0.21)	(-0.08)	(1.06)	(1.27)	(2.58)	(-2.23)	(5.32)
Adjusted R-squared	0.8104	0.6988	0.7937	0.7657	0.8609	0.8111	0.9042	0.8207
Observations	18,221	358	8,694	6,909	2,248	5,723	4,642	7,845
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 5.A. Quarterly Panel Regression Model of U.S. All Firms Corporate Bondholders' Ln(Purchases)/Ln(Par)

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of purchase to the natural log of par value of all U.S. firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.134*** **	**0.111*** **	**0.146*** **	**0.124*** **	**0.051***	**0.036*** **	**0.185*** **	**0.219*** **
	(15.06)	**(4.83)**	**(9.62)**	**(11.15)**	**(1.73)**	**(4.41)**	**(11.76)**	**(12.93)**
iBOXX_IG_Post	**0.004**	**-0.011**	**-0.012** **	**0.002**	**0.016** **	**0.038*** **	**-0.009**	**-0.047*** **
	(1.11)	**(-1.06)**	**(-2.24)**	**(0.28)**	**(2.19)**	**(6.18)**	**(-1.59)**	**(-6.52)**
iBOXX_HY	**0.196*** **	**-0.049**	**0.240*** **	**0.225*** **	**0.164*** **	**0.172*** **	**0.153*** **	**0.129*** **
	(18.84)	**(-0.76)**	**(5.66)**	**(8.70)**	**(16.80)**	**(14.13)**	**(9.82)**	**(4.43)**
iBOXX_HY_Post	**-0.002**	**-0.012**	**-0.060** **	**-0.017**	**0.022*** **	**0.004**	**-0.013** **	**-0.024**
	(-0.51)	**(-0.83)**	**(-2.12)**	**(-1.33)**	**(4.22)**	**(0.62)**	**(-2.09)**	**(-1.09)**
Post_iBOXX	**-0.017*** **	**-0.017** **	**-0.001**	**-0.014*** **	**-0.033*** **	**-0.035*** **	**-0.004**	**0.013** **
	(-7.37)	**(-2.08)**	**(-0.24)**	**(-3.32)**	**(-8.92)**	**(-11.72)**	**(-1.07)**	**(2.22)**
TED Spread	0.219***	0.166***	0.158***	0.247***	0.247***	0.210***	0.154***	0.165***
	(23.12)	(4.57)	(9.87)	(15.34)	(15.38)	(16.44)	(12.03)	(9.37)
Ln(Maturity)	0.025***	0.010	0.005	0.024***	0.085***	0.082***	0.115***	0.247***
	(9.60)	(1.06)	(1.23)	(6.63)	(14.20)	(20.55)	(8.00)	(9.44)
Credit Rating	0.025***	0.029	0.013	0.013	0.003	0.016*	0.048**	-0.009
	(2.71)	(0.91)	(0.53)	(0.28)	(0.19)	(1.66)	(2.57)	(-0.82)
Constant	0.244***	0.250***	0.324***	0.298	0.275***	0.252***	-0.003	-0.387***
	(6.38)	(3.06)	(4.11)	(1.55)	(3.73)	(5.99)	(-0.03)	(-4.26)
Adjusted R-squared	0.4858	0.6168	0.5444	0.4466	0.4815	0.4762	0.6193	0.4989
Observations	237,163	16,908	67,830	70,299	82,055	118,987	68,801	49,213
Bond FE / Industry FE	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes

Table 5.B. Quarterly Panel Regression Model of U.S. Industrial Firms Corporate Bondholders' Ln(Purchases)/Ln(Par)

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of purchase to the natural log of par value of U.S. industrial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.148*** **	**0.129*** **	**0.155*** **	**0.133*** **	**0.121*** **	**0.059*** **	**0.198*** **	**0.203*** **
	(15.59)	**(4.70)**	**(10.94)**	**(10.32)**	**(3.87)**	**(5.90)**	**(12.25)**	**(12.12)**
iBOXX_IG_Post	**-0.006**	**-0.023***	**-0.018** **	**-0.021** **	**-0.006**	**0.034*** **	**-0.022*** **	**-0.054*** **
	(-1.25)	**(-1.76)**	**(-2.06)**	**(-2.56)**	**(-0.73)**	**(4.85)**	**(-2.65)**	**(-5.51)**
iBOXX_HY	**0.206*** **	**0.062**	**0.214*** **	**0.225*** **	**0.172*** **	**0.187*** **	**0.169*** **	**0.174*** **
	(16.79)	**(1.35)**	**(6.03)**	**(7.57)**	**(15.47)**	**(13.59)**	**(9.17)**	**(5.75)**
iBOXX_HY_Post	**-0.012** **	**-0.038***	**-0.082** **	**-0.050*** **	**0.018*** **	**-0.002**	**-0.025*** **	**-0.030**
	(-2.26)	**(-1.87)**	**(-1.99)**	**(-4.13)**	**(2.63)**	**(-0.30)**	**(-3.07)**	**(-1.26)**
Post_iBOXX	**-0.009** **	**-0.006**	**0.006**	**0.006**	**-0.026*** **	**-0.025*** **	**0.007**	**0.019** **
	(-2.57)	**(-0.44)**	**(0.78)**	**(1.06)**	**(-5.07)**	**(-6.03)**	**(1.20)**	**(2.34)**
TED Spread	0.231***	0.207***	0.205***	0.203***	0.247***	0.227***	0.177***	0.199***
	(18.92)	(4.70)	(9.10)	(9.79)	(12.15)	(13.61)	(10.24)	(9.16)
Ln(Maturity)	0.024***	0.006	-0.001	0.013***	0.104***	0.075***	0.080***	0.162***
	(7.35)	(0.59)	(-0.12)	(3.05)	(12.27)	(13.48)	(4.03)	(5.00)
Credit Rating	0.032**	0.133*	0.041	0.022	0.007	0.017	0.059**	0.001
	(2.39)	(1.70)	(0.75)	(0.36)	(0.38)	(1.11)	(2.23)	(0.05)
Constant	0.264***	0.104	0.291*	0.335	0.283***	0.288***	0.065	-0.077
	(4.39)	(0.57)	(1.66)	(1.34)	(2.63)	(4.12)	(0.50)	(-0.58)
Adjusted R-squared	0.4267	0.5895	0.4902	0.4473	0.4115	0.4232	0.5708	0.4371
Observations	110,854	6,553	26,023	33,963	44,292	56,688	33,833	20,249
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 5.C. Quarterly Panel Regression Model of U.S. Financial Firms Corporate Bondholders' Ln(Purchases)/Ln(Par)

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of purchase to the natural log of par value of U.S. financial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.087*** **	**0.067***	**0.117*** **	**0.082*** **	**-0.024**	**0.002**	**0.163*** **	**0.239*** **
	(4.74)	**(1.83)**	**(3.97)**	**(2.85)**	**(-1.15)**	**(0.13)**	**(4.05)**	**(6.29)**
iBOXX_IG_Post	**0.029*** **	**0.001**	**0.012**	**0.045*** **	**0.036*** **	**0.047*** **	**0.013**	**-0.013**
	(4.36)	**(0.03)**	**(1.33)**	**(2.75)**	**(3.29)**	**(4.13)**	**(1.62)**	**(-1.05)**
iBOXX_HY	**0.148*** **	**-0.114*** **	**0.310*** **	**0.165*** **	**0.124*** **	**0.101*** **	**0.116*** **	
	(7.50)	**(-2.79)**	**(3.06)**	**(2.89)**	**(5.55)**	**(3.72)**	**(3.76)**	
iBOXX_HY_Post	**0.013**	**-0.005**	**-0.009**	**0.018**	**0.024** **	**0.006**	**-0.003**	
	(1.56)	**(-0.21)**	**(-1.10)**	**(0.61)**	**(2.31)**	**(0.48)**	**(-0.30)**	
Post_iBOXX	**-0.034*** **	**-0.024** **	**-0.023*** **	**-0.039*** **	**-0.042*** **	**-0.047*** **	**-0.019*** **	**-0.010**
	(-9.80)	**(-2.39)**	**(-3.46)**	**(-5.90)**	**(-7.43)**	**(-10.78)**	**(-2.90)**	**(-1.09)**
TED Spread	0.222***	0.138**	0.148***	0.301***	0.239***	0.195***	0.125***	0.222***
	(12.81)	(2.34)	(5.40)	(9.87)	(8.38)	(9.12)	(5.81)	(6.07)
Ln(Maturity)	0.036***	0.020	0.006	0.073***	0.072***	0.094***	0.156***	0.194***
	(6.79)	(0.97)	(0.98)	(9.73)	(8.02)	(14.69)	(5.68)	(3.79)
Credit Rating	0.033**	-0.001	0.033	-0.010	0.010	0.017	0.038	0.003
	(2.15)	(-0.06)	(1.51)	(-0.32)	(0.53)	(1.37)	(1.13)	(0.24)
Constant	0.139**	0.285***	0.208***	0.249*	0.178*	0.202***	-0.088	-0.401**
	(2.30)	(3.84)	(2.98)	(1.94)	(1.81)	(3.89)	(-0.54)	(-2.41)
Adjusted R-squared	0.5090	0.5851	0.5787	0.4407	0.5094	0.4961	0.6341	0.4757
Observations	95,551	9,016	28,901	26,168	31,425	51,990	25,997	17,492
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 5.D. Quarterly Panel Regression Model of U.S. Utilities Firms Corporate Bondholders' Ln(Purchases)/Ln(Par)

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of purchase to the natural log of par value of U.S. utilities firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.186*** **	**0.116*** **	**0.205*** **	**0.156*** **	**0.158*** **	**0.076*** **	**0.175*** **	**0.262*** **
	(7.99)	**(8.15)**	**(5.33)**	**(6.01)**	**(4.75)**	**(2.85)**	**(4.53)**	**(6.24)**
iBOXX_IG_Post	**-0.053*** **	**-0.015**	**-0.066*** **	**-0.046*** **	**-0.019**	**-0.029**	**-0.027** **	**-0.092*** **
	(-5.23)	**(-0.82)**	**(-4.23)**	**(-2.80)**	**(-1.03)**	**(-1.00)**	**(-2.11)**	**(-5.62)**
iBOXX_HY	**0.232*** **			**0.301*** **	**0.186*** **	**0.225*** **	**0.125***	
	(5.63)			**(3.63)**	**(4.56)**	**(4.90)**	**(1.97)**	
iBOXX_HY_Post	**-0.020**			**-0.002**	**0.012**	**-0.023**	**-0.004**	
	(-1.64)			**(-0.07)**	**(0.71)**	**(-1.08)**	**(-0.29)**	
Post_iBOXX	**0.017*** **	**0.024**	**0.034*** **	**0.011**	**-0.016**	**-0.001**	**0.009**	**0.042*** **
	(2.78)	**(1.31)**	**(3.43)**	**(1.19)**	**(-1.22)**	**(-0.14)**	**(0.95)**	**(3.68)**
TED Spread	0.114***	-0.033	0.092***	0.158***	0.176***	0.115***	0.130***	0.044
	(5.54)	(-0.86)	(2.88)	(4.98)	(3.65)	(3.59)	(3.57)	(1.47)
Ln(Maturity)	0.014**	-0.005	0.013	-0.000	0.048***	0.063***	0.116***	0.386***
	(2.21)	(-0.34)	(1.26)	(-0.03)	(3.16)	(6.60)	(3.40)	(7.27)
Credit Rating	-0.017	-0.010	-0.075**	-0.017	-0.096	0.005	0.009	-0.029
	(-0.82)	(-1.16)	(-2.38)	(-0.17)	(-1.60)	(0.18)	(0.15)	(-1.26)
Constant	0.437***	0.159***	0.599***	0.488	0.836***	0.339***	0.118	-0.698***
	(5.35)	(3.57)	(5.73)	(1.22)	(2.68)	(2.97)	(0.48)	(-3.58)
Adjusted R-squared	0.4861	0.4786	0.4909	0.4169	0.5777	0.5431	0.6562	0.4541
Observations	30,743	1,339	12,904	10,165	6,328	10,299	8,958	11,471
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6.A. Quarterly Panel Regression Model of U.S. All Firms Corporate Bondholders' Ln(Sales)/Ln(Par)

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of sales to the natural log of par value of all U.S. firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.142*** **	**0.108*** **	**0.148*** **	**0.128*** **	**0.088*** **	**0.103*** **	**0.189*** **	**0.176*** **
	(16.56)	**(6.24)**	**(9.38)**	**(12.90)**	**(8.05)**	**(13.63)**	**(11.62)**	**(10.92)**
iBOXX_IG_Post	**-0.030*** **	**-0.021* **	**-0.051*** **	**-0.033*** **	**-0.015**	**-0.019*** **	**-0.034*** **	**-0.049*** **
	(-7.64)	**(-1.79)**	**(-8.02)**	**(-5.40)**	**(-1.64)**	**(-2.69)**	**(-4.96)**	**(-7.97)**
iBOXX_HY	**0.078*** **	**0.128**	**0.203*** **	**0.095*** **	**0.061*** **	**0.092*** **	**0.066*** **	**0.135*** **
	(6.97)	**(1.52)**	**(3.56)**	**(3.56)**	**(5.81)**	**(7.57)**	**(3.55)**	**(6.37)**
iBOXX_HY_Post	**-0.059*** **	**-0.059** **	**-0.088*** **	**-0.058*** **	**-0.045*** **	**-0.056*** **	**-0.052*** **	**-0.122*** **
	(-13.15)	**(-2.18)**	**(-3.43)**	**(-5.10)**	**(-6.35)**	**(-8.68)**	**(-6.80)**	**(-2.84)**
Post_iBOXX	**0.085*** **	**0.092*** **	**0.106*** **	**0.091*** **	**0.064*** **	**0.078*** **	**0.089*** **	**0.104*** **
	(28.45)	**(10.13)**	**(19.31)**	**(22.30)**	**(10.56)**	**(18.10)**	**(15.53)**	**(18.87)**
TED Spread	0.071***	0.108***	0.116***	0.101***	0.000	0.072***	0.044***	0.138***
	(6.95)	(3.91)	(7.41)	(6.43)	(0.02)	(4.54)	(2.89)	(7.95)
Ln(Maturity)	-0.037***	-0.038***	-0.034***	-0.031***	-0.049***	-0.052***	-0.142***	0.152***
	(-16.91)	(-3.60)	(-10.87)	(-10.81)	(-7.43)	(-10.67)	(-9.28)	(6.51)
Credit Rating	0.020*	0.049***	-0.003	-0.006	-0.038	-0.001	0.039***	0.023
	(1.76)	(3.44)	(-0.19)	(-0.15)	(-1.43)	(-0.03)	(2.61)	(1.30)
Constant	0.427***	0.293***	0.426***	0.514***	0.839***	0.540***	0.552***	-0.204**
	(8.98)	(7.02)	(8.95)	(2.92)	(5.76)	(6.26)	(7.45)	(-2.17)
Adjusted R-squared	0.3565	0.5358	0.4895	0.3833	0.2826	0.3563	0.4438	0.3936
Observations	237,163	16,908	67,830	70,299	82,055	118,987	68,801	49,213
Bond FE / Industry FE	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes

Table 6.B. Quarterly Panel Regression Model of U.S. Industrial Firms Corporate Bondholders' Ln(Sales)/Ln(Par)

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of sales to the natural log of par value of U.S. industrial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.140*** **	**0.113*** **	**0.141*** **	**0.127*** **	**0.091*** **	**0.090*** **	**0.179*** **	**0.164*** **
	(14.46)	**(6.32)**	**(8.65)**	**(10.72)**	**(4.36)**	**(10.02)**	**(10.29)**	**(8.35)**
iBOXX_IG_Post	**-0.024*** **	**-0.040** **	**-0.061*** **	**-0.038*** **	**0.025* **	**-0.012**	**-0.031*** **	**-0.049*** **
	(-4.15)	**(-2.08)**	**(-5.66)**	**(-5.19)**	**(1.72)**	**(-1.31)**	**(-2.69)**	**(-4.44)**
iBOXX_HY	**0.075*** **	**-0.017**	**0.195*** **	**0.133*** **	**0.044*** **	**0.078*** **	**0.060*** **	**0.160*** **
	(5.17)	**(-0.16)**	**(3.74)**	**(4.17)**	**(3.48)**	**(5.27)**	**(2.75)**	**(6.25)**
iBOXX_HY_Post	**-0.054*** **	**-0.078**	**-0.140*** **	**-0.058*** **	**-0.028*** **	**-0.047*** **	**-0.056*** **	**-0.124*** **
	(-8.76)	**(-1.55)**	**(-4.14)**	**(-4.78)**	**(-2.82)**	**(-5.62)**	**(-4.56)**	**(-2.79)**
Post_iBOXX	**0.081*** **	**0.113*** **	**0.122*** **	**0.092*** **	**0.048*** **	**0.071*** **	**0.090*** **	**0.109*** **
	(16.67)	**(6.53)**	**(13.02)**	**(16.04)**	**(5.25)**	**(10.64)**	**(8.73)**	**(10.28)**
TED Spread	0.099***	0.140***	0.195***	0.139***	0.002	0.097***	0.013	0.238***
	(6.25)	(3.50)	(7.92)	(6.15)	(0.05)	(3.88)	(0.55)	(10.31)
Ln(Maturity)	-0.031***	-0.037***	-0.033***	-0.022***	-0.033***	-0.019***	-0.171***	0.112***
	(-10.65)	(-4.32)	(-7.67)	(-6.65)	(-3.70)	(-2.78)	(-8.88)	(3.25)
Credit Rating	0.021	0.055*	-0.010	-0.000	-0.051	0.006	0.041*	0.000
	(1.07)	(1.79)	(-0.35)	(-0.00)	(-1.16)	(0.16)	(1.90)	(0.02)
Constant	0.456***	0.361***	0.476***	0.485**	0.957***	0.535***	0.652***	0.027
	(5.20)	(4.86)	(5.46)	(2.10)	(3.82)	(3.19)	(6.16)	(0.22)
Adjusted R-squared	0.2968	0.5182	0.4757	0.3724	0.2286	0.3047	0.3771	0.3310
Observations	110,854	6,553	26,023	33,963	44,292	56,688	33,833	20,249
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6.C. Quarterly Panel Regression Model of U.S. Financial Firms Corporate Bondholders' Ln(Sales)/Ln(Par)

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of sales to the natural log of par value of U.S. financial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.144*** **	**0.099*** **	**0.153*** **	**0.128*** **	**0.109*** **	**0.120*** **	**0.198*** **	**0.204*** **
	(9.49)	**(2.87)**	**(5.84)**	**(4.86)**	**(5.71)**	**(9.46)**	**(5.40)**	**(5.60)**
iBOXX_IG_Post	**-0.026*** **	**-0.005**	**-0.037*** **	**0.004**	**-0.059*** **	**-0.020**	**-0.028*** **	**-0.029*** **
	(-3.29)	**(-0.25)**	**(-3.73)**	**(0.25)**	**(-3.18)**	**(-1.47)**	**(-2.79)**	**(-2.69)**
iBOXX_HY	**0.073*** **	**0.209*** **	**0.238***	**-0.019**	**0.083*** **	**0.118*** **	**0.028**	
	(3.43)	**(4.03)**	**(1.70)**	**(-0.48)**	**(3.52)**	**(4.32)**	**(0.89)**	
iBOXX_HY_Post	**-0.051*** **	**-0.012**	**-0.024**	**-0.074**	**-0.052*** **	**-0.048*** **	**-0.041*** **	
	(-5.00)	**(-0.46)**	**(-1.59)**	**(-1.64)**	**(-4.08)**	**(-3.36)**	**(-2.95)**	
Post_iBOXX	**0.080*** **	**0.071*** **	**0.088*** **	**0.077*** **	**0.081*** **	**0.080*** **	**0.079*** **	**0.079*** **
	(17.08)	**(6.05)**	**(8.85)**	**(11.23)**	**(9.25)**	**(12.56)**	**(10.53)**	**(9.84)**
TED Spread	0.042***	0.078*	0.026	0.071**	0.019	0.073***	0.067***	0.015
	(2.80)	(1.85)	(1.17)	(2.55)	(0.62)	(3.32)	(2.62)	(0.49)
Ln(Maturity)	-0.060***	-0.037*	-0.051***	-0.059***	-0.085***	-0.100***	-0.120***	0.056*
	(-12.46)	(-1.66)	(-7.85)	(-7.39)	(-7.21)	(-12.32)	(-4.50)	(1.72)
Credit Rating	0.026*	0.053***	0.021	-0.025	-0.018	-0.016	0.044**	0.073**
	(1.85)	(3.44)	(0.96)	(-0.80)	(-0.81)	(-1.03)	(2.19)	(1.97)
Constant	0.397***	0.262***	0.366***	0.619***	0.700***	0.577***	0.440***	-0.095
	(6.79)	(4.60)	(5.22)	(4.78)	(5.96)	(9.25)	(4.14)	(-0.60)
Adjusted R-squared	0.3905	0.4942	0.5021	0.3759	0.3340	0.3956	0.4817	0.4077
Observations	95,551	9,016	28,901	26,168	31,425	51,990	25,997	17,492
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6.D. Quarterly Panel Regression Model of U.S. Utilities Firms Corporate Bondholders' Ln(Sales)/Ln(Par)

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of sales to the natural log of par value of U.S. utilities firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.161*** **	**0.138*** **	**0.184*** **	**0.122*** **	**0.095*** **	**0.085** **	**0.211*** **	**0.179*** **
	(6.86)	**(5.21)**	**(4.85)**	**(8.21)**	**(2.87)**	**(2.49)**	**(5.80)**	**(7.16)**
iBOXX_IG_Post	**-0.062*** **	**0.072** **	**-0.064*** **	**-0.060*** **	**-0.036***	**-0.053** **	**-0.073*** **	**-0.071*** **
	(-6.52)	**(2.35)**	**(-5.20)**	**(-4.77)**	**(-1.89)**	**(-2.16)**	**(-5.06)**	**(-6.37)**
iBOXX_HY	**0.109*** **			**0.059**	**0.122*** **	**0.057** **	**0.241*** **	
	(4.32)			**(1.64)**	**(3.75)**	**(2.06)**	**(3.14)**	
iBOXX_HY_Post	**-0.089*** **			**-0.105*** **	**-0.075*** **	**-0.085*** **	**-0.074*** **	
	(-10.14)			**(-6.74)**	**(-4.40)**	**(-5.34)**	**(-5.15)**	
Post_iBOXX	**0.110*** **	**0.132*** **	**0.115*** **	**0.116*** **	**0.084*** **	**0.090*** **	**0.110*** **	**0.133*** **
	(16.16)	**(4.25)**	**(10.97)**	**(11.04)**	**(4.74)**	**(7.48)**	**(9.57)**	**(14.37)**
TED Spread	0.102***	0.186**	0.163***	0.118***	-0.058	-0.028	0.116***	0.164***
	(4.04)	(2.37)	(5.01)	(3.98)	(-0.72)	(-0.58)	(3.60)	(4.80)
Ln(Maturity)	-0.019***	-0.043	-0.011*	-0.025***	-0.022	0.007	-0.100**	0.249***
	(-4.12)	(-1.35)	(-1.82)	(-3.79)	(-1.47)	(0.51)	(-2.40)	(5.75)
Credit Rating	-0.003	0.000	-0.030	-0.033	-0.041	0.038*	0.001	-0.015
	(-0.15)	(0.00)	(-1.04)	(-0.37)	(-0.67)	(1.95)	(0.01)	(-0.66)
Constant	0.425***	0.171*	0.428***	0.582	0.790**	0.334***	0.540***	-0.419***
	(6.00)	(1.98)	(4.62)	(1.65)	(2.47)	(4.07)	(2.89)	(-2.61)
Adjusted R-squared	0.4116	0.4597	0.4431	0.4353	0.3234	0.3926	0.5233	0.4277
Observations	30,743	1,339	12,904	10,165	6,328	10,299	8,958	11,471
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 7.A. Quarterly Panel Regression Model of U.S. All Firms Corporate Bond Ln($Volume): Transactions

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of quarterly volume of all U.S. firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond transaction information is from the TRACE database. All bond characteristics are from the FISD database. The yield-to-worst is imputed from transaction prices reported in TRACE. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.944*** **	**0.771*** **	**1.037*** **	**0.929*** **	**0.420*** **	**0.514*** **	**1.206*** **	**1.412*** **
	(18.77)	**(5.61)**	**(11.77)**	**(17.08)**	**(3.72)**	**(14.32)**	**(13.57)**	**(14.96)**
iBOXX_IG_Post	**-0.003**	**-0.193**	**0.038**	**-0.026**	**0.003**	**-0.037**	**-0.002**	**0.087** **
	(-0.14)	**(-1.62)**	**(1.40)**	**(-0.88)**	**(0.06)**	**(-1.16)**	**(-0.05)**	**(2.53)**
iBOXX_HY	**0.932*** **		**0.350*** **	**0.676*** **	**1.010*** **	**1.121*** **	**0.833*** **	
	(13.14)		**(4.71)**	**(4.73)**	**(13.30)**	**(15.36)**	**(7.94)**	
iBOXX_HY_Post	**0.076** **		**-0.037**	**0.058**	**0.142*** **	**0.022**	**0.063**	
	(2.33)		**(-0.74)**	**(1.04)**	**(3.64)**	**(0.59)**	**(1.18)**	
Post_iBOXX	**0.002**	**0.113**	**-0.004**	**-0.007**	**-0.060***	**0.079*** **	**-0.029**	**-0.101*** **
	(0.15)	**(1.28)**	**(-0.23)**	**(-0.36)**	**(-1.90)**	**(4.25)**	**(-1.05)**	**(-4.19)**
TED Spread	-0.631***	-0.422	-0.535***	-0.716***	-0.348***	-0.430***	-0.646***	-0.799***
	(-11.09)	(-1.51)	(-6.32)	(-8.74)	(-3.20)	(-6.45)	(-5.81)	(-8.71)
Ln(Maturity)	-0.275***	-0.204**	-0.353***	-0.229***	0.010	-0.200***	-0.470***	0.224
	(-13.42)	(-2.02)	(-9.72)	(-9.91)	(0.26)	(-8.68)	(-3.32)	(1.29)
Ln(Age)	-0.593***	-0.244**	-0.567***	-0.611***	-0.235***	-0.289***	-0.657***	-0.779***
	(-24.55)	(-2.34)	(-13.35)	(-18.12)	(-8.13)	(-11.62)	(-16.19)	(-16.45)
Credit Rating	0.006	-0.060	-0.143	-0.239	0.036	0.092*	0.007	-0.123
	(0.11)	(-0.35)	(-1.65)	(-0.88)	(0.47)	(1.67)	(0.09)	(-1.61)
MakewholeID	0.137***	-0.027	0.126**	0.119***	-0.001	0.126***	0.077	0.146***
	(4.58)	(-0.16)	(2.29)	(2.94)	(-0.02)	(3.07)	(1.49)	(2.94)
Constant	10.509***	9.939***	11.005***	11.453***	9.709***	9.711***	10.792***	9.738***
	(51.17)	(27.36)	(36.50)	(10.59)	(23.31)	(44.01)	(24.30)	(14.40)
Adjusted R-squared	0.7165	0.7903	0.7461	0.6766	0.7484	0.7462	0.7918	0.6956
Observations	107,547	9,053	40,078	38,498	19,874	46,937	33,677	26,895
Bond FE / Industry FE	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes

Table 7.B. Quarterly Panel Regression Model of U.S. Industrial Firms Corporate Bond Ln($Volume): Transactions

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of quarterly volume of U.S. industrial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond transaction information is from the TRACE database. All bond characteristics are from the FISD database. The yield-to-worst is imputed from transaction prices reported in TRACE. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**1.029*** **	**0.975*** **	**1.078*** **	**0.994*** **	**0.671*** **	**0.598*** **	**1.158*** **	**1.306*** **
	(22.59)	**(8.06)**	**(16.46)**	**(14.94)**	**(4.90)**	**(14.75)**	**(14.22)**	**(15.10)**
iBOXX_IG_Post	**0.001**	**-0.145**	**0.022**	**0.004**	**-0.002**	**-0.039**	**0.025**	**0.145*** **
	(0.03)	**(-1.02)**	**(0.58)**	**(0.11)**	**(-0.03)**	**(-1.03)**	**(0.58)**	**(3.00)**
iBOXX_HY	**0.915*** **		**0.335*** **	**0.499*** **	**1.040*** **	**1.098*** **	**0.806*** **	
	(10.89)		**(3.43)**	**(3.59)**	**(11.88)**	**(13.52)**	**(6.28)**	
iBOXX_HY_Post	**0.128*** **		**-0.048**	**0.157** **	**0.185*** **	**0.078***	**0.133** **	
	(3.41)		**(-0.65)**	**(2.48)**	**(3.55)**	**(1.74)**	**(2.19)**	
Post_iBOXX	**-0.017**	**0.065**	**-0.033**	**-0.009**	**-0.074**	**0.062** **	**-0.051**	**-0.154*** **
	(-0.83)	**(0.50)**	**(-1.08)**	**(-0.35)**	**(-1.58)**	**(2.38)**	**(-1.61)**	**(-4.27)**
TED Spread	-0.498***	-0.178	-0.420***	-0.617***	-0.188*	-0.330***	-0.440***	-0.605***
	(-7.05)	(-1.03)	(-3.83)	(-5.53)	(-1.69)	(-4.23)	(-4.77)	(-4.63)
Ln(Maturity)	-0.321***	-0.373***	-0.429***	-0.266***	0.052	-0.173***	-0.853***	-0.196
	(-16.61)	(-5.53)	(-16.40)	(-8.70)	(1.09)	(-5.83)	(-7.51)	(-0.91)
Ln(Age)	-0.635***	-0.353***	-0.581***	-0.668***	-0.243***	-0.341***	-0.734***	-0.860***
	(-21.73)	(-4.07)	(-12.70)	(-15.23)	(-6.20)	(-12.15)	(-16.71)	(-14.37)
Credit Rating	0.005	0.509***	-0.148	-0.346	0.015	0.118	0.001	-0.104
	(0.08)	(2.71)	(-1.05)	(-1.09)	(0.15)	(1.51)	(0.01)	(-0.90)
MakewholeID	0.145***	0.169	0.052	0.180***	-0.044	0.083*	0.062	0.131**
	(3.75)	(1.57)	(0.87)	(3.12)	(-0.73)	(1.69)	(1.05)	(2.17)
Constant	10.833***	9.513***	11.462***	12.122***	9.893***	9.860***	11.899***	11.274***
	(39.70)	(20.27)	(24.77)	(9.54)	(17.87)	(30.79)	(24.51)	(12.87)
Adjusted R-squared	0.6861	0.7638	0.7221	0.6690	0.6924	0.6761	0.7805	0.7003
Observations	57,074	4,408	17,903	23,030	11,720	25,156	17,954	13,953
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 7.C. Quarterly Panel Regression Model of U.S. Financial Firms Corporate Bond Ln($Volume): Transactions

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of quarterly volume of U.S. financial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond transaction information is from the TRACE database. All bond characteristics are from the FISD database. The yield-to-worst is imputed from transaction prices reported in TRACE. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.719*** **	**0.237**	**0.839*** **	**0.701*** **	**0.214***	**0.390*** **	**1.265*** **	**1.685*** **
	(6.55)	**(1.00)**	**(5.27)**	**(6.75)**	**(1.85)**	**(5.85)**	**(5.23)**	**(7.02)**
iBOXX_IG_Post	**0.011**	**-0.214**	**0.035**	**-0.013**	**-0.000**	**-0.021**	**-0.004**	**0.066**
	(0.24)	**(-1.30)**	**(0.73)**	**(-0.21)**	**(-0.00)**	**(-0.37)**	**(-0.06)**	**(0.90)**
iBOXX_HY	**0.931*** **		**0.423*** **	**0.894*** **	**0.840*** **	**0.917*** **	**0.827*** **	
	(6.07)		**(2.66)**	**(2.94)**	**(5.12)**	**(5.72)**	**(3.62)**	
iBOXX_HY_Post	**0.016**		**-0.032**	**-0.197**	**0.148***	**-0.052**	**0.011**	
	(0.20)		**(-0.96)**	**(-1.50)**	**(1.73)**	**(-0.65)**	**(0.09)**	
Post_iBOXX	**0.014**	**0.142**	**0.023**	**-0.034**	**-0.107****	**0.060****	**-0.032**	**-0.059**
	(0.43)	**(1.35)**	**(0.66)**	**(-1.00)**	**(-2.19)**	**(2.07)**	**(-0.62)**	**(-1.04)**
TED Spread	-0.582***	-0.556	-0.266	-0.715***	-0.615**	-0.471***	-0.773***	-0.757***
	(-4.84)	(-1.20)	(-1.59)	(-5.37)	(-2.39)	(-3.55)	(-3.73)	(-3.76)
Ln(Maturity)	-0.219***	0.112	-0.257**	-0.202***	-0.036	-0.196***	0.166	0.704**
	(-3.47)	(0.67)	(-2.47)	(-4.73)	(-0.45)	(-5.52)	(0.73)	(2.26)
Ln(Age)	-0.399***	0.139	-0.283***	-0.490***	-0.197***	-0.172***	-0.382***	-0.598***
	(-7.11)	(0.68)	(-2.76)	(-9.67)	(-4.66)	(-4.06)	(-4.20)	(-5.17)
Credit Rating	0.075	-0.207*	0.036	0.045	0.038	0.098	0.030	-0.457***
	(0.61)	(-1.87)	(0.20)	(0.40)	(0.29)	(1.12)	(0.19)	(-5.32)
MakewholeID	0.060	-0.041	0.296	-0.062	0.080	0.082	0.013	0.214
	(0.81)	(-0.10)	(1.52)	(-1.08)	(1.21)	(0.85)	(0.14)	(1.17)
Constant	9.635***	8.742***	9.535***	9.952***	9.576***	9.328***	8.741***	8.808***
	(21.60)	(13.70)	(13.73)	(21.89)	(14.04)	(27.69)	(10.90)	(7.96)
Adjusted R-squared	0.7766	0.7680	0.8107	0.7324	0.7968	0.8131	0.8185	0.7516
Observations	32,250	4,287	13,481	8,559	5,904	16,056	11,079	5,097
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 7.D. Quarterly Panel Regression Model of U.S. Utilities Firms Corporate Bond Ln($Volume): Transactions

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of quarterly volume of U.S. utilities firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond transaction information is from the TRACE database. All bond characteristics are from the FISD database. The yield-to-worst is imputed from transaction prices reported in TRACE. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**1.143*** **	**0.151**	**1.418*** **	**0.864*** **	**0.671*** **	**0.598*** **	**1.181*** **	**1.477*** **
	(4.79)	**(0.44)**	**(3.55)**	**(12.47)**	**(2.94)**	**(3.46)**	**(3.37)**	**(4.51)**
iBOXX_IG_Post	**-0.038**	**0.226**	**0.078**	**-0.135**	**-0.118***	**0.023**	**-0.095**	**0.012**
	(-0.49)	**(1.13)**	**(0.69)**	**(-1.48)**	**(-1.70)**	**(0.21)**	**(-0.99)**	**(0.17)**
iBOXX_HY	**0.957*** **			**1.255*** **	**1.190*** **	**1.547*** **	**0.707*** **	
	(3.75)			**(3.35)**	**(4.37)**	**(6.67)**	**(3.55)**	
iBOXX_HY_Post	**-0.001**			**-0.030**	**-0.130**	**-0.034**	**-0.034**	
	(-0.01)			**(-0.24)**	**(-1.33)**	**(-0.45)**	**(-0.26)**	
Post_iBOXX	**0.013**	**-0.266**	**-0.008**	**0.025**	**0.142****	**0.158*** **	**-0.001**	**-0.056**
	(0.47)	**(-1.23)**	**(-0.24)**	**(0.50)**	**(2.23)**	**(3.40)**	**(-0.02)**	**(-1.51)**
TED Spread	-0.904***	1.235*	-0.867***	-1.004***	-0.410***	-0.494***	-0.549**	-1.153***
	(-6.85)	(1.98)	(-4.54)	(-5.14)	(-2.67)	(-3.12)	(-2.18)	(-7.10)
Ln(Maturity)	-0.188***	-0.229*	-0.272***	-0.113***	-0.009	-0.377***	-0.552**	1.163***
	(-5.83)	(-1.97)	(-5.84)	(-3.24)	(-0.14)	(-6.60)	(-1.98)	(3.50)
Ln(Age)	-0.676***	3.422***	-0.754***	-0.513***	-0.220**	-0.383***	-0.711***	-0.666***
	(-16.66)	(4.89)	(-14.58)	(-8.70)	(-2.21)	(-4.94)	(-9.02)	(-8.24)
Credit Rating	0.119	-0.151	0.142	0.083	0.316	0.088	0.106	0.251*
	(1.05)	(-0.60)	(0.95)	(0.26)	(1.08)	(0.57)	(0.32)	(1.72)
MakewholeID	0.186***	-0.280	0.187***	0.059	0.071	0.440***	-0.083	0.090
	(3.86)	(-0.67)	(2.67)	(0.92)	(0.49)	(6.91)	(-0.73)	(1.18)
Constant	9.917***	-1.417	10.069***	9.757***	8.049***	9.597***	10.721***	5.266***
	(24.39)	(-0.90)	(21.33)	(7.44)	(5.77)	(16.09)	(7.68)	(4.34)
Adjusted R-squared	0.6318	0.7832	0.6143	0.6301	0.7826	0.6451	0.7444	0.6259
Observations	18,221	358	8,694	6,909	2,248	5,723	4,642	7,845
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 8.A. Quarterly Panel Regression Model of U.S. All Firms Corporate Bond Ln(#Trades): Transactions

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of quarterly number of trades of all U.S. firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond transaction information is from the TRACE database. All bond characteristics are from the FISD database. The yield-to-worst is imputed from transaction prices reported in TRACE. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.413*** **	**0.311*** **	**0.466*** **	**0.388*** **	**0.184*** **	**0.136*** **	**0.468*** **	**0.630*** **
	(20.19)	**(3.82)**	**(13.92)**	**(15.56)**	**(4.00)**	**(10.06)**	**(10.76)**	**(16.31)**
iBOXX_IG_Post	**0.017***	**-0.032**	**0.048*** **	**-0.007**	**0.008**	**-0.015**	**0.008**	**0.064*** **
	(1.66)	**(-0.62)**	**(3.58)**	**(-0.48)**	**(0.41)**	**(-1.29)**	**(0.48)**	**(3.81)**
iBOXX_HY	**0.347*** **		**-0.040**	**0.199*** **	**0.410*** **	**0.424*** **	**0.314*** **	
	(10.26)		**(-0.50)**	**(2.82)**	**(12.09)**	**(12.03)**	**(6.19)**	
iBOXX_HY_Post	**0.021**		**0.072*** **	**0.018**	**0.019**	**-0.016**	**0.004**	
	(1.51)		**(3.68)**	**(0.75)**	**(1.03)**	**(-1.14)**	**(0.18)**	
Post_iBOXX	**0.010**	**0.042**	**-0.013**	**0.020** **	**-0.001**	**0.040*** **	**0.016**	**-0.056*** **
	(1.35)	**(1.16)**	**(-1.13)**	**(2.01)**	**(-0.03)**	**(4.54)**	**(1.14)**	**(-4.28)**
TED Spread	-0.295***	-0.143	-0.231***	-0.360***	-0.181***	-0.213***	-0.340***	-0.411***
	(-9.01)	(-1.06)	(-4.16)	(-7.56)	(-3.40)	(-5.82)	(-5.55)	(-7.61)
Ln(Maturity)	-0.183***	-0.101	-0.219***	-0.190***	0.016	-0.015	-0.340***	-0.025
	(-13.55)	(-1.45)	(-8.72)	(-13.63)	(0.63)	(-1.22)	(-3.59)	(-0.24)
Ln(Age)	-0.177***	-0.008	-0.166***	-0.193***	0.023	-0.004	-0.171***	-0.304***
	(-12.18)	(-0.15)	(-6.30)	(-9.95)	(1.21)	(-0.34)	(-6.87)	(-9.75)
Credit Rating	-0.084***	-0.006	-0.187***	-0.232	0.023	-0.002	-0.077	-0.188***
	(-3.13)	(-0.06)	(-3.36)	(-1.52)	(0.63)	(-0.07)	(-1.59)	(-3.65)
MakewholeID	0.118***	-0.030	0.116***	0.130***	0.001	0.077***	0.082***	0.115***
	(6.73)	(-0.24)	(4.09)	(5.67)	(0.04)	(3.35)	(2.71)	(3.75)
Constant	4.220***	3.612***	4.504***	4.879***	3.302***	3.548***	4.515***	4.240***
	(37.07)	(21.19)	(22.95)	(7.95)	(17.16)	(30.81)	(14.22)	(9.91)
Adjusted R-squared	0.6317	0.6293	0.6635	0.6377	0.6771	0.6904	0.6915	0.6577
Observations	107,547	9,053	40,078	38,498	19,874	46,937	33,677	26,895
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 8.B. Quarterly Panel Regression Model of U.S. Industrial Firms Corporate Bond Ln(#Trades): Transactions

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of quarterly number of trades of U.S. industrial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond transaction information is from the TRACE database. All bond characteristics are from the FISD database. The yield-to-worst is imputed from transaction prices reported in TRACE. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.453*** **	**0.476*** **	**0.523*** **	**0.388*** **	**0.251*** **	**0.156*** **	**0.416*** **	**0.613*** **
	(19.24)	**(6.93)**	**(14.62)**	**(13.44)**	**(4.47)**	**(8.07)**	**(9.34)**	**(12.46)**
iBOXX_IG_Post	**0.013**	**0.004**	**0.023**	**0.007**	**0.011**	**-0.013**	**0.032**	**0.070*** **
	(1.07)	**(0.08)**	**(1.26)**	**(0.43)**	**(0.33)**	**(-0.97)**	**(1.62)**	**(2.93)**
iBOXX_HY	**0.323*** **		**-0.029**	**0.097**	**0.405*** **	**0.410*** **	**0.260*** **	
	(8.23)		**(-0.29)**	**(1.58)**	**(10.55)**	**(10.53)**	**(4.26)**	
iBOXX_HY_Post	**0.028****		**0.063***	**0.042**	**0.033**	**-0.006**	**0.040**	
	(2.01)		**(1.70)**	**(1.64)**	**(1.39)**	**(-0.41)**	**(1.61)**	
Post_iBOXX	**0.011**	**0.021**	**-0.005**	**0.021**	**-0.005**	**0.036*** **	**0.010**	**-0.057*** **
	(1.18)	**(0.48)**	**(-0.30)**	**(1.54)**	**(-0.22)**	**(3.28)**	**(0.60)**	**(-2.95)**
TED Spread	-0.220***	-0.023	-0.146**	-0.287***	-0.147**	-0.198***	-0.196***	-0.260***
	(-5.26)	(-0.24)	(-2.08)	(-4.63)	(-2.49)	(-4.66)	(-3.48)	(-3.31)
Ln(Maturity)	-0.220***	-0.238***	-0.272***	-0.210***	0.015	-0.009	-0.625***	-0.311**
	(-18.62)	(-5.60)	(-16.79)	(-11.38)	(0.62)	(-0.64)	(-8.63)	(-2.48)
Ln(Age)	-0.191***	-0.049	-0.152***	-0.213***	0.001	-0.029**	-0.217***	-0.322***
	(-10.84)	(-1.35)	(-5.69)	(-8.55)	(0.03)	(-2.17)	(-7.76)	(-8.19)
Credit Rating	-0.071*	0.284**	-0.170**	-0.295	0.016	0.024	-0.096	-0.170**
	(-1.84)	(2.22)	(-1.97)	(-1.63)	(0.30)	(0.62)	(-1.49)	(-2.19)
MakewholeID	0.135***	0.081	0.104***	0.182***	-0.012	0.055**	0.086***	0.144***
	(6.02)	(1.17)	(3.09)	(5.82)	(-0.34)	(2.19)	(2.58)	(3.54)
Constant	4.349***	3.290***	4.650***	5.271***	3.426***	3.607***	5.311***	5.162***
	(27.21)	(11.18)	(15.97)	(7.26)	(11.57)	(22.18)	(16.12)	(9.52)
Adjusted R-squared	0.6025	0.6613	0.6499	0.6057	0.6355	0.6161	0.6927	0.6504
Observations	57,074	4,408	17,903	23,030	11,720	25,156	17,954	13,953
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 8.C. Quarterly Panel Regression Model of U.S. Financial Firms Corporate Bond Ln(#Trades): Transactions

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of quarterly number of trades of U.S. financial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond transaction information is from the TRACE database. All bond characteristics are from the FISD database. The yield-to-worst is imputed from transaction prices reported in TRACE. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.311*** **	**-0.049**	**0.333*** **	**0.404*** **	**0.073**	**0.107*** **	**0.550*** **	**0.791*** **
	(6.32)	**(-0.41)**	**(4.23)**	**(6.00)**	**(1.13)**	**(4.80)**	**(5.21)**	**(8.14)**
iBOXX_IG_Post	**0.015**	**-0.098**	**0.050***	**-0.011**	**0.007**	**0.000**	**-0.014**	**0.030**
	(0.71)	**(-1.23)**	**(1.89)**	**(-0.41)**	**(0.29)**	**(0.02)**	**(-0.41)**	**(0.79)**
iBOXX_HY	**0.447*** **		**-0.067**	**0.504** **	**0.401*** **	**0.421*** **	**0.408*** **	
	(5.01)		**(-0.55)**	**(2.16)**	**(4.24)**	**(4.22)**	**(2.89)**	
iBOXX_HY_Post	**0.009**		**0.068*** **	**-0.102**	**0.025**	**-0.015**	**-0.019**	
	(0.26)		**(2.96)**	**(-1.16)**	**(0.63)**	**(-0.39)**	**(-0.40)**	
Post_iBOXX	**0.009**	**0.054**	**-0.021**	**0.024**	**-0.020**	**0.015**	**0.010**	**-0.027**
	(0.55)	**(1.19)**	**(-0.89)**	**(1.39)**	**(-0.74)**	**(0.90)**	**(0.41)**	**(-1.00)**
TED Spread	-0.207***	-0.260	0.016	-0.341***	-0.231*	-0.167**	-0.347***	-0.385***
	(-3.17)	(-1.16)	(0.16)	(-3.60)	(-1.97)	(-2.28)	(-3.30)	(-3.48)
Ln(Maturity)	-0.090**	0.144	-0.088	-0.177***	0.040	0.003	0.119	0.313
	(-2.28)	(1.40)	(-1.34)	(-4.92)	(0.69)	(0.15)	(0.75)	(1.55)
Ln(Age)	-0.055*	0.172	0.006	-0.126***	0.060*	0.047**	-0.001	-0.215***
	(-1.75)	(1.44)	(0.11)	(-2.87)	(1.68)	(2.15)	(-0.02)	(-2.85)
Credit Rating	-0.029	-0.090	-0.068	-0.072	0.032	0.001	-0.035	-0.380***
	(-0.56)	(-1.24)	(-0.53)	(-0.70)	(0.73)	(0.01)	(-0.46)	(-5.54)
MakewholeID	0.044	-0.028	0.099	0.019	0.031	0.046	0.031	0.111
	(1.10)	(-0.10)	(1.34)	(0.43)	(0.71)	(0.79)	(0.61)	(1.12)
Constant	3.605***	3.103***	3.553***	4.006***	3.130***	3.321***	3.089***	3.707***
	(15.77)	(8.41)	(7.63)	(9.67)	(15.11)	(18.32)	(5.83)	(4.64)
Adjusted R-squared	0.6675	0.5774	0.7187	0.6715	0.7007	0.7456	0.7069	0.6872
Observations	32,250	4,287	13,481	8,559	5,904	16,056	11,079	5,097
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 8.D. Quarterly Panel Regression Model of U.S. Utilities Firms Corporate Bond Ln(#Trades): Transactions

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond natural log of quarterly number of trades of U.S. utilities firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond transaction information is from the TRACE database. All bond characteristics are from the FISD database. The yield-to-worst is imputed from transaction prices reported in TRACE. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.430*** **	**0.104**	**0.480*** **	**0.340*** **	**0.380*** **	**0.131*** **	**0.491*** **	**0.545*** **
	(6.41)	**(0.69)**	**(4.51)**	**(6.25)**	**(3.27)**	**(2.63)**	**(3.48)**	**(6.52)**
iBOXX_IG_Post	**0.042**	**0.173***	**0.115*** **	**-0.049**	**-0.018**	**0.008**	**-0.005**	**0.088** **
	(1.19)	**(1.83)**	**(2.66)**	**(-1.19)**	**(-0.51)**	**(0.21)**	**(-0.11)**	**(2.42)**
iBOXX_HY	**0.305** **			**0.428***	**0.469*** **	**0.505*** **	**0.436*** **	
	(2.45)			**(1.91)**	**(3.94)**	**(4.47)**	**(2.61)**	
iBOXX_HY_Post	**0.000**			**0.030**	**-0.092**	**-0.044**	**-0.071**	
	(0.00)			**(0.76)**	**(-1.27)**	**(-1.25)**	**(-0.81)**	
Post_iBOXX	**-0.005**	**-0.181**	**-0.026**	**0.011**	**0.063***	**0.103*** **	**0.009**	**-0.073*** **
	(-0.32)	**(-1.69)**	**(-1.35)**	**(0.41)**	**(1.96)**	**(4.28)**	**(0.28)**	**(-3.26)**
TED Spread	-0.550***	0.843**	-0.622***	-0.584***	-0.162	-0.250***	-0.495***	-0.669***
	(-7.89)	(2.42)	(-6.35)	(-5.07)	(-1.47)	(-2.76)	(-3.37)	(-7.99)
Ln(Maturity)	-0.187***	-0.071	-0.252***	-0.135***	-0.028	-0.124***	-0.404***	0.538***
	(-10.38)	(-1.36)	(-9.66)	(-6.88)	(-0.67)	(-3.78)	(-2.87)	(2.71)
Ln(Age)	-0.256***	1.859***	-0.316***	-0.175***	0.065	-0.037	-0.202***	-0.277***
	(-9.58)	(4.52)	(-7.33)	(-4.69)	(1.21)	(-1.00)	(-4.21)	(-7.06)
Credit Rating	-0.087	0.373***	-0.180**	0.122	0.001	-0.079	-0.025	0.013
	(-1.13)	(3.93)	(-2.22)	(0.89)	(0.01)	(-0.80)	(-0.13)	(0.12)
MakewholeID	0.144***	0.192	0.177***	0.065*	0.053	0.265***	-0.050	0.036
	(4.16)	(1.52)	(3.50)	(1.70)	(0.50)	(6.13)	(-0.66)	(0.67)
Constant	4.230***	-3.479***	4.677***	3.239***	3.194***	3.717***	4.492***	1.633**
	(15.22)	(-3.21)	(18.73)	(5.86)	(7.90)	(9.87)	(5.84)	(2.03)
Adjusted R-squared	0.6029	0.8236	0.5736	0.6567	0.7399	0.6482	0.6595	0.6198
Observations	18,221	358	8,694	6,909	2,248	5,723	4,642	7,845
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 9.A. Quarterly Panel Regression Model of U.S. All Firms Corporate Bond Mutual Funds Ownership

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond par value owned by mutual funds to the total par value of all U.S. firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.049*** **	**0.004**	**0.057*** **	**0.046*** **	**0.016**	**0.011***	**0.085*** **	**0.131*** **
	(6.99)	**(0.20)**	**(4.92)**	**(5.87)**	**(0.64)**	**(1.83)**	**(8.97)**	**(10.18)**
iBOXX_IG_Post	**-0.051*** **	**-0.066*** **	**-0.062*** **	**-0.033*** **	**-0.036*** **	**-0.018*** **	**-0.033*** **	**-0.104*** **
	(-15.21)	**(-4.97)**	**(-12.92)**	**(-6.86)**	**(-3.78)**	**(-3.00)**	**(-8.53)**	**(-17.33)**
iBOXX_HY	**0.076*** **		**0.276*** **	**0.050***	**0.095*** **	**0.091*** **	**0.111*** **	
	(6.28)		**(9.26)**	**(1.74)**	**(8.87)**	**(8.24)**	**(4.78)**	
iBOXX_HY_Post	**-0.024*** **		**-0.054**	**-0.039*** **	**-0.008**	**-0.020*** **	**-0.030*** **	
	(-5.65)		**(-0.91)**	**(-4.31)**	**(-1.55)**	**(-2.98)**	**(-5.19)**	
Post_iBOXX	**-0.026*** **	**-0.024****	**-0.023*** **	**-0.024*** **	**-0.042*** **	**-0.033*** **	**-0.025*** **	**-0.019*** **
	(-14.78)	**(-2.27)**	**(-8.05)**	**(-11.25)**	**(-10.11)**	**(-11.85)**	**(-9.51)**	**(-10.71)**
Ln(Maturity)	-0.048***	-0.045***	-0.037***	-0.056***	-0.063***	-0.063***	-0.071***	0.045***
	(-23.09)	(-5.44)	(-13.14)	(-17.52)	(-9.59)	(-17.01)	(-7.23)	(2.70)
Ln(Age)	-0.085***	-0.109***	-0.086***	-0.089***	-0.050***	-0.128***	-0.059***	-0.067***
	(-34.00)	(-8.65)	(-23.39)	(-20.94)	(-8.70)	(-28.62)	(-19.51)	(-14.88)
Credit Rating	0.006	-0.004	0.017	0.017	0.018	0.021*	0.001	-0.008
	(0.72)	(-0.27)	(0.90)	(0.65)	(0.90)	(1.89)	(0.06)	(-0.75)
MakewholeID	-0.008*	-0.027	-0.011	-0.006	-0.008	0.011*	-0.026***	-0.004
	(-1.94)	(-1.05)	(-1.60)	(-1.03)	(-0.73)	(1.79)	(-4.38)	(-0.67)
Constant	0.451***	0.485***	0.346***	0.402***	0.542***	0.490***	0.462***	0.138**
	(13.61)	(10.12)	(5.96)	(3.84)	(5.01)	(10.80)	(10.84)	(2.08)
Adjusted R-squared	0.7204	0.6508	0.6210	0.6406	0.7753	0.7380	0.8376	0.6190
Observations	107,547	9,053	40,078	38,498	19,874	46,937	33,677	26,895
Bond FE / Industry FE	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes

Table 9.B. Quarterly Panel Regression Model of U.S. Industrial Firms Corporate Bond Mutual Funds Ownership

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond par value owned by mutual funds to the total par value of U.S. industrial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.051*** **	**-0.008**	**0.050*** **	**0.058*** **	**0.053**	**0.023*** **	**0.085*** **	**0.116*** **
	(8.17)	**(-0.34)**	**(6.65)**	**(6.29)**	**(1.42)**	**(3.41)**	**(9.49)**	**(11.63)**
iBOXX_IG_Post	**-0.051*** **	**-0.059*** **	**-0.060*** **	**-0.034*** **	**-0.057*** **	**-0.022*** **	**-0.028*** **	**-0.099*** **
	(-12.16)	**(-4.63)**	**(-9.96)**	**(-5.90)**	**(-6.36)**	**(-3.74)**	**(-5.82)**	**(-13.14)**
iBOXX_HY	**0.073*** **		**0.285*** **	**0.014**	**0.097*** **	**0.095*** **	**0.108*** **	
	(5.15)		**(8.02)**	**(0.44)**	**(8.27)**	**(7.94)**	**(3.84)**	
iBOXX_HY_Post	**-0.026*** **		**-0.100**	**-0.034*** **	**-0.008**	**-0.027*** **	**-0.028*** **	
	(-5.15)		**(-1.09)**	**(-3.39)**	**(-1.21)**	**(-3.32)**	**(-3.92)**	
Post_iBOXX	**-0.028*** **	**-0.034*** **	**-0.026*** **	**-0.021*** **	**-0.045*** **	**-0.034*** **	**-0.027*** **	**-0.019*** **
	(-13.05)	**(-2.84)**	**(-8.20)**	**(-7.08)**	**(-7.88)**	**(-10.15)**	**(-9.21)**	**(-7.80)**
Ln(Maturity)	-0.052***	-0.046***	-0.042***	-0.057***	-0.064***	-0.074***	-0.069***	0.019
	(-21.27)	(-5.22)	(-12.06)	(-14.96)	(-7.17)	(-15.05)	(-5.70)	(0.92)
Ln(Age)	-0.090***	-0.120***	-0.092***	-0.094***	-0.051***	-0.147***	-0.061***	-0.072***
	(-28.21)	(-8.79)	(-24.69)	(-16.90)	(-7.10)	(-27.77)	(-16.59)	(-12.02)
Credit Rating	0.003	0.024	0.006	0.009	0.025	0.023	-0.005	-0.016
	(0.25)	(1.29)	(0.17)	(0.28)	(1.08)	(1.31)	(-0.34)	(-1.07)
MakewholeID	-0.018***	-0.054***	-0.032***	-0.013*	-0.004	0.012	-0.032***	-0.014*
	(-3.70)	(-2.77)	(-4.17)	(-1.79)	(-0.35)	(1.46)	(-4.49)	(-1.88)
Constant	0.493***	0.472***	0.403***	0.438***	0.537***	0.532***	0.501***	0.265***
	(10.01)	(7.97)	(3.57)	(3.69)	(4.24)	(7.51)	(9.22)	(3.45)
Adjusted R-squared	0.7123	0.5508	0.5792	0.5928	0.7493	0.7245	0.8456	0.6039
Observations	57,074	4,408	17,903	23,030	11,720	25,156	17,954	13,953
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 9.C. Quarterly Panel Regression Model of U.S. Financial Firms Corporate Bond Mutual Funds Ownership

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond par value owned by mutual funds to the total par value of U.S. financial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.034****	**0.020**	**0.052****	**0.002**	**-0.015**	**-0.002**	**0.072*****	**0.145*****
	(2.37)	**(0.52)**	**(2.41)**	**(0.14)**	**(-0.73)**	**(-0.19)**	**(3.32)**	**(3.70)**
iBOXX_IG_Post	**-0.048*****	**-0.062****	**-0.059*****	**-0.021**	**-0.035*****	**-0.007**	**-0.042*****	**-0.135*****
	(-6.22)	**(-2.57)**	**(-4.87)**	**(-1.59)**	**(-2.66)**	**(-0.66)**	**(-5.83)**	**(-7.02)**
iBOXX_HY	**0.039***		**0.228*****	**0.018**	**0.063*****	**0.021**	**0.099*****	
	(1.95)		**(2.67)**	**(0.34)**	**(3.61)**	**(1.10)**	**(2.61)**	
iBOXX_HY_Post	**-0.021****		**0.001**	**-0.064*****	**-0.009**	**-0.007**	**-0.037*****	
	(-2.09)		**(0.09)**	**(-2.62)**	**(-0.88)**	**(-0.60)**	**(-3.24)**	
Post_iBOXX	**-0.029*****	**-0.024***	**-0.027*****	**-0.030*****	**-0.038*****	**-0.037*****	**-0.021*****	**-0.025*****
	(-6.85)	**(-1.69)**	**(-3.67)**	**(-6.74)**	**(-6.99)**	**(-7.57)**	**(-4.17)**	**(-3.94)**
Ln(Maturity)	-0.054***	-0.038**	-0.047***	-0.064***	-0.065***	-0.052***	-0.072***	0.083**
	(-10.25)	(-2.34)	(-6.95)	(-6.26)	(-6.79)	(-9.01)	(-3.91)	(2.18)
Ln(Age)	-0.071***	-0.076***	-0.065***	-0.075***	-0.050***	-0.097***	-0.054***	-0.034***
	(-12.58)	(-2.94)	(-6.61)	(-7.16)	(-6.69)	(-12.41)	(-8.26)	(-3.08)
Credit Rating	0.020	-0.009	0.056**	0.049	0.025	0.024	0.015	0.010
	(1.16)	(-0.66)	(2.09)	(0.92)	(0.56)	(1.41)	(1.14)	(0.36)
MakewholeID	0.007	0.027	0.035	-0.006	-0.010	0.008	-0.014	0.010
	(0.67)	(0.46)	(1.59)	(-0.47)	(-0.38)	(0.59)	(-1.11)	(0.45)
Constant	0.377***	0.395***	0.203**	0.280	0.458*	0.428***	0.374***	-0.104
	(5.99)	(5.62)	(2.13)	(1.30)	(1.94)	(6.70)	(5.61)	(-0.87)
Adjusted R-squared	0.7388	0.7131	0.6928	0.6988	0.7864	0.7571	0.8186	0.6597
Observations	32,250	4,287	13,481	8,559	5,904	16,056	11,079	5,097
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 9.D. Quarterly Panel Regression Model of U.S. Utilities Firms Corporate Bond Mutual Funds Ownership

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond par value owned by mutual funds to the total par value of U.S. utilities firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.102*** **	**-0.055*** **	**0.135*** **	**0.059*** **	**0.080**	**0.013**	**0.104*** **	**0.174*** **
	(3.48)	**(-4.77)**	**(2.93)**	**(3.10)**	**(1.51)**	**(0.47)**	**(3.53)**	**(4.11)**
iBOXX_IG_Post	**-0.063*** **	**-0.014**	**-0.077*** **	**-0.056*** **	**-0.010**	**-0.034**	**-0.036*** **	**-0.091*** **
	(-5.13)	**(-1.63)**	**(-3.34)**	**(-4.85)**	**(-0.53)**	**(-0.90)**	**(-4.21)**	**(-5.60)**
iBOXX_HY	**0.164*** **			**0.226*** **	**0.182*** **	**0.184*** **	**0.179*** **	
	(3.62)			**(6.59)**	**(3.04)**	**(4.47)**	**(3.87)**	
iBOXX_HY_Post	**-0.010**			**-0.027**	**0.007**	**0.016**	**-0.014**	
	(-0.75)			**(-1.17)**	**(0.42)**	**(0.97)**	**(-1.08)**	
Post_iBOXX	**-0.020*** **	**-0.006**	**-0.016*** **	**-0.026*** **	**-0.033** **	**-0.028*** **	**-0.025*** **	**-0.017*** **
	(-7.75)	**(-1.52)**	**(-4.98)**	**(-7.37)**	**(-2.25)**	**(-4.43)**	**(-5.27)**	**(-6.94)**
Ln(Maturity)	-0.028***	-0.025***	-0.013**	-0.044***	-0.044***	-0.052***	-0.071**	0.076**
	(-6.88)	(-4.43)	(-2.46)	(-6.95)	(-2.66)	(-6.40)	(-2.49)	(2.18)
Ln(Age)	-0.085***	-0.016	-0.088***	-0.087***	-0.045**	-0.125***	-0.061***	-0.069***
	(-17.88)	(-0.51)	(-13.59)	(-10.83)	(-2.33)	(-12.88)	(-7.28)	(-9.05)
Credit Rating	0.007	0.001	0.003	0.002	-0.068*	0.039*	0.009	0.006
	(0.65)	(0.16)	(0.19)	(0.07)	(-1.69)	(1.93)	(0.32)	(0.57)
MakewholeID	0.002	0.022**	-0.004	0.006	-0.050**	0.037***	-0.030**	0.001
	(0.29)	(2.85)	(-0.38)	(0.43)	(-2.02)	(2.74)	(-2.12)	(0.12)
Constant	0.380***	0.140	0.313***	0.449***	0.882***	0.371***	0.440***	-0.001
	(9.25)	(1.48)	(5.53)	(4.74)	(4.43)	(4.69)	(3.19)	(-0.01)
Adjusted R-squared	0.7216	0.7612	0.5683	0.7235	0.8126	0.7670	0.8439	0.6448
Observations	18,221	358	8,694	6,909	2,248	5,723	4,642	7,845
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 10.A. Quarterly Panel Regression Model of U.S. All Firms Corporate Bond Life Insurers Ownership

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond par value owned by life insurers to the total par value of all U.S. firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**-0.061*** **	**-0.060*** **	**-0.079*** **	**-0.048*** **	**-0.006**	**-0.001**	**-0.083*** **	**-0.130*** **
	(-8.13)	**(-3.04)**	**(-5.93)**	**(-6.10)**	**(-0.22)**	**(-0.25)**	**(-6.39)**	**(-8.77)**
iBOXX_IG_Post	**0.040*** **	**0.052*** **	**0.054*** **	**0.025*** **	**0.033*** **	**0.001**	**0.018*** **	**0.092*** **
	(12.76)	**(3.94)**	**(11.70)**	**(4.69)**	**(4.38)**	**(0.08)**	**(3.79)**	**(15.62)**
iBOXX_HY	**-0.049*** **		**-0.216*** **	**-0.019**	**-0.070*** **	**-0.059*** **	**-0.073*** **	
	(-3.60)		**(-4.45)**	**(-0.57)**	**(-6.33)**	**(-5.20)**	**(-3.06)**	
iBOXX_HY_Post	**0.018*** **		**0.036**	**0.024** **	**-0.001**	**0.017** **	**0.019*** **	
	(4.16)		**(0.88)**	**(2.44)**	**(-0.18)**	**(2.56)**	**(3.18)**	
Post_iBOXX	**0.009*** **	**0.001**	**0.001**	**0.011*** **	**0.031*** **	**0.010*** **	**0.013*** **	**0.012*** **
	(5.13)	**(0.07)**	**(0.36)**	**(5.21)**	**(8.04)**	**(4.10)**	**(3.68)**	**(5.96)**
Credit Rating	0.123***	0.131***	0.131***	0.119***	0.098***	0.083***	0.227***	-0.029
	(41.01)	(13.80)	(25.58)	(27.51)	(9.54)	(18.78)	(13.34)	(-1.09)
Ln(Maturity)	0.128***	0.114***	0.131***	0.134***	0.067***	0.163***	0.106***	0.088***
	(38.25)	(7.78)	(21.74)	(27.49)	(8.21)	(27.40)	(22.21)	(13.45)
Ln(Age)	-0.005	-0.051	0.012	-0.030	-0.011	-0.023*	0.006	0.010
	(-0.45)	(-1.19)	(0.48)	(-0.97)	(-0.48)	(-1.70)	(0.40)	(0.62)
MakewholeID	-0.005	0.001	-0.005	-0.001	-0.002	-0.030***	0.032***	0.015*
	(-1.10)	(0.02)	(-0.54)	(-0.18)	(-0.18)	(-3.61)	(4.03)	(1.86)
Constant	0.150***	0.230**	0.107	0.299**	0.142	0.193***	-0.091	0.680***
	(3.66)	(2.11)	(1.26)	(2.45)	(1.15)	(3.47)	(-1.51)	(6.96)
Adjusted R-squared	0.6467	0.4470	0.5841	0.6597	0.7089	0.6004	0.6476	0.6042
Observations	107,547	9,053	40,078	38,498	19,874	46,937	33,677	26,895
Bond FE / Industry FE	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes

Table 10.B. Quarterly Panel Regression Model of U.S. Industrial Firms Corporate Bond Life Insurers Ownership

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond par value owned by life insurers to the total par value of U.S. industrial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**-0.058*** **	**-0.061*** **	**-0.063*** **	**-0.053*** **	**-0.038**	**-0.017** **	**-0.086*** **	**-0.110*** **
	(-9.54)	**(-2.93)**	**(-7.32)**	**(-5.93)**	**(-0.92)**	**(-2.49)**	**(-7.34)**	**(-8.92)**
iBOXX_IG_Post	**0.045*** **	**0.047*** **	**0.063*** **	**0.028*** **	**0.055*** **	**0.006**	**0.019*** **	**0.088*** **
	(11.23)	**(5.67)**	**(10.53)**	**(4.50)**	**(5.75)**	**(0.93)**	**(3.47)**	**(11.87)**
iBOXX_HY	**-0.045*** **		**-0.222*** **	**0.027**	**-0.068*** **	**-0.057*** **	**-0.084*** **	
	(-2.79)		**(-4.09)**	**(0.71)**	**(-5.62)**	**(-4.08)**	**(-2.92)**	
iBOXX_HY_Post	**0.024*** **		**0.068**	**0.020**	**0.005**	**0.023*** **	**0.024*** **	
	(4.51)		**(1.01)**	**(1.61)**	**(0.78)**	**(2.71)**	**(3.38)**	
Post_iBOXX	**0.008*** **	**0.007**	**-0.000**	**0.006***	**0.028*** **	**0.009*** **	**0.010*** **	**0.013*** **
	(3.70)	**(1.04)**	**(-0.10)**	**(1.90)**	**(5.84)**	**(2.72)**	**(2.93)**	**(4.73)**
Credit Rating	0.121***	0.131***	0.126***	0.120***	0.095***	0.094***	0.188***	-0.021
	(39.61)	(11.36)	(26.80)	(24.98)	(8.63)	(16.47)	(11.13)	(-0.64)
Ln(Maturity)	0.134***	0.129***	0.136***	0.143***	0.080***	0.190***	0.108***	0.093***
	(37.76)	(9.23)	(28.92)	(21.85)	(10.18)	(32.53)	(18.99)	(11.07)
Ln(Age)	-0.001	-0.034**	-0.006	-0.033	-0.028	-0.035*	0.025	0.036
	(-0.08)	(-2.44)	(-0.14)	(-0.94)	(-1.18)	(-1.68)	(1.60)	(1.47)
MakewholeID	0.008	0.008	0.020**	0.012	-0.019*	-0.030***	0.039***	0.024**
	(1.38)	(0.63)	(2.00)	(1.23)	(-1.93)	(-2.87)	(4.16)	(2.47)
Constant	0.131**	0.195***	0.184	0.296**	0.216*	0.203**	-0.079	0.555***
	(2.23)	(3.36)	(1.24)	(2.13)	(1.67)	(2.41)	(-1.20)	(4.67)
Adjusted R-squared	0.7223	0.5992	0.6848	0.6301	0.7887	0.6831	0.8036	0.6279
Observations	57,074	4,408	17,903	23,030	11,720	25,156	17,954	13,953
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 10.B. Quarterly Panel Regression Model of U.S. Financial Firms Corporate Bond Life Insurers Ownership

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond par value owned by life insurers to the total par value of U.S. financial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**-0.062*** **	**-0.054**	**-0.096*** **	**-0.024**	**0.013**	**0.009**	**-0.048*** **	**-0.153*** **
	(-3.61)	**(-1.43)**	**(-3.50)**	**(-1.25)**	**(0.43)**	**(0.78)**	**(-1.73)**	**(-3.89)**
iBOXX_IG_Post	**0.029*** **	**0.057*** **	**0.037*** **	**-0.001**	**0.029** **	**-0.004**	**0.012**	**0.106*** **
	(4.62)	**(2.91)**	**(4.71)**	**(-0.09)**	**(2.22)**	**(-0.45)**	**(1.21)**	**(6.47)**
iBOXX_HY	**-0.029**		**-0.182*** **	**-0.031**	**-0.055*** **	**-0.015**	**-0.060** **	
	(-1.27)		**(-5.40)**	**(-0.63)**	**(-3.64)**	**(-1.12)**	**(-2.13)**	
iBOXX_HY_Post	**0.009**		**-0.004**	**0.045***	**-0.012**	**0.005**	**0.015**	
	(1.00)		**(-0.71)**	**(1.94)**	**(-1.43)**	**(0.48)**	**(1.15)**	
Post_iBOXX	**0.014*** **	**-0.008**	**0.011** **	**0.021*** **	**0.037*** **	**0.011*** **	**0.020** **	**0.026*** **
	(3.64)	**(-0.78)**	**(1.98)**	**(5.74)**	**(5.62)**	**(2.75)**	**(2.36)**	**(3.44)**
Credit Rating	0.140***	0.130***	0.151***	0.136***	0.111***	0.076***	0.278***	-0.004
	(17.36)	(6.64)	(12.00)	(8.65)	(5.03)	(8.48)	(8.12)	(-0.05)
Ln(Maturity)	0.101***	0.071***	0.105***	0.113***	0.045**	0.117***	0.094***	0.058***
	(12.07)	(3.12)	(6.51)	(10.93)	(2.55)	(10.97)	(8.97)	(3.12)
Ln(Age)	-0.031	-0.067	-0.017	-0.012	0.008	-0.021	-0.056*	-0.031
	(-1.52)	(-1.19)	(-0.40)	(-0.17)	(0.15)	(-0.97)	(-1.94)	(-0.96)
MakewholeID	-0.017	-0.024	-0.034	-0.013	0.020	-0.009	-0.001	-0.018
	(-1.29)	(-0.29)	(-1.31)	(-0.88)	(0.68)	(-0.54)	(-0.04)	(-0.59)
Constant	0.233***	0.304**	0.167	0.225	0.057	0.207**	0.047	0.789***
	(2.99)	(2.29)	(1.08)	(0.83)	(0.20)	(2.43)	(0.43)	(2.71)
Adjusted R-squared	0.4799	0.3053	0.4351	0.6488	0.5401	0.4455	0.3996	0.5134
Observations	32,250	4,287	13,481	8,559	5,904	16,056	11,079	5,097
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 10.D. Quarterly Panel Regression Model of U.S. Utilities Firms Corporate Bond Life Insurers Ownership

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond par value owned by life insurers to the total par value of U.S. utilities firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**-0.108*** **	**-0.015**	**-0.142*** **	**-0.074*** **	**-0.066**	**0.004**	**-0.123*** **	**-0.172*** **
	(-3.85)	**(-0.53)**	**(-3.24)**	**(-2.98)**	**(-1.07)**	**(0.15)**	**(-3.31)**	**(-3.62)**
iBOXX_IG_Post	**0.057*** **	**-0.083*** **	**0.068*** **	**0.057*** **	**0.007**	**-0.019**	**0.036*** **	**0.090*** **
	(4.16)	**(-4.02)**	**(2.70)**	**(4.55)**	**(0.52)**	**(-0.53)**	**(3.63)**	**(6.61)**
iBOXX_HY	**-0.113** **			**-0.203*** **	**-0.120** **	**-0.136*** **	**-0.071**	
	(-2.16)			**(-4.32)**	**(-2.07)**	**(-4.20)**	**(-1.25)**	
iBOXX_HY_Post	**-0.001**			**0.007**	**-0.020**	**-0.013**	**0.009**	
	(-0.10)			**(0.34)**	**(-1.61)**	**(-1.08)**	**(0.60)**	
Post_iBOXX	**0.004**	**0.013***	**-0.005**	**0.012*** **	**0.029** **	**0.014** **	**0.005**	**0.006***
	(1.60)	**(1.79)**	**(-1.33)**	**(3.41)**	**(2.45)**	**(2.40)**	**(0.77)**	**(1.88)**
Credit Rating	0.104***	0.086***	0.114***	0.097***	0.076***	0.071***	0.232***	-0.056*
	(24.41)	(10.42)	(19.66)	(14.00)	(3.20)	(7.66)	(7.18)	(-1.79)
Ln(Maturity)	0.138***	-0.141	0.145***	0.132***	0.054***	0.169***	0.128***	0.092***
	(23.87)	(-1.30)	(18.49)	(14.41)	(2.82)	(10.42)	(12.58)	(9.94)
Ln(Age)	0.006	0.013	0.046*	-0.045	0.116**	-0.038	0.054	-0.007
	(0.46)	(0.61)	(1.80)	(-0.75)	(2.43)	(-1.44)	(1.54)	(-0.43)
MakewholeID	-0.022***	-0.080**	-0.023**	-0.017	0.032	-0.091***	0.046**	0.015
	(-2.79)	(-2.89)	(-1.99)	(-1.15)	(1.11)	(-6.63)	(2.49)	(1.14)
Constant	0.171***	1.012***	0.052	0.403	-0.365	0.324***	-0.324*	0.815***
	(3.31)	(3.96)	(0.64)	(1.65)	(-1.45)	(3.07)	(-1.97)	(6.88)
Adjusted R-squared	0.7571	0.7946	0.6828	0.7660	0.8535	0.7571	0.8313	0.6807
Observations	18,221	358	8,694	6,909	2,248	5,723	4,642	7,845
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 11.A. Quarterly Panel Regression Model of U.S. All Firms Corporate Bond Property & Casualty Ownership

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond par value owned by property and casualty insurers to the total par value of all U.S. firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.011*** **	**0.066*** **	**0.018*** **	**-0.002**	**-0.001**	**-0.011*** **	**-0.014** **	**-0.007*** **
	(3.27)	**(3.30)**	**(3.39)**	**(-0.45)**	**(-0.11)**	**(-2.95)**	**(-2.26)**	**(-3.03)**
iBOXX_IG_Post	**0.009*** **	**0.010**	**0.007** **	**0.009*** **	**0.003**	**0.014*** **	**0.019*** **	**0.005*** **
	(4.54)	**(1.03)**	**(2.12)**	**(3.72)**	**(0.80)**	**(3.19)**	**(5.72)**	**(5.01)**
iBOXX_HY	**-0.018*** **		**-0.065*** **	**-0.025*** **	**-0.012** **	**-0.024*** **	**-0.038*** **	
	(-4.18)		**(-3.98)**	**(-3.79)**	**(-2.42)**	**(-5.27)**	**(-4.47)**	
iBOXX_HY_Post	**0.013*** **		**0.019**	**0.016*** **	**0.006** **	**0.009*** **	**0.013*** **	
	(5.89)		**(1.22)**	**(3.16)**	**(1.99)**	**(2.65)**	**(3.29)**	
Post_iBOXX	**0.014*** **	**0.018** **	**0.015*** **	**0.009*** **	**0.018*** **	**0.018*** **	**0.010*** **	**0.001**
	(10.31)	**(2.38)**	**(6.19)**	**(6.99)**	**(6.54)**	**(7.36)**	**(3.51)**	**(0.71)**
Ln(Maturity)	-0.067***	-0.089***	-0.086***	-0.052***	-0.027***	-0.008*	-0.171***	-0.015
	(-19.41)	(-5.88)	(-14.32)	(-16.00)	(-5.13)	(-1.82)	(-7.87)	(-1.11)
Ln(Age)	-0.023***	0.016	-0.027***	-0.023***	0.001	-0.009**	-0.033***	-0.003
	(-10.57)	(1.66)	(-6.53)	(-10.05)	(0.19)	(-2.29)	(-9.35)	(-1.12)
Credit Rating	-0.001	0.091*	-0.028**	0.015*	-0.011*	-0.001	-0.002	0.006
	(-0.07)	(1.79)	(-2.56)	(1.65)	(-1.95)	(-0.11)	(-0.18)	(0.68)
MakewholeID	0.016***	0.022	0.028***	0.005*	0.003	0.018***	-0.007	-0.003
	(6.18)	(0.91)	(5.61)	(1.67)	(0.58)	(3.39)	(-1.34)	(-1.27)
Constant	0.273***	0.114	0.430***	0.165***	0.186***	0.193***	0.550***	0.059
	(10.83)	(1.02)	(11.32)	(4.36)	(5.99)	(7.57)	(10.39)	(1.02)
Adjusted R-squared	0.4221	0.3468	0.4330	0.4331	0.4439	0.4491	0.4507	0.2946
Observations	107,547	9,053	40,078	38,498	19,874	46,937	33,677	26,895
Bond FE / Industry FE	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes

Table 11.B. Quarterly Panel Regression Model of U.S. Industrial Firms Corporate Bond Property & Casualty Ownership

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond par value owned by property and casualty insurers to the total par value of U.S. industrial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.005**	**0.063*** **	**0.011** **	**-0.007***	**-0.012***	**-0.011** **	**-0.010***	**-0.008*** **
	(1.46)	**(5.78)**	**(2.06)**	**(-1.65)**	**(-1.81)**	**(-2.53)**	**(-1.75)**	**(-2.96)**
iBOXX_IG_Post	**0.005** **	**0.011**	**-0.001**	**0.007*** **	**-0.001**	**0.012** **	**0.014*** **	**0.005*** **
	(2.57)	**(1.60)**	**(-0.31)**	**(3.12)**	**(-0.11)**	**(2.56)**	**(4.01)**	**(4.65)**
iBOXX_HY	**-0.017*** **		**-0.061*** **	**-0.029*** **	**-0.014*** **	**-0.026*** **	**-0.028*** **	
	(-4.04)		**(-3.75)**	**(-3.57)**	**(-3.49)**	**(-5.66)**	**(-3.99)**	
iBOXX_HY_Post	**0.009*** **		**0.020**	**0.012***	**0.000**	**0.008** **	**0.007***	
	(3.83)		**(0.77)**	**(1.89)**	**(0.02)**	**(2.26)**	**(1.83)**	
Post_iBOXX	**0.015*** **	**0.018*** **	**0.018*** **	**0.010*** **	**0.025*** **	**0.020*** **	**0.014*** **	**-0.000**
	(13.06)	**(2.88)**	**(8.28)**	**(7.40)**	**(7.90)**	**(8.87)**	**(4.88)**	**(-0.35)**
Ln(Maturity)	-0.061***	-0.080***	-0.077***	-0.053***	-0.024***	-0.007*	-0.119***	-0.012
	(-29.30)	(-13.25)	(-23.14)	(-20.71)	(-5.05)	(-1.89)	(-12.03)	(-0.59)
Ln(Age)	-0.023***	0.010	-0.024***	-0.024***	-0.008**	-0.014***	-0.031***	-0.001
	(-12.29)	(1.50)	(-8.19)	(-9.16)	(-2.57)	(-3.62)	(-9.05)	(-0.32)
Credit Rating	-0.002	0.054***	-0.015	0.020**	-0.011*	0.001	-0.007	-0.005
	(-0.31)	(3.11)	(-1.61)	(2.05)	(-1.76)	(0.06)	(-0.90)	(-0.70)
MakewholeID	0.014***	0.051***	0.024***	0.003	0.012**	0.015**	0.000	-0.007***
	(4.29)	(3.93)	(4.22)	(0.72)	(2.15)	(2.33)	(0.03)	(-3.18)
Constant	0.252***	0.135***	0.349***	0.158***	0.172***	0.174***	0.426***	0.086
	(11.98)	(3.00)	(11.47)	(4.04)	(4.72)	(4.83)	(9.88)	(0.96)
Adjusted R-squared	0.4554	0.3209	0.5453	0.4347	0.4856	0.4186	0.5482	0.2001
Observations	57,074	4,408	17,903	23,030	11,720	25,156	17,954	13,953
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 11.C. Quarterly Panel Regression Model of U.S. Financial Firms Corporate Bond Property & Casualty Ownership

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond par value owned by property and casualty insurers to the total par value of U.S. financial firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**0.029*** **	**0.071**	**0.037*** **	**0.020** **	**0.013**	**-0.004**	**-0.035***	**-0.001**
	(3.34)	**(1.46)**	**(2.75)**	**(1.99)**	**(0.65)**	**(-0.48)**	**(-1.93)**	**(-0.19)**
iBOXX_IG_Post	**0.014*** **	**-0.000**	**0.016***	**0.017*** **	**0.009**	**0.011**	**0.029*** **	**0.009*** **
	(2.87)	**(-0.03)**	**(1.79)**	**(2.74)**	**(1.31)**	**(1.22)**	**(3.92)**	**(2.69)**
iBOXX_HY	**0.002**		**-0.072**	**0.016**	**0.006**	**0.005**	**-0.024***	
	(0.21)		**(-1.25)**	**(0.93)**	**(0.50)**	**(0.76)**	**(-1.91)**	
iBOXX_HY_Post	**0.019*** **		**0.014***	**0.028***	**0.016** **	**0.012**	**0.025*** **	
	(3.21)		**(1.75)**	**(1.74)**	**(2.23)**	**(1.40)**	**(2.62)**	
Post_iBOXX	**0.014*** **	**0.029*** **	**0.013** **	**0.008*** **	**0.011***	**0.020*** **	**0.003**	**-0.000**
	(4.03)	**(4.37)**	**(2.05)**	**(2.70)**	**(1.78)**	**(3.82)**	**(0.44)**	**(-0.04)**
Ln(Maturity)	-0.075***	-0.111***	-0.091***	-0.055***	-0.030**	-0.014	-0.248***	-0.053**
	(-6.05)	(-2.84)	(-4.57)	(-3.02)	(-2.14)	(-1.26)	(-5.55)	(-2.05)
Ln(Age)	-0.013*	0.021	-0.023	-0.022*	0.021	0.001	-0.033***	-0.008
	(-1.89)	(1.23)	(-1.59)	(-1.92)	(1.29)	(0.15)	(-3.10)	(-1.62)
Credit Rating	0.014	0.111*	-0.032	-0.008	-0.023*	0.005	0.024	0.035
	(0.71)	(1.90)	(-1.29)	(-0.38)	(-1.69)	(0.47)	(0.55)	(1.25)
MakewholeID	0.003	-0.036	0.001	0.008	-0.011	0.006	-0.005	-0.002
	(0.44)	(-0.58)	(0.05)	(1.13)	(-0.89)	(0.56)	(-0.60)	(-0.10)
Constant	0.255***	0.158	0.480***	0.249***	0.281***	0.200***	0.657***	0.097
	(3.81)	(1.42)	(4.92)	(2.74)	(3.80)	(4.31)	(4.36)	(1.34)
Adjusted R-squared	0.3750	0.3138	0.3550	0.4058	0.4079	0.4414	0.3906	0.3382
Observations	32,250	4,287	13,481	8,559	5,904	16,056	11,079	5,097
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 11.D. Quarterly Panel Regression Model of U.S. Utilities Firms Corporate Bond Property & Casualty Ownership

This table represents the coefficient estimates of a reduced-form panel regression model of the corporate bond par value owned by property and casualty insurers to the total par value of U.S. utilities firms as a function of (1) S&P Corporate Bond Index membership, (2) CBOE iBOXX futures being traded, and (3) a host of control variables. iBOXX_IG and iBOXX_HY are indicator variables taking values of one if the bond is in the iBOXX investment-grade or high-yield indexes, respectively. The sample period is 2013Q1 to 2019Q4. Post2018 is an indicator that takes the value of one if the period is on or after 2018Q3. All bond information is from LSEG's eMAXX North America database. The yield-to-worst is imputed from marked-to-market values reported in eMAXX. All macro variables are from St. Louis Fed's FRED database. VIX is from CBOE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	All	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to C-	Mat < 5	5 < Mat < 15	Mat > 15
iBOXX_IG	**-0.006**	**0.036**	**-0.008**	**-0.001**	**-0.014**	**-0.042*** **	**0.008**	**-0.012***
	(-0.68)	**(1.40)**	**(-0.57)**	**(-0.16)**	**(-1.57)**	**(-3.04)**	**(0.75)**	**(-1.96)**
iBOXX_IG_Post	**0.007**	**-0.009**	**0.008**	**0.004**	**0.010**	**0.035** **	**0.007**	**0.003**
	(1.31)	**(-0.79)**	**(1.35)**	**(0.45)**	**(1.14)**	**(1.98)**	**(0.96)**	**(1.05)**
iBOXX_HY	**-0.064*** **			**-0.039*** **	**-0.070** **	**-0.068*** **	**-0.118*** **	
	(-3.25)			**(-3.21)**	**(-2.43)**	**(-2.98)**	**(-3.10)**	
iBOXX_HY_Post	**0.021*** **			**0.024*** **	**0.020*** **	**0.006**	**0.010**	
	(4.32)			**(3.53)**	**(2.91)**	**(0.83)**	**(1.25)**	
Post_iBOXX	**0.010*** **	**-0.011**	**0.014*** **	**0.007*** **	**0.005**	**0.010** **	**0.021*** **	**0.002** **
	(4.85)	**(-1.56)**	**(4.23)**	**(3.24)**	**(0.69)**	**(2.08)**	**(4.66)**	**(1.98)**
Ln(Maturity)	-0.073***	-0.053***	-0.099***	-0.046***	-0.033***	-0.006	-0.147***	-0.008
	(-16.68)	(-7.26)	(-15.91)	(-11.22)	(-6.34)	(-1.12)	(-6.65)	(-0.40)
Ln(Age)	-0.034***	0.086	-0.041***	-0.020***	-0.003	-0.021**	-0.049***	-0.002
	(-8.94)	(1.39)	(-6.62)	(-4.55)	(-0.37)	(-2.00)	(-5.55)	(-0.71)
Credit Rating	-0.016**	-0.038**	-0.028	0.064	-0.007	0.000	-0.047	-0.003
	(-2.10)	(-2.25)	(-1.34)	(1.57)	(-0.36)	(0.02)	(-1.61)	(-0.44)
MakewholeID	0.028***	0.024	0.044***	0.009	0.013	0.046***	-0.000	0.001
	(5.91)	(1.04)	(6.85)	(1.54)	(0.82)	(5.28)	(-0.03)	(0.30)
Constant	0.351***	0.048	0.474***	-0.056	0.174*	0.179***	0.689***	0.061
	(11.12)	(0.39)	(6.71)	(-0.34)	(1.79)	(3.26)	(5.62)	(0.79)
Adjusted R-squared	0.5083	0.7339	0.5977	0.4978	0.4616	0.5755	0.7224	0.1952
Observations	18,221	358	8,694	6,909	2,248	5,723	4,642	7,845
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes