Internet Appendix A. Variable definitions

The table shows the definitions of the main variables used in the paper.

Variable	Definition	Source
Bond Variables		
Bond Book/Market	Bond's book value divided by its market price. (Book value, an amortizing issue price, linearly converges to the bond's face value at maturity)	TRACE, Mergent FISD
Bond Mispricing	-1 * Residual/ Market Value of Total Liabilities of firm (based on Bartram and Grinblatt, 2018)	
Bond Yield	Yield to maturity (%)	TRACE, Mergent FISD
Bond Credit Spread	Difference between yield of bond and swap rates with matched cash flows	TRACE, Bloomberg
Bond Value	Market value of bond	TRACE, Mergent FISD
Bond Face Value	Face value of bond	Mergent FISD
Bond Age	Years elapsed since issuance	Mergent FISD
Bond Maturity	Remaining time to maturity (in years)	Mergent FISD
Bond Duration	Macaulay duration of bond (in years)	TRACE, Mergent FISD
Bond Coupon Rate	Coupon rate of bond (%)	Mergent FISD
Bond Bid/Ask Spread (Institutions)	Bid/Ask spread of bond. Daily spreads are computed as the difference between average dealer sells and average dealer buys, scaled by the average of buys and sells in the day. We use dealer-to-customer trades only. Monthly spread is the average of daily spreads in month t. Bond Bid/Ask Spread Institutions only uses transactions with volume no less than 100,000 dollars.	TRACE
Bond Reversal	Returns of bond in month t	TRACE, Mergent FISD
Bond Momentum	Six-month returns over month $t-6$ to $t-1$, computed using the beginning of the month price in $t-6$ and the end of the month price in $t-1$.	TRACE, Mergent FISD
Bond Rating	Rating of bond expressed in numerical values from AAA (1) to D (22). Credit rating is from S&P when available, and from Moody's when S&P's rating is not available.	Mergent FISD
Bond Volume (Institutions)	Dollar transaction volume for a bond in a month. Bond Volume Institutions only uses transactions with volume no less than 100,000 dollars.	TRACE
Bond Market Beta	Market beta of a bond estimated using the 36-month rolling windows. The market index is constructed using our own sample of bond returns.	TRACE, Mergent FISD
Bond Volatility	Volatility of bond returns (including coupons) using the 36-month rolling windows with the minimum of 24 monthly observations.	TRACE, Mergent FISD
Bond Value-at-Risk	The second worst returns in the previous 36 months. The estimates are based on the rolling windows with the minimum of 24 monthly observations.	TRACE, Mergent FISD
Bond Gamma	Illiquidity measure of Bao, Pan, and Wang (2011) calculated using transactions within a month. For bonds with at least five daily clean price changes, we compute the negative of the autocovariance of the changes.	TRACE
Number of Trades (Institutions)	Number of all transactions for a bond in a month. Number of Trades Institutions only uses transactions with volume no less than 100,000 dollars.	TRACE
Number of Bonds $t+1$	Number of outstanding bonds of firm in month $t+1$	Mergent FISD
Percent of Bond Market Capitalization Traded in $t+1$	Percentage of the market value of the issuing firm's bonds that trade in month $t+1$ as a fraction of the market value of the firm's bonds with signals in month t	Mergent FISD
Number of Days from Beginning of Month $t+1$	Difference in calendar days between the date of first transaction in month $t+1$ and the first trading date of month $t+1$.	TRACE
Number of Days from End of Month $t+1$	Difference in calendar days (in absolute values) between the last trading date of month $t+1$ and the date for month $t+1$ end-of-month transaction.	TRACE
Bond Institutional Ownership	The sum of bond holdings of institutional investors at the end of the previous quarter.	eMAXX
Investment Grade	Dummy variable which equals one if bond's credit rating is BBB- or above.	Mergent FISD
Non-Investment Grade	Dummy variable which equals one if bond's credit rating is BB+ or below.	Mergent FISD
Bond Offering Price	Price at which bond is initially sold to investors.	Mergent FISD
Bond Market Factors		
Bond Market Factor	Excess return on the value-weighted corporate bond market portfolio.	TRACE, Mergent FISD
Bond Value-at-Risk Factor	Return difference between bonds with low value-at-risk (as measured by the second worst return in the previous three years) and bonds with high value-at risk. Bonds are independently sorted into 25 value-weighted portfolios based on credit rating and value-at-risk, and the factor is formed as the average across rating quintiles.	TRACE, Mergent FISD
Bond Rating Factor	Return difference between bonds with high default risk (as measured by credit rating) and bonds with low default risk. For each of the double-sorts on value-at-risk, illiquidity and reversal, a rating factor is formed by taking the average across the non-rating characteristics. The rating factor is the average of the three factors.	TRACE, Mergent FISD
Bond Illiquidity Factor	Return difference between bonds with high illiquidity (the Roll measure) and bonds with low illiquidity. Bonds are independently sorted into 25 value-weighted portfolios based on credit rating and illiquidity, and the factor is formed as the average across rating quintiles.	TRACE, Mergent FISD
Bond Reversal Factor	Return difference between bonds with low reversal (the past one-month bond return) and bonds with high reversal. Bonds are independently sorted into 25 value-weighted portfolios based on credit rating and reversal, and the factor is formed as the average across rating quintiles.	TRACE, Mergent FISD
Bond Term Structure Factor	Return difference between bonds with long time-to-maturity and bonds with short time-to-maturity. Bonds are independently sorted into 125 value-weighted portfolios based on credit rating, coupon rate and maturity, and the factor is formed as the average across rating and coupon rate quintiles.	TRACE, Mergent FISD

(continued)

Internet Appendix A. Variable definitions (continued)

Variable	Definition	Source
Equity/Firm Variables		
Equity Mispricing	-1 * Residual/ Market Capitalization (Bartram and Grinblatt 2018, 2020)	
Beta	Annual Market Beta	CRSP
Market Capitalization	Stock Market Capitalization of Common Stock, calculated as product of Share Price (PRC) * Number of Shares Outstanding (SHROUT)	CRSP
Book/Market	(Book Equity (CEQQH) + Deferred Taxes Balance Sheet (TXKITCQH))/Market Capitalization	CRSP, Compustat
Short-term Reversal	Return in prior month	CRSP
Momentum	Return in prior year excluding prior month	CRSP
Long-term Reversal	Return in prior five years excluding prior year	CRSP
Accruals	Accruals = [NOA(t)-NOA(t-1)]/NOA(t-1), where NOA(t) = Operating Assets (t) - Operating Liabilities (t). Operating Assets is calculated as total assets (ATQH) less cash and short-term investments (CHEQH). Operating liabilities is calculated as total assets (ATQH) less total debt (DLCQH and DLTTQH) less book value of total common and preferred equity (CEQQH and PSTKQH) less minority interest (MIBTQH) (Richardson et al., 2001, p. 22)	Compustat
SUE	Quarterly earnings surprise based on a rolling seasonal random walk model (Livnat and Mendenhall, 2006, page 185)	Compustat
Gross Profitability	(Revenue (SALEQH) - Cost of Goods Sold (COGSQH))/Total Assets (ATQH) (Novy-Marx 2013)	Compustat
Earnings Yield	Earnings/Price (Penman, Richardson, Riggoni, and Tuna, 2014)	Compustat
Nearness to Default	Negative of distance to default of firm over the one-year horizon (Schaefer and Strebulaev, 2008)	CRSP, Compustat
Market Value of Total Liabilities	Total Liabilities (LTQH) - Face Value of Bonds + Market Value of Bonds	Compustat, TRACE
Bond Market Factors (21-Factor Model)		
Default Spread	Monthly Default Return Spread (DEF) (difference between long-term corporate bond and long-term government bond returns)	Amit Goyal website
Term Spread	Monthly Term Spread (TERM) (difference between the long-term government bond return and the one-month Treasury bill rate)	Amit Goyal website
Fixed Income Value Factor	The value factor on government bonds proposed by Asness, Moskowitz and Pedersen (2013), where value is measured using 5-year changes in 10-year yields.	AQR/Toby Moskowitz website
Fixed Income Momentum Factor	The momentum factor on government bonds proposed by Asness, Moskowitz and Pedersen (2013).	AQR/Toby Moskowitz website
Excess Return U.S. Treasury Bonds Intermediate Maturity	Excess return on the subindex of the U.S. Treasury Index, focusing on securities with less than ten years to maturity, excluding Treasury bills.	DataStream
Excess Return U.S. Treasury Bonds Long Maturity	Excess return on the subindex of the U.S. Treasury Index, focusing on securities with ten years or more to maturity.	DataStream
Excess Return U.S. Corporate Bonds Investment Grade	Excess return on the index for investment grade, fixed-rate, taxable corporate bonds, including U.S. dollar-denominated securities publicly issued by U.S. and non-U.S. industrial, utility and financial issuers.	DataStream
Excess Return U.S. Corporate Bonds High Yield	Excess return on the index for U.S. dollar-denominated, high-yield, fixed-rate corporate securities. Securities are classified as high-yield if the middle rating of Moody's, Fitch and S&P is Ba1/BB+/BB+ or below. The middle rating is the credit rating assigned by Bloomberg when there is disagreement among rating agencies. When three rating agencies provide a rating, then the middle rating is the one provided by two of them. If two agencies provide a rating, then the middle rating is the lower rating of the two.	DataStream
Equity Market Factors (21-Factor Model)		
Excess Return on Market Portfolio	Monthly market index return net of risk-free rate (Mkt_RF)	Ken French website
SMB	Monthly Small Minus Big (SMB) portfolio return (size factor)	Ken French website
HML	Monthly High Minus Low (HML) portfolio return (value factor)	Ken French website
CMA	Monthly Conservative Minus Aggressive (CMA) portfolio return (investment factor)	Ken French website
RMW	Monthly Robust Minus Weak (RMW) portfolio return (profitability factor)	Ken French website
Momentum	Monthly Momentum (Mom) portfolio return	Ken French website
Short-term Reversal	Monthly Short-term Reversal (ST_Rev) portfolio return	Ken French website
Long-term Reversal	Monthly Long-term Reversal (LT_Rev) portfolio return	Ken French website
Excess Stock Return Bond Book/Market Quintile 1	Monthly excess return on stocks of bonds in bond book/market quintile 1	
Excess Stock Return Bond Book/Market Quintile 2	Monthly excess return on stocks of bonds in bond book/market quintile 2	
Excess Stock Return Bond Book/Market Quintile 3	Monthly excess return on stocks of bonds in bond book/market quintile 3	
Excess Stock Return Bond Book/Market Quintile 4	Monthly excess return on stocks of bonds in bond book/market quintile 4	
Excess Stock Return Bond Book/Market Quintile 5	Monthly excess return on stocks of bonds in bond book/market quintile 5	

Internet Appendix B. Additional robustness tests

Extended controls. Table IA.1 repeats Table 3's Fama MacBeth regressions, but adds controls for volatility, individual bond beta (measured against the WRDS aggregate bond index), and value-at-risk. The addition of these control variables has little impact on the size or significance of the BBM Q5 dummy's coefficient. The latter represents the alpha spread between BBM Q5 and Q1.

Alternative controls for bid-ask spread. Table IA.2 Panel A replaces the bid-ask spread used in Table 3 with bond gamma, as in Bao et al. (2011). This substitution has little effect on the BBM anomaly, as BBM remains significant with this alternative control. Moreover, this alternative liquidity control generates highly similar results to a Fama MacBeth regression with a direct measure of the bid-ask spread as control, as seen in Table IA.2 Panel B. Panel B is Table 3's regression on the smaller sample that allows computation of bond gamma.

BBM is distinct from the BG mispricing signal. Here, we study a bond-centric implementation of the equity mispricing signal developed by Bartram and Grinblatt (2018, 2021, 'BG'). The BG signal is a deviation from fair value — estimated as month t's market-wide norm for the linear function of the 28 most-reported accounting variables (obtained from Compustat's point-in-time database) that best explains the market values of firms' aggregate debt. The month t signal is the percentage deviation of actual value from the norm. Individual bonds are assigned the BG mispricing of their issuing firm.

The BG signal first computes an estimated month t market value of each firm's total liabilities — including bonds and other debt obligations (e.g. commercial paper, accounts payable, bank loans) that lack TRACE-reported transactions. The estimated month t market value of firm i's total liabilities, $V_{i,t}$, is the sum of the market capitalisation of its bonds, computed from their most recent TRACE transaction prices (excluding transactions less than eight days before the first day of month $t + 1$), plus the aggregate book value of firm i's other liabilities.

Table IA.3 reports coefficients on some of the key regressors in a pair of FM regressions that

mirror Table 3 Panel A's kitchen sink specification. For comparison purposes, Table IA.3's first column repeats Table 3's kitchen sink Specification 7 but narrows the sample to bonds issued by firms that have all of the accounting variables required to compute the BG signal. The second column runs a horse race between the BBM and BG signals by adding BG quintile dummies to the regression. Comparing Specifications 1 and 2 in Table IA.3's first row indicates that the inclusion of its more sophisticated BG cousin diminishes BBM's alpha negligibly, but BBM remains highly significant, despite the horse race. BBM produces a 29 bp per month alpha spread ($t = 3.79$) without BG. This drops to 25 bp per month ($t = 3.32$) when BBM competes with BG, controlling for all the other attributes.

Table IA.3's horse race regression thus confirms that BBM is not a proxy for the BG anomaly. If the BG anomaly is the real driver of Table 3 Panel A's findings, we would expect BBM to lose almost all of its return predictive power once we include BG quintile dummies in the regression.

21-factor model. Table IA.4 mirrors Table 4 with a 21-factor model. Its regressors are described in Internet Appendix A. The 21-factor model generates a significant 18 bp alpha spread for EW portfolios ($t = 2.38$). This alpha spread is the difference between the BBM Q5 intercept (38 bp), which is statistically significant ($t = 5.30$), and the BBM Q1 intercept (20 bp). The factor model's VW alpha spread is 14 bp ($t = 2.12$).

Investment vs. non-investment grade bonds. Table IA.5 shows spreads, along with their one- and two-factor alphas (as described earlier) for investment-grade on non-investment-grade bonds. These are similar with investment grade bonds having slightly larger alpha spreads but lower raw return spreads.

No role for volatility, bond beta, value at risk, or institutional ownership. Table IA.6 shows raw return and CAPM alpha spreads for portfolios formed from bivariate independent quintile sorts of BBM (columns) and volatility (Panel A), beta (Panel B), value-at-risk (Panel C), and institutional ownership percentage (Panel D). Equal-weighted portfolios are on the left; value-weighted portfolios are

on the right. Note that Panel A–C's samples are smaller and consist of more liquid bonds than those studied above because the row sorts require that a bond trade in at least 24 of the prior 36 months.

The first two rows of each sort in Panels A–C tend to have weaker BBM return and alpha spreads but also fewer bonds. For example, the lesser populated of the extreme BBM quintile averages 5, 23, and 10 bonds per month in the lowest of the volatility, beta, and value at risk quintiles. This is due to the independent sort and the attribute's correlation with BBM, as well as the historical data requirement. No attribute in Panels A–D exhibits monotonicity or a strong pattern in the other three rows. Thus, the attributes neither enhance nor weaken the BBM anomaly.

Internet Appendix C. Details on transaction costs

For notational simplicity alone, we lag both the return and signal months, and study the transaction cost $T_{q,t}$ from earning the month t return in a BBM quintile q bond. TRACE labels a large proportion of its transactions as customer buys from a dealer or as customer sells to a dealer. The label is meaningful because corporate bonds largely trade in dealer over-the-counter markets, and dealers provide all liquidity in these transactions. Transaction cost estimates study all trades in bonds from quintile q (as defined by the BBM signal at the end of month $t-1$) that take place in month t. Each day within the month, we separately compute the average price of customer buys and the average price of customer sells of bonds in that quintile. Equally weighting each day (as opposed to each transaction) yields month t's average buy price and average sell price for quintile q. Subtracting the two monthly averages and dividing by the sum of the two averages yields $T_{q,t}$, the effective month t half spread per dollar of transaction in a quintile q bond. $T_{q,t}$ accurately estimates the bond-type's monthly effective half spread. One of five $T_{q,t}$ values are assigned to each transaction, depending on the bond's quintile assignment.

Returns are affected by the interaction of transaction costs, $T_{q,t}$, with portfolio turnover. Turnover both initiates and concludes each return month. To avoid double-counting, we assign $T_{q,t}$ costs from turnover that would occur (hypothetically) at a month's end to the return in month t. To illustrate, while transactions that generate costs on Friday, May 31, 2013 can be assigned to reduce either the May or June 2013 returns, we assign them to May. Quintile q's end-of-May turnover per dollar of investment is the absolute value of the difference between its portfolio weights assigned at the end of May and those assigned at the end of April, with the latter weights adjusted for the relative returns of the bonds in the quintile portfolio.

In particular, for month t's return, we denote the weight difference as $\mathbf{w}_{q,t+1} - \mathbf{D}_t\,\mathbf{w}_{q,t}$, where $\mathbf{D}_t$ is an $N \times N$ diagonal matrix, with the j-th diagonal element being the month t gross return $(1 +$

$R_{j,t}$) of bond j divided by the month t gross return of BBM quintile portfolio q. $\mathbf{w}_{q,t}$ is an N-vector with each element corresponding to the vector of portfolio weights for quintile q in month t. This weight reflects each bond's (out of the N bonds in our sample) month t (zero or positive but equal) weight assigned by the end of month $t-1$ signal. The beginning-of-month weights change over the course of the month as a result of the bond return $R_{j,t}$—hence the scaling by $\mathbf{D}_t^1$. Each element of month t's difference vector is assigned one of five half spreads tied to the quintile the bond belongs to throughout month t. If the j-th element of $\mathbf{w}_{q,t+1}$ is positive, bond j is assigned month t's effective half spread for bonds in quintile q. Algebraically, month t's transaction cost per dollar for updating quintile q's portfolio at the end of month t is

$$Transaction\,Cost_{q,t} = \sum_{j\in N}\left| w_{q,t+1}(j) - \frac{w_{q,t}(j)(1+R_{j,t})}{\sum_{j\in N}w_{q,t}(j)(1+R_{j,t})}\right| \sum_{k=1}^{5} I^+\left(w_{k,t+1}(j)\right)T_{k,t}, \qquad (4)$$

where N is the universe of bonds in the data set, $I^+(x)$ is a $\{0,1\}$ indicator function that takes on the value of 1 only if x is strictly positive, and $v(j)$ is element j of any vector $\mathbf{v}$, corresponding to bond j. Subtracting this cost from month t's quintile q's return produces a month t return net of transaction costs.

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[1] If an element of $\mathbf{D}_t$ is lacking because the bond matured, has yet to be issued, or did not trade, the corresponding portfolio weight will be zero and we treat the product of the missing $\mathbf{D}_t$ element and the weight as zero.

Table IA.1. Fama-MacBeth cross-sectional regressions with extended controls

The table shows results from Fama and MacBeth (1973) regressions of monthly bond returns on bond and stock characteristics and control variables. Across different specifications, returns are regressed against prior month values for bond book-to-market, bond volatility, bond market beta, bond value-at-risk, bond coupon rate, bond yield to maturity, bond credit spread, bond value, bond age, bond maturity, bond duration, bond bid-ask spreads, lagged bond returns, bond momentum, bond credit rating, nearness to default, equity market beta, equity book-to-market, equity market capitalisation, equity short-term reversal, equity momentum, equity long-term reversal, accruals, standardized unexpected earnings surprise (SUE), gross profitability, and earnings yield. The regression employs quintile dummies for the characteristics as regressors except for bond book-to-market in even-numbered specifications, which employ the normal score of bond book-to-market. Each month's quintiles are determined from sorts of bonds with non-missing values for all characteristics. Size (market capitalisation) quintiles are based on NYSE breakpoints. The regressions include dummy variables for quintiles 2, 3, 4, and 5 of each characteristic, but the table displays only the coefficients of the quintile dummy with the largest amount of the characteristic (Q5) for brevity. Additional controls are the number of outstanding bonds of a firm, the percentage of bond market capitalisation of a firm that trade in a month, and the number of days from the beginning and end of the month of bond price data used to calculate the bond return. All regressions include industry dummy variables based on the 38 Fama and French industry classifications. The table shows average coefficients and test statistics as well as the average number of observations and average adjusted R-Squared. *, **, and *** indicate statistical significance at the 10 %, 5 %, and 1 % level, respectively.

Table IA.1. Fama-MacBeth cross-sectional regressions with extended controls (continued)

	(1) Coef	(1) t-stat	(2) Coef	(2) t-stat	(3) Coef	(3) t-stat	(4) Coef	(4) t-stat	(5) Coef	(5) t-stat	(6) Coef	(6) t-stat	(7) Coef	(7) t-stat	(8) Coef	(8) t-stat	(9) Coef	(9) t-stat	(10) Coef	(10) t-stat
Bond Book/Market Q5	0.270	[3.10] ***			0.248	[2.83] ***			0.259	[3.05] ***			0.265	[3.02] ***			0.252	[2.95] ***		
Bond Book/Market (normal score)			0.119	[2.82] ***			0.120	[2.80] ***			0.120	[2.88] ***			0.122	[2.82] ***			0.121	[2.93] ***
Bond Volatility Q5	0.0719	[1.14]	0.061	[1.00]													0.062	[0.96]	0.063	[0.99]
Bond Market Beta Q5					0.106	[1.59]	0.089	[1.36]									0.123	[1.67] *	0.110	[1.50]
Bond Value-at-Risk Q5									0.051	[0.77]	0.035	[0.54]					0.002	[0.04]	-0.012	[-0.19]
Bond Coupon Rate Q5	0.0246	[0.35]	0.060	[0.71]	0.007	[0.10]	0.051	[0.59]	0.021	[0.28]	0.061	[0.69]	0.012	[0.16]	0.055	[0.63]	0.033	[0.46]	0.071	[0.82]
Bond Yield Q5	0.403	[3.62] ***	0.401	[3.65] ***	0.368	[3.40] ***	0.362	[3.38] ***	0.384	[3.39] ***	0.380	[3.44] ***	0.406	[3.69] ***	0.400	[3.68] ***	0.344	[3.08] ***	0.339	[3.12] ***
Bond Credit Spread Q5	0.2597	[2.58] **	0.233	[2.32] **	0.272	[2.72] ***	0.239	[2.45] **	0.269	[2.67] ***	0.241	[2.44] **	0.257	[2.59] **	0.228	[2.34] **	0.294	[2.89] ***	0.264	[2.65] ***
Bond Value Q5	-0.0977	[-1.86] *	-0.072	[-1.37]	-0.108	[-2.11] **	-0.078	[-1.56]	-0.111	[-2.09] **	-0.081	[-1.56]	-0.107	[-2.07] **	-0.078	[-1.53]	-0.099	[-1.87] *	-0.070	[-1.34]
Bond Age Q5	-0.0154	[-0.32]	-0.012	[-0.26]	0.004	[0.09]	0.009	[0.19]	0.003	[0.07]	0.010	[0.20]	0.007	[0.14]	0.013	[0.27]	-0.020	[-0.41]	-0.017	[-0.35]
Bond Maturity Q5	0.1114	[0.49]	0.076	[0.35]	0.145	[0.63]	0.105	[0.47]	0.091	[0.39]	0.057	[0.25]	0.112	[0.48]	0.064	[0.29]	0.132	[0.56]	0.109	[0.48]
Bond Duration Q5	0.1653	[0.81]	0.216	[1.10]	0.146	[0.72]	0.201	[1.03]	0.173	[0.85]	0.225	[1.15]	0.172	[0.85]	0.229	[1.18]	0.145	[0.69]	0.189	[0.94]
Bond Bid/Ask Spread Q5	0.0493	[1.11]	0.042	[0.98]	0.046	[1.06]	0.035	[0.83]	0.045	[1.03]	0.036	[0.86]	0.044	[1.00]	0.034	[0.80]	0.058	[1.32]	0.050	[1.17]
Bond Reversal Q5	-0.0368	[-0.84]	-0.037	[-0.87]	-0.031	[-0.74]	-0.032	[-0.73]	-0.043	[-0.95]	-0.041	[-0.92]	-0.036	[-0.81]	-0.036	[-0.80]	-0.033	[-0.83]	-0.033	[-0.82]
Bond Momentum Q5	0.0001	[0.00]	0.008	[0.12]	-0.004	[-0.06]	0.007	[0.11]	-0.016	[-0.24]	-0.008	[-0.13]	0.006	[0.10]	0.014	[0.22]	-0.027	[-0.41]	-0.015	[-0.23]
Bond Rating Q5	-0.3459	[-2.66] ***	-0.359	[-2.80] ***	-0.361	[-2.78] ***	-0.370	[-2.92] ***	-0.358	[-2.77] ***	-0.369	[-2.92] ***	-0.370	[-2.82] ***	-0.384	[-2.98] ***	-0.315	[-2.50] **	-0.326	[-2.65] ***
Nearness to Default Q5	0.1754	[1.43]	0.169	[1.39]	0.244	[2.02] **	0.233	[1.95] *	0.226	[1.81] *	0.210	[1.72] *	0.225	[1.88] *	0.214	[1.81] *	0.198	[1.54]	0.186	[1.48]
Beta Q5	-0.029	[-0.27]	-0.029	[-0.29]	-0.053	[-0.49]	-0.050	[-0.48]	-0.039	[-0.36]	-0.041	[-0.39]	-0.026	[-0.24]	-0.025	[-0.24]	-0.066	[-0.61]	-0.066	[-0.63]
Market Capitalization Q5	0.0542	[0.58]	0.063	[0.69]	0.071	[0.77]	0.085	[0.94]	0.071	[0.78]	0.081	[0.89]	0.067	[0.73]	0.079	[0.87]	0.056	[0.58]	0.068	[0.71]
Book/Market Q5	0.0447	[0.35]	0.027	[0.22]	0.009	[0.07]	-0.007	[-0.06]	0.026	[0.21]	0.010	[0.08]	0.035	[0.28]	0.016	[0.13]	0.010	[0.08]	-0.007	[-0.05]
Short-term Reversal Q5	0.220	[2.22] **	0.212	[2.10] **	0.226	[2.30] **	0.212	[2.12] **	0.237	[2.50] **	0.225	[2.35] **	0.218	[2.23] **	0.205	[2.05] **	0.256	[2.64] ***	0.246	[2.48] **
Momentum Q5	-0.0675	[-0.73]	-0.058	[-0.65]	-0.072	[-0.79]	-0.067	[-0.76]	-0.053	[-0.59]	-0.049	[-0.56]	-0.064	[-0.72]	-0.057	[-0.66]	-0.062	[-0.67]	-0.056	[-0.63]
Long-term Reversal Q5	0.082	[0.87]	0.089	[0.98]	0.059	[0.66]	0.078	[0.89]	0.092	[1.01]	0.099	[1.11]	0.067	[0.75]	0.076	[0.88]	0.088	[0.92]	0.103	[1.11]
Accruals Q5	-0.0461	[-0.55]	-0.045	[-0.53]	-0.041	[-0.47]	-0.037	[-0.42]	-0.044	[-0.50]	-0.040	[-0.45]	-0.030	[-0.34]	-0.028	[-0.31]	-0.068	[-0.79]	-0.063	[-0.72]
SUE Q5	0.0694	[0.85]	0.065	[0.78]	0.072	[0.88]	0.074	[0.89]	0.062	[0.76]	0.064	[0.76]	0.067	[0.83]	0.066	[0.81]	0.075	[0.89]	0.076	[0.87]
Gross Profitability Q5	0.436	[3.34] ***	0.422	[3.31] ***	0.414	[3.23] ***	0.405	[3.28] ***	0.407	[3.23] ***	0.394	[3.21] ***	0.418	[3.28] ***	0.407	[3.30] ***	0.414	[3.23] ***	0.404	[3.24] ***
Earnings Yield Q5	-0.021	[-0.22]	-0.014	[-0.15]	-0.017	[-0.18]	-0.019	[-0.20]	-0.004	[-0.04]	-0.006	[-0.07]	-0.017	[-0.17]	-0.016	[-0.16]	0.000	[0.00]	0.000	[0.00]
Number of Bonds in t+1	-0.0005	[-1.71] *	-0.001	[-1.68] *	-0.001	[-2.21] **	-0.001	[-2.18] **	-0.001	[-2.03] **	-0.001	[-1.96] *	-0.001	[-1.91] *	-0.001	[-1.89] *	-0.001	[-2.02] **	-0.001	[-1.91] *
Percent of Bond Market Cap Traded in t+1	-0.1205	[-0.82]	-0.098	[-0.67]	-0.168	[-1.12]	-0.138	[-0.94]	-0.176	[-1.18]	-0.145	[-0.98]	-0.163	[-1.09]	-0.134	[-0.91]	-0.127	[-0.86]	-0.101	[-0.69]
Number of Days from Beginning of Month	0.003	[0.82]	0.004	[0.94]	0.004	[1.02]	0.005	[1.09]	0.004	[0.97]	0.004	[1.02]	0.004	[1.03]	0.005	[1.10]	0.004	[0.81]	0.004	[0.91]
Number of Days from End of Month t+1	0.010	[2.03] **	0.011	[2.40] **	0.011	[2.33] **	0.012	[2.61] ***	0.011	[2.29] **	0.012	[2.60] ***	0.011	[2.24] **	0.012	[2.55] **	0.011	[2.21] **	0.012	[2.55] **
Intercept	-3.7056	[-1.03]	-3.432	[-1.01]	-2.653	[-1.04]	-3.121	[-1.03]	-1.252	[-1.07]	-2.289	[-1.02]	-3.008	[-1.03]	-2.835	[-1.01]	-8.435	[-1.02]	-3.249	[-1.04]
Observations	814		814		814		814		814		814		814		814		814		814	
Adj. R-Squared	0.29		0.29		0.29		0.29		0.29		0.29		0.29		0.29		0.29		0.30	
Industry Control	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	

Table IA.2. Fama-MacBeth cross-sectional regressions with alternative transactions costs measures

The table shows results from Fama and MacBeth (1973) regressions of monthly bond returns on bond and stock characteristics and control variables. Across different specifications, returns are regressed against prior month values for bond book-to-market, bond coupon rate, bond yield to maturity, bond credit spread, bond value, bond age, bond maturity, bond duration, bond transaction costs, lagged bond returns, bond momentum, bond credit rating, nearness to default, equity market beta, equity book-to-market, equity market capitalization, equity short-term reversal, equity momentum, equity long-term reversal, accruals, standardized unexpected earnings surprise (SUE), gross profitability, and earnings yield. For bond transaction costs, we use bond gamma proposed by Bao, Pan, and Wang (2011) in Panel A and bond bid-ask spreads in Panel B. Both panels use the same sample where both transactions costs measures are available. The regression employs quintile dummies for the characteristics as regressors except for bond book-to-market in even-numbered specifications, which employ the normal score of bond book-to-market. Each month's quintiles are determined from sorts of bonds with non-missing values for all characteristics. Size (market capitalisation) quintiles are based on NYSE breakpoints. The regressions include dummy variables for quintiles 2, 3, 4, and 5 of each characteristic, but the table displays only the coefficients of the quintile dummy with the largest amount of the characteristic (Q5) for brevity. Additional controls are the number of outstanding bonds of a firm, the percentage of bond market capitalisation of a firm that trade in a month, and the number of days from the beginning and end of the month of bond price data used to calculate the bond return. All regressions include industry dummy variables based on the 38 Fama and French industry classifications. The table shows average coefficients and test statistics as well as the average number of observations and average adjusted R-Squared. *, **, and *** indicate statistical significance at the 10 %, 5 %, and 1 % level, respectively.

Table IA.2. Fama-MacBeth cross-sectional regressions with alternative transactions costs measures (continued)

Panel A. Bond gamma

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Coef t-stat	Coef t-stat	Coef t-stat	Coef t-stat	Coef t-stat	Coef t-stat	Coef t-stat	Coef t-stat
Bond Book/Market Q5	0.457 [3.62] ***		0.455 [3.60] ***		0.190 [2.02] **		0.220 [2.60] ***	
Bond Book/Market (normal score)		0.149 [3.19] ***		0.149 [3.18] ***		0.081 [1.67] *		0.104 [2.52] **
Bond Coupon Rate Q5					-0.065 [-1.01]	-0.017 [-0.20]	0.008 [0.12]	0.068 [0.89]
Bond Yield Q5					0.441 [5.67] ***	0.449 [5.81] ***	0.483 [6.27] ***	0.479 [6.36] ***
Bond Credit Spread Q5					0.036 [0.43]	0.014 [0.18]	0.046 [0.52]	0.026 [0.30]
Bond Value Q5					-0.011 [-0.21]	0.012 [0.23]	-0.045 [-0.95]	-0.010 [-0.20]
Bond Age Q5					0.033 [0.78]	0.027 [0.63]	-0.031 [-0.68]	-0.031 [-0.69]
Bond Maturity Q5					0.275 [1.05]	0.295 [1.17]	0.334 [1.36]	0.346 [1.46]
Bond Duration Q5					0.108 [0.46]	0.101 [0.46]	0.007 [0.03]	0.013 [0.06]
Bond Gamma Q5					0.013 [0.39]	0.024 [0.73]	0.012 [0.38]	0.019 [0.59]
Bond Reversal Q5					0.016 [0.36]	0.015 [0.36]	-0.024 [-0.62]	-0.025 [-0.65]
Bond Momentum Q5					-0.010 [-0.18]	-0.009 [-0.17]	-0.031 [-0.61]	-0.024 [-0.50]
Bond Rating Q5					-0.166 [-2.23] **	-0.181 [-2.50] **	-0.198 [-2.00] **	-0.241 [-2.52] **
Nearness to Default Q5					0.019 [0.30]	0.003 [0.04]	0.108 [1.05]	0.115 [1.14]
Beta Q5							-0.034 [-0.35]	-0.045 [-0.46]
Market Capitalization Q5							0.084 [1.03]	0.067 [0.85]
Book/Market Q5							-0.039 [-0.40]	-0.051 [-0.53]
Short-term Reversal Q5							0.316 [4.00] ***	0.313 [3.97] ***
Momentum Q5							-0.056 [-0.63]	-0.054 [-0.64]
Long-term Reversal Q5							-0.002 [-0.03]	0.004 [0.05]
Accruals Q5							0.026 [0.33]	0.027 [0.35]
SUE Q5							0.067 [0.84]	0.080 [1.03]
Gross Profitability Q5							0.157 [1.61]	0.160 [1.68] *
Earnings Yield Q5							0.040 [0.51]	0.033 [0.43]
Number of Bonds in $t+1$			0.000 [-0.28]	0.000 [-0.01]	0.000 [0.35]	0.000 [0.60]	0.000 [-0.91]	0.000 [-0.99]
Percent of Bond Market Cap Traded in $t+1$			-0.206 [-1.35]	-0.161 [-1.02]	-0.185 [-1.50]	-0.177 [-1.46]	-0.341 [-2.32] **	-0.344 [-2.36] **
Number of Days from Beginning of Month $t+1$			0.002 [0.32]	0.002 [0.32]	0.000 [-0.06]	-0.001 [-0.11]	-0.001 [-0.16]	-0.001 [-0.10]
Number of Days from End of Month $t+1$			0.016 [2.17] **	0.017 [2.41] **	0.008 [1.15]	0.010 [1.40]	0.006 [0.86]	0.008 [1.15]
Intercept	0.5253 [3.03] ***	0.620 [3.48] ***	0.695 [3.14] ***	0.743 [3.28] ***	0.467 [2.50] **	0.473 [2.56] **	3.430 [1.10]	3.794 [1.09]
Observations	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030
Adj. R-Squared	0.12	0.11	0.13	0.12	0.27	0.28	0.32	0.32
Industry Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(continued)

Table IA.2. Fama-MacBeth cross-sectional regressions with alternative transactions costs measures (continued)

Panel B. Bond bid-ask spreads

	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat
Bond Book/Market Q5	0.457	[3.62] ***			0.455	[3.60] ***			0.177	[2.01] **			0.216	[2.64] ***		
Bond Book/Market (normal score)			0.149	[3.19] ***			0.149	[3.18] ***			0.076	[1.62]			0.100	[2.46] **
Bond Coupon Rate Q5									-0.065	[-1.02]	-0.020	[-0.24]	0.010	[0.16]	0.065	[0.86]
Bond Yield Q5									0.424	[5.38] ***	0.440	[5.65] ***	0.452	[5.96] ***	0.458	[6.18] ***
Bond Credit Spread Q5									0.025	[0.31]	0.001	[0.02]	0.039	[0.45]	0.016	[0.19]
Bond Value Q5									-0.002	[-0.05]	0.015	[0.29]	-0.031	[-0.66]	0.000	[0.00]
Bond Age Q5									0.019	[0.44]	0.017	[0.39]	-0.042	[-0.89]	-0.039	[-0.85]
Bond Maturity Q5									0.253	[0.95]	0.276	[1.08]	0.321	[1.31]	0.334	[1.41]
Bond Duration Q5									0.114	[0.48]	0.106	[0.47]	0.000	[0.00]	0.008	[0.04]
Bond Bid/Ask Spread Q5									0.046	[1.12]	0.041	[1.04]	0.043	[1.06]	0.037	[0.94]
Bond Reversal Q5									0.015	[0.33]	0.014	[0.31]	-0.029	[-0.72]	-0.030	[-0.75]
Bond Momentum Q5									-0.008	[-0.15]	-0.007	[-0.14]	-0.028	[-0.56]	-0.023	[-0.47]
Bond Rating Q5									-0.146	[-1.95] *	-0.168	[-2.32] **	-0.177	[-1.79] *	-0.221	[-2.31] **
Nearness to Default Q5									-0.005	[-0.08]	-0.018	[-0.30]	0.097	[0.95]	0.102	[1.03]
Beta Q5													-0.035	[-0.35]	-0.044	[-0.44]
Market Capitalization Q5													0.069	[0.81]	0.050	[0.60]
Book/Market Q5													-0.048	[-0.49]	-0.059	[-0.63]
Short-term Reversal Q5													0.316	[4.02] ***	0.315	[4.03] ***
Momentum Q5													-0.052	[-0.58]	-0.051	[-0.60]
Long-term Reversal Q5													0.012	[0.15]	0.014	[0.17]
Accruals Q5													0.027	[0.36]	0.029	[0.38]
SUE Q5													0.069	[0.86]	0.082	[1.06]
Gross Profitability Q5													0.169	[1.75] *	0.172	[1.83] *
Earnings Yield Q5													0.023	[0.29]	0.016	[0.21]
Number of Bonds in t+1					0.000	[-0.28]	0.000	[-0.01]	0.000	[-0.30]	0.000	[0.03]	0.000	[-0.90]	0.000	[-0.97]
Percent of Bond Market Cap Traded in t+1					-0.206	[-1.35]	-0.161	[-1.02]	-0.215	[-1.75] *	-0.210	[-1.77] *	-0.322	[-2.27] **	-0.329	[-2.34] **
Number of Days from Beginning of Month t+1					0.002	[0.32]	0.002	[0.32]	0.001	[0.17]	0.001	[0.09]	0.001	[0.12]	0.001	[0.13]
Number of Days from End of Month t+1					0.016	[2.17] **	0.017	[2.41] **	0.009	[1.22]	0.010	[1.42]	0.007	[0.91]	0.008	[1.14]
Intercept	0.5253	[3.03] ***	0.620	[3.48] ***	0.695	[3.14] ***	0.743	[3.28] ***	0.529	[2.81] ***	0.541	[2.96] ***	0.423	[1.28]	1.040	[1.40]
Observations	1,030		1,030		1,030		1,030		1,030		1,030		1,030		1,030	
Adj. R-Squared	0.12		0.11		0.13		0.12		0.27		0.28		0.32		0.32	
Industry Control	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	

Table IA.3. Bond mispricing and bond book/market

The table shows results from Fama and MacBeth (1973) regressions of monthly bond returns on bond and stock characteristics, including bond book-to-market and bond mispricing. Bond mispricing measures deviations of a firm's aggregate debt obligations from predictions based on its accounting variables (Bartram and Grinblatt, 2018, 2021). Each month t, we cross-sectionally regress $V_{i,t}$ on firm i's 28 most commonly reported items from Compustat's point-in-time accounting database. The regression predictions represent month t peer-implied norms for each firm's total liabilities. Each bond is then assigned the BG mispricing signal of its issuing firm, which is the percentage deviation of the firm's predicted $V_{i,t}$ from its actual value. Across different specifications, returns are regressed against prior month values for bond book-to-market, bond mispricing, bond coupon rate, bond yield to maturity, bond credit spread, bond value, bond age, bond maturity, bond duration, bond bid-ask spreads, lagged bond returns, bond momentum, bond credit rating, nearness to default, equity market beta, equity book-to-market, equity market capitalisation, equity short-term reversal, equity momentum, equity long-term reversal, accruals, standardised unexpected earnings surprise (SUE), gross profitability, and earnings yield. The table employs quintile dummies for the characteristics as regressors. Each month's quintiles are determined from sorts of bonds with non-missing values for all characteristics. Size (market capitalization) quintiles are based on NYSE breakpoints. The regressions include dummy variables for quintiles 2, 3, 4, and 5 of each characteristic but the table displays only the coefficients of the quintile dummy with the largest amount of the characteristic (Q5) on bond book-to-market and bond mispricing for brevity. Additional controls are the number of outstanding bonds of a firm, the percentage of bond market capitalisation of a firm that trade in a month, and the number of days from the beginning and end of the month of bond price data used to calculate the bond return. All regressions include industry dummy variables based on the 38 Fama and French industry classifications. The table shows average coefficients and test statistics as well as the average number of observations and average adjusted R-Squared. *, **, and *** indicate statistical significance at the 10 %, 5 %, and 1 % level, respectively.

	(1)			(2)		
	Coef	t-stat		Coef	t-stat	
Bond Book/Market Q5	0.287	[3.79]	***	0.245	[3.32]	***
Bond Mispricing Q5				0.202	[2.94]	***
Observations	1,014			1,014		
Adj. R-Squared	0.31			0.32		
Bond Characteristic Controls (see Table 3)	Yes			Yes		
Stock Characteristic Controls (see Table 3)	Yes			Yes		
Market Microstructure Controls (see Table 3)	Yes			Yes		
Industry Controls	Yes			Yes		

Table IA.4. Factor model time-series regressions (21-factor model)

The table shows results from time series regressions of monthly portfolio returns (in excess of 1-month USD LIBOR) on a 21-bond factor model. Bonds are sorted each month into quintiles based on bond book-to-market (BBM) and combined into equal-weighted portfolios. The 21-factor model comprises 13 equity factors and eight bond market factors. The equity market factors are all five equity factors of the Fama and French (2015) model, i.e. market excess return, size, book-to-market, profitability, and investment; three equity past-return factors: short-term reversal, momentum, and long-term reversal, all sourced from the Kenneth French data library; and finally, the excess returns of the equity of the bonds in the five BBM quintiles. The eight bond market factors consist of two bond factors for the default spread and term spread, used in Chordia et al. (2017); two factors, bond momentum and bond value, as computed from government bonds in Asness, Moskowitz, and Pedersen (2013), and four excess return factors (above the risk-free rate) tied to bond indices from DataStream: US Treasury Intermediate Index, US Long-Term Treasury Index, US Corporate Investment Grade Index, and the US Corporate High-Yield Index. The indices measure growth in investment values including price changes, coupon payments and changes in accrued interests for the underlying bond portfolios. The table reports intercepts and t-statistics separately for each of the five portfolios (Q1, Q2, Q3, Q4, Q5), and the alpha spreads between the highest bond book-to-market (Q5) and lowest bond book-to-market (Q1) quintiles. The table reports results using a 21-factor model listed in Appendix A. Standard errors are estimated using the Newey West (1987) procedure. *, **, and *** indicate significance at the 10 %, 5 %, and 1 % level, respectively.

	Q1 (low BBM)			Q2			Q3			Q4			Q5 (high BBM)			Q5-Q1 (high - low BBM)		
	Coef	t-stat		Coef	t-stat		Coef	t-stat		Coef	t-stat		Coef	t-stat		Coef	t-stat	
21-Factor Model	0.198	[3.52]	***	0.178	[5.26]	***	0.202	[6.71]	***	0.197	[5.47]	***	0.377	[5.30]	***	0.179	[2.38]	**

Table IA.5. BBM spreads for investment grade and non-investment grade bonds

The table reports the difference in average bond returns or alphas between the bonds in the highest bond book-to-market quintile and those in the lowest separately for investment grade bonds (Panel A) and non-investment grade bonds (Panel B). Model (1) regresses quintile portfolio return spreads on a constant, while models (2) and (3) include a value-weighted bond market index constructed alternatively from own sample and returns or WRDS. Models (4) and (5) further add the equity HML factor. *, **, and *** indicate statistical significance at the 10 %, 5 %, and 1 % level, respectively.

Model	Equal-weighted			Value-weighted		
	Coef	*t*-stat		Coef	*t*-stat	
Panel A: Investment Grade Bonds						
(1) Raw Returns	0.326	[3.11]	***	0.345	[2.86]	***
(2) Bond Market Index (Own Sample)	0.219	[1.99]	**	0.236	[2.01]	**
(3) Bond Market Index (WRDS)	0.231	[2.30]	**	0.242	[2.24]	**
(4) Bond Market Index (Own Sample) and Equity HML	0.218	[2.10]	**	0.236	[2.08]	**
(5) Bond Market Index (WRDS) and Equity HML	0.228	[2.48]	**	0.240	[2.36]	**
Panel B: Non-Investment Grade Bonds						
(1) Raw Returns	0.407	[1.82]	*	0.385	[2.06]	**
(2) Bond Market Index (Own Sample)	0.201	[0.95]		0.217	[1.23]	
(3) Bond Market Index (WRDS)	0.204	[1.01]		0.218	[1.29]	
(4) Bond Market Index (Own Sample) and Equity HML	0.265	[1.27]		0.260	[1.48]	
(5) Bond Market Index (WRDS) and Equity HML	0.271	[1.37]		0.262	[1.58]	

Table IA.6. Bivariate sort on BBM and bond risk measures

The table reports the average return and alpha spreads between the bond book-to-market Q5 and Q1 portfolios, separately for quintiles defined by bond volatility (Panel A), bond market beta (Panel B), bond value-at-risk (Panel C), or bond institutional ownership (Panel D). To form the spread portfolios, each month, we independently divide bonds into one of 25 categories based on each measure and bond book-to-market. For each quintile, we compute the spread in the month t + 1 equal- and value-weighted bond returns (based on bond value outstanding) between the top and bottom quintile of bond book-to-market bonds. To estimate alphas, we regress the return spreads on the bond market factor constructed using the WRDS bond returns and report the intercept. *, **, and *** indicate statistical significance at the 10 %, 5 %, and 1 % level, respectively.

	Equal-weighted Portfolios						Value-weighted Portfolios					
	Raw Returns			Bond Market Index (WRDS)			Raw Returns			Bond Market Index (WRDS)		
	Coef	t-stat		Coef	t-stat		Coef	t-stat		Coef	t-stat	
Panel A: Bond Volatility												
Q1 (low)	0.230	[1.97]	*	0.329	[2.71]	***	0.217	[1.85]	*	0.321	[2.60]	**
Q2	0.341	[2.47]	**	0.221	[1.87]	*	0.381	[2.45]	**	0.233	[1.73]	*
Q3	0.409	[3.53]	***	0.399	[3.26]	***	0.484	[3.56]	***	0.440	[3.61]	***
Q4	0.408	[2.61]	***	0.250	[1.77]	*	0.395	[2.31]	**	0.208	[1.29]	
Q5 (high)	0.451	[1.88]	*	0.103	[0.43]		0.538	[2.24]	**	0.178	[0.81]	
Panel B: Bond Market Beta												
Q1 (low)	0.213	[1.19]		0.050	[0.33]		0.194	[1.10]		0.052	[0.34]	
Q2	0.272	[2.12]	**	0.179	[1.40]		0.200	[1.63]		0.126	[1.02]	
Q3	0.355	[2.63]	***	0.243	[2.06]	**	0.362	[2.73]	***	0.244	[1.95]	*
Q4	0.366	[2.86]	***	0.270	[2.35]	**	0.393	[3.10]	***	0.324	[2.86]	***
Q5 (high)	0.406	[1.94]	*	0.226	[0.96]		0.503	[2.57]	**	0.325	[1.44]	
Panel C: Bond Value-at-Risk												
Q1 (low)	0.274	[1.58]		0.241	[1.66]	*	0.155	[1.10]		0.149	[1.22]	
Q2	0.225	[2.49]	**	0.204	[2.09]	**	0.115	[1.02]		0.142	[1.00]	
Q3	0.337	[3.60]	***	0.324	[3.22]	***	0.305	[2.69]	***	0.283	[2.35]	**
Q4	0.430	[3.44]	***	0.343	[2.85]	***	0.466	[3.61]	***	0.397	[3.22]	***
Q5 (high)	0.458	[1.85]	*	0.195	[0.78]		0.538	[2.29]	**	0.325	[1.36]	
Panel D: Bond Institutional Ownership												
Q1 (low)	0.355	[1.91]	*	0.275	[1.56]		0.315	[1.89]	*	0.317	[1.80]	*
Q2	0.397	[2.75]	***	0.274	[1.85]	*	0.430	[3.02]	***	0.304	[2.05]	**
Q3	0.377	[2.96]	***	0.224	[1.99]	**	0.393	[3.18]	***	0.240	[2.23]	**
Q4	0.318	[3.02]	***	0.188	[2.14]	**	0.340	[3.14]	***	0.206	[2.25]	**
Q5 (high)	0.354	[3.47]	***	0.232	[2.80]	***	0.424	[3.66]	***	0.286	[3.07]	***