

Internet appendix to

**“Short Selling and Price Discovery in Corporate
Bonds”**

Terrence Hendershott

Roman Kozhan

Vikas Raman

(not for publication)

This appendix presents supplementary results not included in the main body of the paper.

Table IA1
Portfolio Returns and Short Interest: Without Large Reversals

Table IA1 presents returns for portfolios sorted based on short interest. We consider all corporate bonds in the Markit securities lending database for which corresponding data is available in the FISD and TRACE databases. To mitigate the concern that the obtained results are driven by large returns that are due to data errors, we drop observations where a particular daily bond absolute return is in excess of 10% and promptly reverses during the following trading day to anywhere between 90% and 110% of its original value. Every day we sort bonds by their trading volume and retain the two upper terciles of the most heavily traded one. Full Sample (Panel A) consists of all trading days from Jan. 1, 2006 to Dec. 30, 2011, the pre-Lehman period (Panel B) consists of all trading days from Jan. 1, 2006 to May 31, 2008, the post-Lehman period (Panel C) is from Jan. 1, 2009 to Dec. 30, 2011 and the Lehman period (Panel D) is from Jun. 1, 2008 to Dec. 30, 2008. Bonds are sorted every day into quintiles based on the daily short interest ratio. After skipping 1 day, value-weighted portfolios are held for 20 trading days. This process is repeated each trading day, so that each trading day's portfolio return is an average of 20 different portfolios, with 1/20 of the portfolio rebalanced each day. Portfolio returns are credit rating matched and are defined as the difference between raw returns (the equal-weighted average of daily returns) and issue-size equal-weighted returns of bonds with similar credit rating, calculated as in Bessembinder et al. (2009). Returns are reported in percent multiplied by 252 to reflect an approximately annual return, with *t*-statistics based on the daily time series. Investment-grade bonds are defined as those rated by Moody's "Baa3" and higher five days prior to the sorting while the rest of bonds are categorized as high-yield.

Panel A. Full Sample

	All Bonds		Investment-Grade Bonds		High Yield Bonds	
P1 (Least)	3.06%	(6.74)	0.70%	(1.66)	9.40%	(7.93)
P2	-0.22%	(-0.27)	-0.50%	(-1.02)	4.20%	(1.38)
P3	-0.31%	(-0.59)	-0.11%	(-0.30)	-0.41%	(-0.23)
P4	-0.31%	(-0.54)	0.13%	(0.26)	-1.55%	(-0.88)
P5 (Most)	-1.94%	(-2.69)	0.08%	(0.14)	-8.30%	(-3.84)
P1-P5	5.01%	(5.18)	0.63%	(0.69)	17.70%	(7.32)

Panel B. Pre-Lehman Period

	All Bonds		Investment-Grade Bonds		High Yield Bonds	
P1 (Least)	0.66%	(1.63)	0.73%	(1.71)	0.43%	(0.51)
P2	-0.25%	(-0.54)	-0.22%	(-0.40)	-0.76%	(-0.68)
P3	-0.20%	(-0.54)	-0.24%	(-0.69)	0.35%	(0.47)
P4	-0.19%	(-0.37)	-0.25%	(-0.53)	0.58%	(0.61)
P5 (Most)	-1.51%	(-2.00)	-1.01%	(-1.79)	-2.02%	(-1.21)
	2.17%	(2.08)	1.74%	(1.89)	2.44%	(1.14)

Panel C. Post-Lehman Period

	All Bonds		Investment-Grade Bonds		High Yield Bonds	
P1 (Least)	5.27%	(8.03)	0.96%	(1.59)	16.68%	(9.91)
P2	0.25%	(0.31)	-0.50%	(-0.72)	7.16%	(1.75)
P3	-0.25%	(-0.52)	-0.50%	(-1.11)	0.68%	(0.41)
P4	-0.16%	(-0.22)	-0.50%	(-0.69)	0.35%	(0.19)
P5 (Most)	-1.51%	(-1.58)	0.21%	(0.24)	-7.31%	(-3.27)
P1-P5	6.78%	(4.89)	0.75%	(0.55)	23.99%	(7.82)

Panel D. Lehman Period

	All Bonds		Investment-Grade Bonds		High Yield Bonds	
P1 (Least)	2.13%	(0.68)	-0.99%	(-0.35)	11.85%	(1.33)
P2	-2.38%	(-0.32)	-2.44%	(-0.61)	12.14%	(0.46)
P3	-1.08%	(-0.22)	2.51%	(0.77)	-10.57%	(-0.58)
P4	-1.81%	(-0.38)	5.61%	(1.66)	-23.33%	(-1.39)
P5 (Most)	-7.50%	(-1.31)	5.25%	(1.67)	-45.19%	(-2.24)
P1-P5	9.63%	(1.47)	-6.24%	(-1.15)	57.05%	(2.97)

Table IA2
Portfolio Returns and Short Interest: Heavily Traded Bonds

Table IA2 presents returns for portfolios sorted based on short interest. We consider all corporate bonds in the Markit securities lending database for which corresponding data is available in the FISD and TRACE databases. Every day we sort bonds by their trading volume and retain the two upper terciles of the most heavily traded one. Full Sample (Panel A) consists of all trading days from Jan. 1, 2006 to Dec. 30, 2011, the pre-Lehman period (Panel B) consists of all trading days from Jan. 1, 2006 to May 31, 2008, the post-Lehman period (Panel C) is from Jan. 1, 2009 to Dec. 30, 2011 and the Lehman period (Panel D) is from Jun. 1, 2008 to Dec. 30, 2008. Bonds are sorted every day into quintiles based on the daily short interest ratio. After skipping 1 day, value-weighted portfolios are held for 20 trading days. This process is repeated each trading day, so that each trading day's portfolio return is an average of 20 different portfolios, with 1/20 of the portfolio rebalanced each day. Portfolio returns are credit rating matched and are defined as the difference between raw returns (the equal-weighted average of daily returns) and issue-size equal-weighted returns of bonds with similar credit rating, calculated as in Bessembinder et al. (2009). Returns are reported in percent multiplied by 252 to reflect an approximately annual return, with *t*-statistics based on the daily time series. Investment-grade bonds are defined as those rated by Moody's "Baa3" and higher five days prior to the sorting while the rest of the bonds are categorized as high-yield bonds.

Panel A. Full Sample

	All Bonds		Investment-Grade Bonds		High Yield Bonds	
P1 (Least)	8.08%	(7.16)	0.47%	(0.62)	25.25%	(7.42)
P2	1.54%	(2.60)	-1.44%	(-2.79)	13.33%	(6.43)
P3	0.46%	(0.88)	-1.37%	(-3.61)	6.65%	(3.42)
P4	0.23%	(0.37)	-1.52%	(-2.52)	3.46%	(1.59)
P5 (Most)	-4.85%	(-4.79)	-1.83%	(-2.63)	-13.89%	(-4.84)
P1-P5	12.92%	(8.01)	2.30%	(2.12)	39.14%	(8.66)

Panel B. Pre-Lehman Period

	All Bonds		Investment-Grade Bonds		High Yield Bonds	
P1 (Least)	0.55%	(0.94)	1.03%	(2.01)	-1.01%	(-0.73)
P2	-0.21%	(-0.49)	-0.01%	(-0.02)	-0.50%	(-0.34)
P3	-0.25%	(-0.46)	0.01%	(0.02)	-0.50%	(-0.46)
P4	-0.76%	(-0.99)	-0.25%	(-0.43)	-1.01%	(-0.65)
P5 (Most)	-2.02%	(-2.13)	-1.26%	(-1.36)	-3.78%	(-1.73)
	2.57%	(2.21)	2.29%	(1.94)	2.77%	(0.99)

Panel C. Post-Lehman Period

	All Bonds		Investment-Grade Bonds		High Yield Bonds	
P1 (Least)	11.19%	(9.90)	2.62%	(3.74)	31.50%	(10.24)
P2	0.55%	(0.81)	-0.76%	(-1.61)	5.59%	(2.25)
P3	-0.76%	(-1.20)	-0.76%	(-1.15)	0.45%	(0.23)
P4	0.07%	(0.08)	-0.24%	(-0.29)	-0.06%	(-0.03)
P5 (Most)	-2.27%	(-1.99)	-0.16%	(-0.16)	-7.81%	(-3.01)
P1-P5	13.46%	(8.25)	2.78%	(1.98)	39.31%	(9.67)

Panel D. Lehman Period

	All Bonds		Investment-Grade Bonds		High Yield Bonds	
P1 (Least)	14.94%	(2.45)	0.93%	(0.24)	50.91%	(2.86)
P2	1.33%	(0.23)	2.58%	(0.56)	1.60%	(0.08)
P3	-0.97%	(-0.16)	4.41%	(0.89)	-16.73%	(-0.99)
P4	-3.99%	(-0.68)	5.14%	(1.28)	-34.28%	(-1.78)
P5 (Most)	-11.49%	(-1.64)	4.37%	(1.04)	-53.99%	(-2.51)
P1-P5	26.43%	(2.92)	-3.45%	(-0.57)	104.89%	(3.48)

Table IA3
Cross-Sectional Return Regressions

This table presents Fama-MacBeth regressions predicting 20-day abnormal returns. Each day we estimate the following cross-sectional predictive regression:

$$\text{RET_BOND}_{t+2,t+21}^i = \alpha_{1t}\text{SHORT_BOND}_t^i + \alpha_{2t}\text{SHORT_FIRM}_t^i + \alpha_{3t}\text{RET_BOND}_{t-20,t}^i + \alpha_{4t}\text{OIB_BOND}_{t-20,t}^i + \gamma_t X_t^i + u_t^i.$$

We average then each coefficient over time-series dimension. The sample consists of all corporate bonds in the Markit securities lending database for which corresponding data is available in the FISD and TRACE databases from January 1, 2006 to December 30, 2011. Bonds with Moody's credit rating of 'Baa-3' and higher five days prior to the sorting are categorized as Investment-Grade Bonds; others are categorized as High-Yield Bonds. Pre-Lehman period (Panel B) consists of all trading days from January 1, 2006 to May 31, 2008, the post-Lehman period (Panel C) is from January 1, 2009 to December 30, 2011 and the Lehman period (Panel D) is from June 1, 2008 to December 30, 2008. Dependent variable is a simple average of abnormal bond returns over the future 20 days defined as a raw return minus the return from the corresponding rating matching portfolio (annualized and expressed in percent); SHORT_BOND_t^i is a ratio of the daily number of bonds on loan (shorted) for bond issue i on day t to the number of bonds outstanding (in percent); SHORT_FIRM_t^i is an average value-weighted ratio of the daily number of bonds on loan (shorted) for bond issue i on day t to the number of bonds outstanding for all bonds issued by the firm except bond i (in percent); $\text{RET_BOND}_{t-20,t}^i$ is a simple average of abnormal returns on bond i over the past 20 days (in percent); $\text{OIB_BOND}_{t-20,t}^i$ is a simple average over past 20 days of a trade imbalance of bond i defined as daily difference between buy and sell trading volumes scaled by the total trading volume of the bond (in percent). Control variables X_t^i include: $\text{VOLAT_BOND}_{t-20,t}^i$ is defined as a sum of absolute daily returns on bond i over the past 20 days (annualized and expressed in percent); $\text{TURN_BOND}_{t-20,t}^i$ is total daily number of bonds of issue i traded scaled by the total number of bonds outstanding (in percent); $\ln(\text{PAR_DEBT}_t^i)$ is the log value of total amount of bonds outstanding for bond issue i (in USD dollars); TTM_t^i is time-to-maturity expressed in years. The t -statistics are reported in parentheses are based on the time series of coefficient estimates from the cross-sectional regressions using Newey–West with 20 lags.

Panel A. Full Sample

	All Bonds				Investment-Grade Bonds				High-Yield Bonds			
SHORT_BOND_t^i	-0.83 (-5.74)	-0.78 (-5.42)	-0.63 (-5.15)	-0.46 (-2.45)	-0.08 (-1.09)	-0.06 (-0.90)	-0.07 (-0.99)	-0.06 (-0.93)	-1.36 (-6.06)	-1.40 (-6.05)	-0.88 (-5.22)	-0.86 (-5.16)
SHORT_FIRM_t^i			-1.11 (-4.72)	-1.19 (-4.49)			-0.09 (-0.80)	-0.05 (-0.53)			-1.71 (-4.93)	-1.61 (-4.65)
$\text{RET_BOND}_{t-20,t}^i$	-0.07 (-4.25)	-0.05 (-2.85)	-0.04 (-2.31)	-0.03 (-1.48)	-0.10 (-7.30)	-0.08 (-6.76)	-0.11 (-9.31)	-0.09 (-7.96)	-0.05 (-2.21)	-0.24 (-1.29)	-0.02 (-0.87)	-0.02 (-0.71)
$\text{OIB_BOND}_{t-20,t}^i$		-0.04 (-5.70)	-0.04 (-4.59)			-0.03 (-4.06)	-0.03 (-3.93)			-0.13 (-3.02)		-0.06 (-3.15)
$\text{VOLAT_BOND}_{t-20,t}^i$	0.11 (8.84)	0.11 (8.36)	0.09 (6.91)	0.09 (6.86)	0.05 (5.63)	0.03 (4.56)	0.04 (4.76)	0.03 (4.44)	0.12 (6.25)	0.35 (1.64)	0.12 (7.00)	0.12 (7.14)
$\text{TURN_BOND}_{t-20,t}^i$	0.09 (0.99)	0.54 (2.37)	0.08 (0.95)	0.54 (2.55)	-0.03 (-0.91)	0.25 (2.04)	-0.02 (-0.66)	0.27 (2.33)	-0.30 (-0.16)	-0.44 (-0.22)	0.13 (0.07)	0.58 (0.27)
$\ln(\text{PAR_DEBT}_t^i)$	-0.61 (-1.26)	-0.36 (-0.66)	-0.45 (-0.90)	-0.23 (-0.43)	-0.77 (-2.38)	-0.87 (-2.10)	-0.70 (-2.35)	-0.87 (-2.33)	-4.64 (-2.15)	-5.46 (-2.63)	-3.85 (-1.78)	-4.41 (-2.17)
TTM_t^i	-0.10 (-1.05)	-0.08 (-0.82)	-0.07 (-0.78)	-0.07 (-0.76)	0.04 (0.40)	0.08 (0.88)	0.08 (0.86)	0.10 (1.02)	-0.15 (-1.02)	-0.13 (-0.93)	-0.19 (-1.25)	-0.17 (-1.14)
INTECEPT	-8.47 (-1.57)	-11.7 (-1.77)	-6.88 (-1.25)	-9.94 (-1.56)	2.81 (0.73)	4.99 (0.99)	2.88 (0.80)	5.17 (1.13)	28.5 (1.17)	9.23 (0.25)	21.1 (0.85)	27.2 (1.16)
<i>Adj. R</i> ²	11.53%	11.99%	11.10%	11.71%	10.24%	9.31%	9.09%	9.06%	15.41%	16.11%	16.18%	16.85%

Table IA3 continued

Panel B. Pre-Lehman Period

	All Bonds				Investment-Grade Bonds				High-Yield Bonds			
SHORT_BOND _t ⁱ	-0.24 (-4.14)	-0.17 (-2.71)	-0.24 (-2.51)	0.22 (0.59)	-0.08 (-2.49)	-0.06 (-2.07)	-0.04 (-1.16)	-0.03 (-0.94)	-0.35 (-2.46)	-0.62 (-2.52)	-0.30 (-2.89)	-0.29 (-2.87)
SHORT_FIRM _t ⁱ			-0.20 (-2.21)	-0.48 (-1.43)			-0.07 (-1.10)	-0.07 (-1.01)			-0.27 (-1.98)	-0.26 (-1.94)
RET_BOND _{t-20,t} ⁱ	-0.05 (-1.65)	-0.03 (-0.93)	0.01 (0.17)	0.02 (0.50)	-0.11 (-5.72)	-0.09 (-6.88)	-0.11 (-9.18)	-0.10 (-7.41)	-0.00 (-0.10)	-0.49 (-1.03)	0.07 (1.56)	0.07 (1.68)
OIB_BOND _{t-20,t} ⁱ		-0.02 (-5.36)		-0.02 (-5.35)		-0.02 (-5.08)		-0.02 (-5.23)		-0.11 (-1.05)		-0.01 (-1.02)
VOLAT_BOND _{t-20,t} ⁱ	0.07 (4.14)	0.06 (3.62)	0.04 (2.33)	0.04 (2.34)	0.04 (3.40)	0.02 (3.13)	0.02 (3.17)	0.02 (3.18)	0.05 (1.18)	0.63 (1.14)	0.06 (2.07)	0.06 (2.16)
TURN_BOND _{t-20,t} ⁱ	0.17 (1.61)	0.22 (0.76)	0.12 (1.56)	0.16 (0.58)	0.03 (0.80)	0.12 (0.99)	0.03 (0.79)	0.13 (1.19)	0.71 (0.71)	-0.13 (-0.11)	-0.10 (-0.09)	-1.30 (-0.91)
ln(PAR_DEBT _t ⁱ)	0.04 (0.11)	0.23 (0.48)	0.20 (0.61)	0.42 (1.02)	-0.46 (-1.79)	-0.16 (-0.48)	-0.41 (-1.74)	-0.22 (-0.71)	1.32 (1.44)	0.60 (0.67)	1.61 (1.57)	0.90 (1.00)
TTM _t ⁱ	-0.17 (-1.76)	-0.14 (-1.50)	-0.13 (-1.44)	-0.14 (-1.53)	-0.13 (-1.35)	-0.09 (-1.05)	-0.10 (-1.14)	-0.09 (-1.09)	-0.03 (-0.24)	-0.01 (-0.09)	-0.09 (-0.57)	-0.05 (-0.32)
INTECEPT	-4.83 (-1.00)	-7.16 (-1.03)	-4.07 (-0.88)	-6.97 (-1.18)	4.69 (1.27)	1.52 (0.33)	5.10 (1.43)	2.49 (0.56)	-21.62 (-1.72)	-88.7 (-1.22)	-25.2 (-1.98)	-16.3 (-1.42)
Adj. R ²	8.92%	8.72%	7.98%	8.50%	9.45%	7.79%	8.30%	8.54%	11.72%	12.23%	12.40%	12.82%

Table IA3 continued

Panel C. Post-Lehman Period

	All Bonds				Investment-Grade Bonds				High-Yield Bonds			
SHORT_BOND _t ⁱ	-0.94 (-5.99)	-0.91 (-5.81)	-0.66 (-5.07)	-0.65 (-4.99)	-0.10 (-0.93)	-0.08 (-0.79)	-0.07 (-0.68)	-0.07 (-0.68)	-1.53 (-7.20)	-1.42 (-6.80)	-0.90 (-5.65)	-0.86 (-5.46)
SHORT_FIRM _t ⁱ			-1.29 (-4.93)	-1.18 (-4.69)			-0.23 (-1.43)	-0.14 (-0.94)			-1.89 (-5.09)	-1.70 (-4.61)
RET_BOND _{t-20,t} ⁱ	-0.08 (-4.14)	-0.06 (-2.85)	-0.06 (-3.13)	-0.04 (-2.19)	-0.10 (-4.53)	-0.08 (-4.00)	-0.11 (-5.91)	-0.09 (-5.04)	-0.08 (-2.82)	-0.08 (-2.70)	-0.06 (-1.90)	-0.06 (-1.95)
OIB_BOND _{t-20,t} ⁱ		-0.06 (-4.80)		-0.05 (-4.39)		-0.03 (-2.77)		-0.02 (-2.63)		-0.13 (-4.34)		-0.11 (-3.33)
VOLAT_BOND _{t-20,t} ⁱ	0.15 (8.51)	0.14 (8.20)	0.14 (8.32)	0.13 (8.03)	0.06 (5.52)	0.05 (4.64)	0.05 (5.05)	0.04 (4.48)	0.18 (8.65)	0.18 (8.71)	0.18 (8.66)	0.18 (8.78)
TURN_BOND _{t-20,t} ⁱ	0.04 (0.87)	0.84 (2.98)	0.04 (1.07)	0.84 (3.21)	-0.03 (-0.96)	0.47 (2.44)	-0.04 (-1.19)	0.43 (2.26)	1.26 (0.59)	1.73 (0.67)	2.26 (0.89)	4.20 (1.41)
ln(PAR_DEBT _t ⁱ)	-0.53 (-0.82)	-0.16 (-0.20)	-0.45 (-0.74)	-0.15 (-0.20)	-0.99 (-2.26)	-1.36 (-2.58)	-0.82 (-2.11)	-1.16 (-2.62)	-3.94 (-2.09)	-4.18 (-2.08)	-3.50 (-1.84)	-3.51 (-1.78)
TTM _t ⁱ	-0.05 (-0.49)	-0.04 (-0.36)	-0.04 (-0.40)	-0.04 (-0.35)	0.20 (1.83)	0.25 (2.36)	0.26 (2.46)	0.28 (2.69)	-0.15 (-0.72)	-0.14 (-0.68)	-0.16 (-0.80)	-0.16 (-0.78)
INTECEPT	-15.29 (-2.04)	-20.3 (-2.11)	-13.6 (-2.00)	-18.0 (-2.1)	1.66 (0.34)	7.54 (1.22)	0.59 (0.13)	5.34 (1.01)	9.38 (0.42)	11.4 (0.47)	5.52 (0.24)	3.75 (0.16)
Adj. R ²	13.95%	14.93%	13.72%	14.49%	11.09%	10.48%	9.60%	9.31%	18.74%	19.64%	19.42%	20.43%

Table IA3 continued

Panel D. Lehman Period

	All Bonds				Investment-Grade Bonds				High-Yield Bonds			
SHORT_BOND _t ⁱ	-2.64 (-3.14)	-2.65 (-3.19)	-2.12 (-2.90)	-2.12 (-2.96)	0.04 (0.08)	0.02 (0.05)	-0.17 (-0.37)	-0.17 (-0.36)	-4.59 (-3.70)	-4.56 (-3.70)	-3.19 (-3.01)	-3.19 (-3.09)
SHORT_FIRM _t ⁱ			-3.95 (-2.92)	-4.14 (-3.04)			0.65 (1.15)	0.51 (0.98)			-6.61 (-3.81)	-6.67 (-3.86)
RET_BOND _{t-20,t} ⁱ	-0.07 (-2.11)	-0.06 (-1.68)	-0.11 (-2.89)	-0.10 (-2.50)	-0.12 (-2.29)	-0.10 (-1.96)	-0.12 (-2.13)	-0.11 (-1.88)	-0.08 (-2.19)	-0.07 (-1.96)	-0.16 (-3.51)	-0.15 (-3.31)
OIB_BOND _{t-20,t} ⁱ		-0.06 (-1.47)		-0.00 (-0.09)		-0.05 (-1.13)		-0.05 (-1.12)		-0.22 (-3.28)		0.00 (0.08)
VOLAT_BOND _{t-20,t} ⁱ	0.09 (2.06)	0.09 (2.17)	0.05 (0.93)	0.05 (1.01)	0.02 (0.40)	0.02 (0.36)	0.02 (0.38)	0.02 (0.38)	0.14 (3.15)	0.14 (3.30)	0.08 (1.37)	0.09 (1.49)
TURN_BOND _{t-20,t} ⁱ	0.09 (0.10)	0.12 (0.09)	0.12 (0.15)	0.44 (0.35)	-0.25 (-0.94)	-0.49 (-1.27)	-0.16 (-0.53)	-0.07 (-0.18)	-13.38 (-0.94)	-14.17 (-1.05)	-11.12 (-0.79)	-12.35 (-0.89)
ln(PAR_DEBT _t ⁱ)	-3.78 (-1.20)	-3.99 (-1.49)	-3.13 (-0.84)	-3.39 (-1.00)	-0.80 (-0.38)	-1.01 (-0.36)	-1.22 (-0.60)	-1.84 (-0.69)	-33.44 (-2.09)	-37.98 (-3.01)	-28.59 (-1.64)	-31.62 (-2.22)
TTM _t ⁱ	-0.05 (-0.07)	-0.01 (-0.02)	0.03 (0.05)	0.06 (0.09)	-0.21 (-0.30)	-0.16 (-0.24)	-0.20 (-0.29)	-0.16 (-0.23)	-0.65 (-0.73)	-0.61 (-0.69)	-0.84 (-0.82)	-0.80 (-0.82)
INTECEPT	15.6 (0.49)	18.5 (0.58)	20.0 (0.52)	23.8 (0.62)	1.59 (0.06)	4.76 (0.13)	7.00 (0.28)	15.3 (0.46)	346.8 (1.91)	403.7 (2.92)	303.0 (1.52)	341.9 (2.14)
<i>Adj. R</i> ²	8.50%	8.65%	9.07%	9.06%	8.71%	8.87%	9.50%	9.77%	11.69%	12.00%	13.24%	12.97%

Table IA4
How Do Short Sellers React to Past Returns? Cross-Sectional Regressions

This table presents Fama-MacBeth regressions predicting 20-day abnormal returns by short interest interacted with past bond returns. Each day we estimate the following cross-sectional predictive regression:

$$\text{RET_BOND}_{t+2,t+21}^i = \alpha_{1t}\text{SHORT_BOND}_t^i + \alpha_{2t}\text{SHORT_BOND}_t^i \times \text{RET_BOND}_{t-20,t}^{\text{high}} + \alpha_{3t}\text{SHORT_BOND}_t^i \\ \times \text{RET_BOND}_{t-20,t}^{\text{low}} + \alpha_{4t}\text{RET_BOND}_{t-20,t}^{\text{high}} + \alpha_{5t}\text{RET_BOND}_{t-20,t}^{\text{low}} + \alpha_{6t}\text{OIB_BOND}_{t-20,t}^i + \gamma_t X_t^i + u_t^i.$$

We average then each coefficient over time-series dimension. The sample consists of all corporate bonds in Markit's securities lending database for which corresponding data is available in the FISD and TRACE databases from Jan. 1, 2006 to Dec. 30, 2011. Bonds with Moody's credit rating of 'Baa-3' and higher five days prior to the sorting are categorized as Investment-Grade Bonds; others are categorized as High-Yield Bonds. Pre-Lehman period (Panel B) consists of all trading days from Jan. 1, 2006 to May 31, 2008, the post-Lehman period (Panel C) is from Jan. 1, 2009 to Dec. 30, 2011 and the Lehman period (Panel D) is from Jun. 1, 2008 to Dec. 30, 2008. Dependent variable is a simple average of abnormal bond returns over the future 20 days defined as a raw return minus the return from the corresponding rating matching portfolio (annualized and expressed in percent); SHORT_BOND_t^i is a ratio of the daily number of bonds on loan (shorted) for bond issue i on day t to the number of bonds outstanding (in percent); $\text{RET_BOND}_{t-20,t}^i$ is a simple average of abnormal returns on bond i over the past 20 days (in percent); $\text{OIB_BOND}_{t-20,t}^i$ is a simple average over past 20 days of a trade imbalance of bond i defined as daily difference between buy and sell trading volumes scaled by the total trading volume of the bond (in percent). To define $\text{RET_BOND}_{t-20,t}^{\text{high}}$ and $\text{RET_BOND}_{t-20,t}^{\text{low}}$ variables, we sort bonds on day t into terciles based on $\text{RET_BOND}_{t-20,t}^i$, where $\text{RET_BOND}_{t-20,t}^i$ is a simple average of abnormal returns on bond i over the past 20 days (in percent). $\text{RET_BOND}_{t-20,t}^{\text{high}} = 1$ if the bond abnormal return over the past 20 trading days falls into the highest tercile and $\text{RET_BOND}_{t-20,t}^{\text{high}} = 0$ otherwise. Similarly, $\text{RET_BOND}_{t-20,t}^{\text{low}} = 1$ if the bond abnormal return over the past 20 trading days falls into the lowest tercile and $\text{RET_BOND}_{t-20,t}^{\text{low}} = 0$ otherwise. Control variables X_t^i include: $\text{VOLAT_BOND}_{t-20,t}^i$ is defined as a sum of absolute daily returns on bond i over the past 20 days (annualized and expressed in percent); $\text{TURN_BOND}_{t-20,t}^i$ is total daily number of bonds of issue i traded scaled by the total number of bonds outstanding (in percent); $\ln(\text{PAR_DEBT}_t^i)$ is the log value of total amount of bonds outstanding for bond issue i (in USD dollars); TTM_t^i is time-to-maturity expressed in years. The t -statistics are reported in parentheses are based on the time series of coefficient estimates from the cross-sectional regressions using Newey-West with 20 lags.

Panel A. Full Sample

	All Bonds		IG Bonds		HY Bonds	
SHORT_BOND_t^i	-0.43 (-2.81)	-0.36 (-1.80)	-0.01 (-0.21)	0.01 (0.16)	-1.70 (-6.12)	-1.63 (-6.07)
$\text{RET_BOND}_{t-20,t}^{\text{high}}$	-8.68 (-7.53)	-8.12 (-7.32)	-2.42 (-4.31)	-1.59 (-3.07)	-9.85 (-5.94)	-8.85 (-5.81)
$\text{RET_BOND}_{t-20,t}^{\text{low}}$	0.15 (0.13)	-0.39 (-0.34)	3.81 (5.25)	3.93 (5.85)	5.21 (3.27)	4.79 (3.11)
$\text{OIB_BOND}_{t-20,t}^i$		-0.05 (-5.33)		-0.03 (-4.73)		-0.11 (-4.78)
SHORT_BOND_t^i $\times \text{RET_BOND}_{t-20,t}^{\text{high}}$	-0.02 (-0.01)	-0.12 (-0.57)	0.03 (0.53)	-0.01 (-0.04)	0.79 (3.63)	0.75 (3.63)
SHORT_BOND_t^i $\times \text{RET_BOND}_{t-20,t}^{\text{low}}$	-0.66 (-4.59)	-0.64 (-4.45)	-0.14 (-2.48)	-0.14 (-2.65)	-0.37 (-3.33)	-0.36 (-3.20)
$\text{VOLAT_BOND}_{t-20,t}^i$	0.10 (8.68)	0.10 (8.59)	0.04 (4.91)	0.03 (4.04)	0.12 (8.75)	0.12 (9.11)
$\text{TURN_BOND}_{t-20,t}^i$	0.07 (0.65)	0.43 (2.00)	-0.02 (-0.64)	0.21 (1.76)	-1.16 (-0.61)	-1.33 (-0.67)
$\ln(\text{PAR_DEBT}_t^i)$	-0.31 (-0.68)	-0.01 (-0.02)	-0.61 (-2.05)	-0.73 (-1.91)	-3.28 (-1.58)	-4.06 (-2.09)
TTM_t^i	-0.06 (-0.67)	-0.05 (-0.54)	0.05 (0.52)	0.09 (0.98)	-0.07 (-0.47)	-0.05 (-0.32)
INTERCEPT	-7.50 (-1.46)	-11.84 (-1.86)	0.65 (0.18)	2.70 (0.56)	17.53 (0.74)	25.83 (1.16)
<i>Adj. R</i> ²	9.24%	9.78%	7.82%	7.51%	11.57%	12.28%

Table IA4 continued

Panel B. Pre-Lehman Period

	All Bonds		IG Bonds		HY Bonds	
SHORT_BOND _t ⁱ	0.13 (0.40)	0.28 (0.60)	-0.06 (-1.44)	-0.05 (-1.32)	-0.42 (-3.76)	-0.43 (-3.80)
RET_BOND _{t-20,t} ^{high}	-4.13 (-3.83)	-3.57 (-3.57)	-2.05 (-3.28)	-1.17 (-2.65)	-3.39 (-2.59)	-3.48 (-2.65)
RET_BOND _{t-20,t} ^{low}	-0.21 (-0.26)	-0.62 (-0.70)	1.64 (3.14)	1.95 (5.19)	0.82 (0.86)	0.49 (0.50)
OIB_BOND _{t-20,t} ⁱ		-0.02 (-4.50)		-0.03 (-5.57)		-0.01 (-0.97)
SHORT_BOND _t ⁱ × RET_BOND _{t-20,t} ^{high}	-0.30 (-0.92)	-0.48 (-0.95)	-0.07 (-1.01)	-0.06 (-0.97)	0.08 (1.01)	0.10 (1.11)
SHORT_BOND _t ⁱ × RET_BOND _{t-20,t} ^{low}	-0.08 (-1.49)	-0.06 (-1.23)	0.01 (0.28)	0.03 (0.90)	-0.18 (-1.91)	-0.15 (-1.62)
VOLAT_BOND _{t-20,t} ⁱ	0.06 (3.62)	0.06 (3.34)	0.03 (2.83)	0.02 (2.51)	0.07 (3.09)	0.08 (3.33)
TURN_BOND _{t-20,t} ⁱ	0.14 (1.45)	0.28 (1.00)	0.01 (0.14)	0.08 (0.63)	0.75 (0.74)	-0.07 (-0.06)
ln(PAR_DEBT _t ⁱ)	0.10 (0.29)	0.55 (1.17)	-0.42 (-1.66)	-0.15 (-0.46)	1.56 (1.71)	0.84 (0.96)
TTM _t ⁱ	-0.16 (-1.68)	-0.14 (-1.49)	-0.13 (-1.35)	-0.08 (-0.98)	-0.03 (-0.23)	0.00 (0.04)
INTERCEPT	-3.87 (-0.77)	-3.87 (-0.77)	4.28 (1.11)	4.28 (1.11)	-26.93 (-2.32)	-26.93 (-2.32)
Adj. R ²	6.12%	6.24%	7.35%	6.70%	7.70%	8.07%

Panel C. Post-Lehman Period

	All Bonds		IG Bonds		HY Bonds	
SHORT_BOND _t ⁱ	-0.72 (-5.79)	-0.71 (-5.77)	0.05 (0.56)	0.07 (0.89)	-1.97 (-7.03)	-1.86 (-6.64)
RET_BOND _{t-20,t} ^{high}	-10.22 (-9.22)	-9.78 (-9.40)	-2.31 (-3.12)	-1.46 (-2.26)	-12.64 (-6.64)	-11.33 (-6.10)
RET_BOND _{t-20,t} ^{low}	-0.46 (-0.33)	-1.11 (-0.85)	4.49 (4.78)	4.60 (5.31)	7.74 (2.97)	7.20 (2.83)
OIB_BOND _{t-20,t} ⁱ		-0.07 (-4.34)		-0.03 (-3.03)		-0.16 (-4.42)
SHORT_BOND _t ⁱ × RET_BOND _{t-20,t} ^{high}	0.37 (4.33)	0.34 (4.22)	0.04 (0.47)	-0.02 (-0.29)	1.36 (5.53)	1.32 (5.55)
SHORT_BOND _t ⁱ × RET_BOND _{t-20,t} ^{low}	-0.73 (-4.53)	-0.69 (-4.47)	-0.27 (-3.03)	-0.28 (-3.12)	-0.47 (-2.57)	-0.47 (-2.63)
VOLAT_BOND _{t-20,t} ⁱ	0.13 (8.56)	0.13 (8.73)	0.05 (4.27)	0.04 (3.57)	0.15 (9.29)	0.15 (9.56)
TURN_BOND _{t-20,t} ⁱ	-0.00 (-0.12)	0.57 (2.42)	-0.04 (-1.25)	0.35 (1.86)	-0.26 (-0.12)	0.02 (0.01)
ln(PAR_DEBT _t ⁱ)	-0.15 (-0.24)	0.08 (0.11)	-0.71 (-1.77)	-1.11 (-2.28)	-1.82 (-1.15)	-2.21 (-1.27)
TTM _t ⁱ	0.02 (0.24)	0.04 (0.26)	0.21 (1.98)	0.25 (2.40)	0.02 (0.12)	0.04 (0.19)
INTERCEPT	-13.11 (-1.81)	-16.71 (-1.77)	-1.56 (-0.34)	4.15 (0.71)	-5.73 (-0.30)	-2.93 (-0.14)
Adj. R ²	11.73%	12.64%	8.33%	8.15%	14.53%	15.58%

Panel D. Lehman Period

	All Bonds		IG Bonds		HY Bonds	
SHORT_BOND _t ⁱ	-1.13 (-2.44)	-1.04 (-2.43)	-0.16 (-0.31)	-0.09 (-0.18)	-5.43 (-3.42)	-5.33 (-3.58)
RET_BOND _{t-20,t} ^{high}	-18.79 (-2.33)	-17.44 (-2.23)	-4.56 (-1.34)	-4.11 (-1.11)	-20.71 (-1.81)	-16.98 (-1.66)
RET_BOND _{t-20,t} ^{low}	5.17 (0.57)	4.71 (0.52)	8.95 (1.91)	8.29 (1.81)	8.88 (1.38)	8.87 (1.55)
OIB_BOND _{t-20,t} ⁱ		-0.08 (-2.00)		-0.08 (-1.88)		-0.27 (-3.22)
SHORT_BOND _t ⁱ × RET_BOND _{t-20,t} ^{high}	-1.05 (-2.50)	-1.23 (-2.78)	0.43 (1.19)	0.35 (1.01)	0.47 (0.29)	0.24 (0.15)
SHORT_BOND _t ⁱ × RET_BOND _{t-20,t} ^{low}	-2.66 (-3.18)	-2.74 (-3.28)	0.02 (0.10)	-0.08 (-0.42)	-0.64 (-1.38)	-0.62 (-1.15)
VOLAT_BOND _{t-20,t} ⁱ	0.09 (2.41)	0.10 (2.60)	0.03 (0.75)	0.03 (0.79)	0.14 (3.43)	0.14 (3.61)
TURN_BOND _{t-20,t} ⁱ	0.15 (0.15)	0.30 (0.20)	-0.04 (-0.13)	-0.09 (-0.22)	-14.27 (-0.97)	-14.29 (-1.04)
ln(PAR_DEBT _t ⁱ)	-2.97 (-0.95)	-2.89 (-1.09)	-0.80 (-0.42)	-0.99 (-0.38)	-31.73 (-1.97)	-35.02 (-2.82)
TTM _t ⁱ	-0.13 (-0.20)	-0.10 (-0.16)	-0.17 (-0.27)	-0.14 (-0.22)	-0.76 (-0.89)	-0.74 (-0.87)
INTERCEPT	9.56 (0.33)	7.44 (0.25)	-1.74 (-0.08)	0.83 (0.02)	335.7 (1.81)	373.2 (2.73)
Adj. R ²	7.88%	8.10%	6.85%	7.16%	10.60%	10.91%

Table IA5**Bond Short Selling versus Stock Short Selling: Cross-Sectional Regressions**

This table presents Fama-MacBeth regressions predicting 20-day abnormal returns. Each day we estimate the following cross-sectional predictive regression:

$$\text{RET_BOND}_{t+2,t+21}^i = \alpha_{1t}\text{SHORT_BOND}_t^i + \alpha_{2t}\text{SHORT_FIRM}_t^i + \alpha_{3t}\text{SHORT_STOCK}_t^i + \alpha_{4t}\text{RET_BOND}_{t-20,t}^i + \alpha_{5t}\text{RET_STOCK}_{t-20,t}^i + \alpha_{6t}\text{OIB_BOND}_{t-20,t}^i + \gamma_t X_t^i + u_t^i.$$

We average then each coefficient over time-series dimension. The sample consists of all corporate bonds that have the corresponding stock traded, have entries in the Markit securities lending database for which corresponding data is available in the FISD and TRACE databases from Jan. 1, 2006 to Dec. 30, 2011. Bonds with Moody's credit rating of "Baa-3" and higher five days prior to the sorting are categorized as Investment-Grade Bonds; others are categorized as High-Yield Bonds. Pre-Lehman period (Panel B) consists of all trading days from Jan. 1, 2006 to May 31, 2008, the post-Lehman period (Panel C) is from Jan. 1, 2009 to Dec. 30, 2011 and the Lehman period (Panel D) is from Jun. 1, 2008 to Dec. 30, 2008. Dependent variable is a simple average of abnormal bond returns over the future 20 days defined as a raw return minus the return from the corresponding rating matching portfolio (annualized and expressed in percent); SHORT_BOND_t^i is a ratio of the daily number of bonds on loan (shorted) for bond issue i on day t to the number of bonds outstanding (in percent); SHORT_FIRM_t^i is an average value-weighted ratio of the daily number of bonds on loan (shorted) for bond issue i on day t to the number of bonds outstanding for all bonds issued by the firm except bond i (in percent); SHORT_STOCK_t^i is a ratio of the daily number of shares on loan (shorted) for stock corresponding to bond issue i on day t to a number of shares outstanding (in percent); $\text{RET_BOND}_{t-20,t}^i$ is a simple average of abnormal returns on bond i over the past 20 days (in percent); $\text{RET_STOCK}_{t-20,t}^i$ is a simple average of abnormal returns on stock corresponding to bond issue i over the past 20 days (in percent); $\text{OIB_BOND}_{t-20,t}^i$ is a simple average over past 20 days of a trade imbalance of bond i defined as daily difference between buy and sell trading volumes scaled by the total trading volume of the bond (in percent). Control variables X_t^i include: $\text{VOLAT_BOND}_{t-20,t}^i$ is defined as a sum of absolute daily returns on bond i over the past 20 days (annualized and expressed in percent); $\text{TURN_BOND}_{t-20,t}^i$ is total daily number of bonds of issue i traded scaled by the total number of bonds outstanding (in percent); $\ln(\text{PAR_DEBT}_t^i)$ is the log value of total amount of bonds outstanding for bond issue i (in USD dollars); TTM_t^i is time-to-maturity expressed in years; $\ln(\text{MCAP}_t^i)$ is the log value of market capitalization of the firm issuing bond i (in USD dollars); BM_t^i is book-to-market ratio; LEVERAGE_t^i is defined as the sum of long-term and short-term debts divided by stockholders total equity; IHOLDING_t^i institutional holding is defined as the number of shares held by institutional investors as recorded in 13F filings and are scaled by the total number of shares outstanding (in percent). The t -statistics are reported in parentheses are based on the time series of coefficient estimates from the cross-sectional regressions using Newey–West with 20 lags.

Table IA5 continued.

Panel A. Full Sample

	All Bonds				Investment-Grade Bonds				High-Yield Bonds			
SHORT_BOND _t ⁱ	-0.43 (-2.89)	-0.45 (-2.91)	-0.35 (-2.60)	-0.34 (-2.53)	0.04 (0.46)	0.05 (0.55)	-0.01 (-0.11)	0.01 (0.03)	-0.53 (-2.56)	-0.55 (-2.62)	-0.47 (-2.34)	-0.49 (-2.44)
SHORT_FIRM _t ⁱ			-0.56 (-2.56)	-0.57 (-2.58)			0.23 (1.54)	0.21 (1.44)			-0.67 (-2.42)	-0.66 (-2.40)
SHORT_STOCK _t ⁱ	-0.41 (-3.22)	-0.43 (-3.09)	-0.30 (-3.16)	-0.30 (-3.10)	0.01 (0.08)	0.01 (0.02)	-0.06 (-0.52)	-0.07 (-0.58)	-0.79 (-2.10)	-0.77 (-2.06)	-0.36 (-2.89)	-0.34 (-2.77)
RET_BOND _{t-20,t} ⁱ	-0.07 (-7.38)	-0.07 (-7.20)	-0.09 (-7.24)	-0.09 (-7.02)	-0.11 (-9.34)	-0.11 (-9.01)	-0.12 (-10.6)	-0.12 (-10.3)	-0.05 (-3.71)	-0.05 (-3.66)	-0.07 (-4.21)	-0.07 (-4.11)
RET_STOCK _{t-20,t} ⁱ	7.30 (9.87)	7.25 (9.84)	7.31 (10.3)	7.22 (10.2)	6.49 (9.29)	6.37 (9.09)	6.44 (9.39)	6.28 (9.16)	8.25 (9.04)	8.33 (9.14)	8.30 (7.93)	8.37 (9.95)
OIB_BOND _{t-20,t} ⁱ		-0.01 (-2.76)		-0.01 (-1.51)		-0.02 (-3.95)		-0.02 (-3.80)		-0.01 (-0.53)		0.01 (0.92)
VOLAT_BOND _{t-20,t} ⁱ	0.03 (4.37)	0.03 (4.54)	0.03 (3.88)	0.03 (3.88)	0.03 (5.28)	0.03 (5.31)	0.03 (5.29)	0.03 (5.31)	0.04 (3.11)	0.04 (3.13)	0.02 (2.08)	0.02 (2.10)
TURN_BOND _{t-20,t} ⁱ	1.16 (3.75)	1.34 (3.93)	1.16 (3.61)	1.34 (3.81)	0.86 (3.73)	1.05 (4.05)	0.78 (3.30)	0.98 (3.70)	0.66 (0.73)	0.75 (0.80)	1.15 (0.97)	1.15 (0.85)
ln(PAR_DEBT _t ⁱ)	-1.97 (-1.97)	-2.03 (-2.07)	-1.67 (-1.92)	-1.66 (-1.90)	-0.96 (-1.34)	-0.92 (-1.33)	-0.84 (-1.18)	-0.83 (-1.18)	-4.01 (-2.02)	-4.05 (-2.00)	-2.40 (-1.79)	-2.51 (-1.80)
TTM _t ⁱ	0.14 (1.31)	0.13 (1.27)	0.15 (1.41)	0.15 (1.44)	0.09 (0.97)	0.10 (1.02)	0.10 (1.00)	0.10 (1.05)	0.18 (1.32)	0.17 (1.21)	0.23 (1.48)	0.22 (1.43)
ln(MCAP _t ⁱ)	1.65 (2.53)	1.68 (2.61)	1.64 (2.39)	1.67 (2.46)	0.37 (0.53)	0.37 (0.54)	0.22 (0.33)	0.25 (0.36)	0.23 (0.22)	0.27 (0.25)	0.30 (0.98)	0.29 (0.96)
BM _t ⁱ	-0.48 (-0.65)	-0.43 (-0.58)	-0.52 (-0.71)	-0.45 (-0.62)	0.16 (0.28)	0.20 (0.34)	0.10 (0.17)	0.16 (0.27)	-0.60 (-0.56)	-0.52 (-0.49)	-0.75 (-0.66)	-0.61 (-0.55)
LEVERAGE _t ⁱ	-0.12 (-0.94)	-0.11 (-0.91)	-0.13 (-0.95)	-0.13 (-0.92)	-0.20 (-1.75)	-0.20 (-1.72)	-0.20 (-1.62)	-0.19 (-1.58)	0.26 (1.00)	0.25 (0.97)	0.30 (0.98)	0.29 (0.96)
IHOLDING _t ⁱ	0.02 (2.17)	0.02 (2.15)	0.02 (1.97)	0.02 (1.94)	0.02 (1.48)	0.02 (1.54)	0.02 (1.45)	0.02 (1.52)	0.03 (2.28)	0.03 (2.17)	0.03 (1.77)	0.02 (1.65)
INTERCEPT	-9.88 (-0.84)	-9.92 (-0.84)	-12.09 (-1.11)	-13.01 (-1.17)	-0.68 (-0.07)	-1.44 (-0.15)	0.29 (0.03)	-0.49 (-0.05)	28.61 (1.55)	28.75 (1.52)	16.92 (1.07)	17.71 (1.09)
Adj. R ²	11.80%	12.00%	12.53%	12.76%	15.16%	15.45%	15.25%	15.53%	15.93%	16.10%	18.30%	18.55%

Table IA5 continued.

Panel B. Pre-Lehman Period

	All Bonds				Investment-Grade Bonds				High-Yield Bonds			
SHORT_BOND _t ⁱ	-0.18 (-2.63)	-0.23 (-1.92)	-0.12 (-2.89)	-0.11 (-2.68)	0.07 (0.51)	0.08 (0.63)	-0.03 (-0.86)	-0.02 (-0.48)	-0.24 (-2.40)	-0.24 (-2.44)	-0.20 (-2.47)	-0.20 (-2.54)
SHORT_FIRM _t ⁱ			-0.21 (-2.26)	-0.22 (-2.34)			-0.09 (-1.00)	-0.10 (-1.11)			-0.26 (-2.16)	-0.26 (-2.24)
SHORT_STOCK _t ⁱ	-0.30 (-1.59)	-0.37 (-1.56)	-0.16 (-1.12)	-0.16 (-1.18)	-0.03 (-0.14)	-0.04 (-0.16)	-0.21 (-1.40)	-0.22 (-1.42)	-1.08 (-1.19)	-1.09 (-1.20)	-0.12 (-0.82)	-0.12 (-0.85)
RET_BOND _{t-20,t} ⁱ	-0.07 (-4.83)	-0.07 (-4.72)	-0.08 (-4.30)	-0.07 (-4.11)	-0.12 (-8.07)	-0.11 (-7.77)	-0.13 (-8.31)	-0.13 (-7.99)	-0.04 (-2.28)	-0.05 (-2.28)	-0.04 (-1.38)	-0.04 (-1.33)
RET_STOCK _{t-20,t} ⁱ	7.10 (7.60)	7.10 (7.62)	6.16 (6.39)	6.10 (6.32)	5.77 (6.20)	5.68 (6.01)	5.50 (5.71)	5.39 (5.50)	7.84 (7.56)	7.96 (7.66)	6.53 (5.50)	6.62 (5.42)
OIB_BOND _{t-20,t} ⁱ		-0.02 (-3.27)		-0.02 (-4.07)		-0.03 (-4.86)		-0.03 (-4.96)		0.01 (0.61)		0.01 (0.73)
VOLAT_BOND _{t-20,t} ⁱ	0.01 (1.36)	0.01 (1.81)	0.01 (1.50)	0.01 (1.54)	0.02 (3.31)	0.02 (3.45)	0.02 (3.02)	0.02 (3.14)	0.01 (0.71)	0.01 (0.69)	0.01 (0.64)	0.01 (0.62)
TURN_BOND _{t-20,t} ⁱ	0.08 (0.28)	0.22 (0.76)	0.03 (0.10)	0.10 (0.33)	0.19 (1.20)	0.30 (1.79)	0.11 (0.75)	0.23 (1.41)	-0.11 (-0.13)	-0.06 (-0.07)	-0.93 (-0.70)	-0.99 (-0.69)
ln(PAR_DEBT _t ⁱ)	-0.84 (-1.13)	-1.11 (-1.51)	-1.01 (-1.52)	-1.01 (-1.44)	-0.64 (-1.16)	-0.61 (-1.05)	-0.49 (-0.93)	-0.46 (-0.84)	-2.65 (-1.71)	-2.49 (-1.57)	-2.69 (-1.93)	-2.60 (-1.81)
TTM _t ⁱ	-0.01 (-0.01)	-0.01 (-0.17)	-0.05 (-0.62)	-0.05 (-0.60)	-0.12 (-1.49)	-0.12 (-1.48)	-0.13 (-1.57)	-0.12 (-1.56)	0.28 (2.79)	0.28 (2.89)	0.26 (2.15)	0.27 (2.23)
ln(MCAP _t ⁱ)	0.63 (1.90)	0.70 (2.10)	0.75 (2.38)	0.84 (2.63)	0.73 (1.64)	0.78 (1.75)	0.58 (1.47)	0.64 (1.61)	0.74 (1.24)	0.75 (1.24)	0.88 (1.27)	0.91 (1.28)
BM _t ⁱ	-1.51 (-1.05)	-1.45 (-1.01)	-1.49 (-1.04)	-1.43 (-0.99)	0.31 (0.59)	0.34 (0.65)	0.32 (0.58)	0.36 (0.64)	-2.06 (-0.91)	-1.89 (-0.84)	-1.90 (-0.79)	-1.64 (-0.69)
LEVERAGE _t ⁱ	-0.31 (-3.14)	-0.29 (-2.94)	-0.33 (-3.33)	-0.32 (-3.15)	-0.24 (-2.81)	-0.23 (-2.70)	-0.24 (-2.74)	-0.23 (-2.63)	-0.55 (-1.92)	-0.55 (-1.87)	-0.58 (-1.87)	-0.57 (-1.80)
IHOLDING _t ⁱ	0.03 (3.02)	0.03 (2.90)	0.03 (2.98)	0.03 (2.84)	0.02 (2.35)	0.02 (2.31)	0.02 (2.34)	0.02 (2.28)	0.05 (2.64)	0.05 (2.53)	0.05 (2.42)	0.05 (2.26)
INTERCEPT	1.21 (0.13)	2.73 (0.31)	1.52 (0.20)	0.07 (0.01)	-3.98 (-0.71)	-5.41 (-0.91)	-2.87 (-0.53)	-4.25 (-0.75)	23.35 (1.28)	21.15 (1.14)	20.62 (1.29)	19.08 (1.17)
Adj. R ²	8.71%	8.92%	10.37%	10.63%	12.78%	13.13%	13.64%	14.00%	11.34%	11.49%	14.93%	15.17%

Table IA5 continued.

Panel C. Post-Lehman Period

	All Bonds				Investment-Grade Bonds				High-Yield Bonds			
SHORT_BOND _t ⁱ	-0.48 (-2.33)	-0.49 (-2.37)	-0.43 (-2.33)	-0.44 (-2.38)	-0.09 (-0.87)	-0.10 (-0.94)	-0.09 (-0.89)	-0.10 (-0.95)	-0.35 (-1.76)	-0.37 (-1.88)	-0.34 (-1.69)	-0.37 (-1.85)
SHORT_FIRM _t ⁱ			-0.44 (-1.48)	-0.44 (-1.47)			0.31 (1.25)	0.30 (1.24)			-0.54 (-1.28)	-0.54 (-1.27)
SHORT_STOCK _t ⁱ	-0.31 (-2.02)	-0.30 (-1.90)	-0.28 (-2.26)	-0.27 (-2.13)	0.13 (0.72)	0.12 (0.67)	0.14 (0.83)	0.13 (0.76)	-0.35 (-1.74)	-0.32 (-1.55)	-0.39 (-2.33)	-0.36 (-2.12)
RET_BOND _{t-20,t} ⁱ	-0.07 (-4.95)	-0.07 (-4.89)	-0.08 (-5.51)	-0.08 (-5.44)	-0.10 (-5.51)	-0.10 (-5.38)	-0.11 (-6.78)	-0.11 (-6.60)	-0.07 (-3.38)	-0.07 (-3.33)	-0.09 (-4.10)	-0.09 (-4.10)
RET_STOCK _{t-20,t} ⁱ	6.46 (6.18)	6.40 (6.12)	7.07 (7.75)	6.99 (7.59)	6.07 (6.51)	5.94 (6.29)	6.24 (7.18)	6.09 (6.87)	8.67 (6.03)	8.69 (6.05)	8.60 (5.36)	8.68 (5.41)
OIB_BOND _{t-20,t} ⁱ		-0.01 (-0.43)		0.01 (0.31)		-0.01 (-1.55)		-0.01 (-1.57)		0.01 (0.31)		0.02 (1.12)
VOLAT_BOND _{t-20,t} ⁱ	0.04 (3.75)	0.04 (3.75)	0.03 (3.20)	0.03 (3.18)	0.04 (4.21)	0.04 (4.15)	0.03 (4.34)	0.03 (4.25)	0.04 (2.68)	0.04 (2.74)	0.03 (1.74)	0.03 (1.76)
TURN_BOND _{t-20,t} ⁱ	1.72 (3.86)	1.90 (3.79)	1.83 (3.88)	2.00 (3.81)	1.32 (3.64)	1.56 (3.78)	1.26 (3.26)	1.46 (3.39)	0.96 (0.80)	0.89 (0.73)	2.13 (1.40)	2.06 (1.32)
ln(PAR_DEBT _t ⁱ)	-0.45 (-0.58)	-0.47 (-0.61)	-0.24 (-0.34)	-0.29 (-0.40)	0.02 (0.03)	0.03 (0.05)	0.06 (0.08)	0.01 (0.01)	0.29 (0.22)	0.14 (0.11)	0.73 (0.66)	0.49 (0.42)
TTM _t ⁱ	0.33 (3.03)	0.33 (3.00)	0.37 (3.51)	0.37 (3.49)	0.32 (3.11)	0.33 (3.12)	0.34 (3.23)	0.34 (3.25)	0.36 (2.58)	0.35 (2.53)	0.45 (2.96)	0.44 (2.94)
ln(MCAP _t ⁱ)	0.25 (0.52)	0.27 (0.57)	0.05 (0.09)	0.06 (0.12)	-1.46 (-1.97)	-1.43 (-1.95)	-1.45 (-1.91)	-1.44 (-1.89)	-3.21 (-2.62)	-3.17 (-2.61)	-4.03 (-2.72)	-3.95 (-2.69)
BM _t ⁱ	0.19 (0.23)	0.30 (0.36)	0.10 (0.11)	0.22 (0.28)	0.47 (0.56)	0.58 (0.70)	0.36 (0.43)	0.48 (0.60)	-0.04 (-0.04)	0.11 (0.11)	-0.55 (-0.48)	-0.38 (-0.36)
LEVERAGE _t ⁱ	0.22 (1.45)	0.22 (1.48)	0.27 (1.64)	0.28 (1.66)	0.04 (0.32)	0.04 (0.39)	0.08 (0.67)	0.08 (0.73)	0.99 (2.71)	0.98 (2.66)	1.12 (2.56)	1.14 (2.56)
IHOLDING _t ⁱ	0.01 (0.25)	0.01 (0.22)	-0.01 (-0.07)	-0.01 (-0.13)	-0.01 (-0.32)	-0.01 (-0.33)	-0.01 (-0.52)	-0.01 (-0.54)	0.03 (1.34)	0.02 (1.22)	0.02 (1.16)	0.02 (0.96)
INTERCEPT	-11.94 (-1.43)	-12.00 (-1.46)	-10.06 (-1.32)	-9.83 (-1.29)	12.42 (1.70)	13.00 (1.71)	11.85 (1.70)	12.29 (1.76)	14.10 (0.91)	16.00 (0.98)	22.39 (1.29)	24.50 (1.36)
Adj. R ²	13.31%	13.50%	13.41%	13.61%	16.49%	16.73%	15.96%	16.16%	15.88%	16.05%	17.61%	17.83%

Table IA5 continued.

Panel D. Lehman Period

	All Bonds				Investment-Grade Bonds				High-Yield Bonds			
SHORT_BOND _t ⁱ	-1.23 (-1.30)	-1.17 (-1.76)	-0.81 (-0.94)	-0.74 (-0.84)	0.71 (1.30)	0.79 (1.76)	0.56 (0.99)	0.65 (1.20)	-2.84 (-1.85)	-2.88 (-0.63)	-2.31 (-1.56)	-2.39 (-1.58)
SHORT_FIRM _t ⁱ			-2.72 (-2.04)	-2.72 (-2.06)			1.10 (2.07)	1.00 (2.00)			-3.17 (-2.16)	-3.04 (-2.11)
SHORT_STOCK _t ⁱ	-1.44 (-2.59)	-1.44 (-2.59)	-1.06 (-2.81)	-1.02 (-2.89)	-0.46 (-0.92)	-0.48 (-0.92)	-0.56 (-1.23)	-0.55 (-1.20)	-2.09 (-2.58)	-2.05 (-2.69)	-1.20 (-1.88)	-1.15 (-1.91)
RET_BOND _{t-20,t} ⁱ	-0.10 (-3.00)	-0.09 (-2.71)	-0.15 (-2.56)	-0.14 (-2.38)	-0.13 (-3.33)	-0.12 (-3.10)	-0.14 (-3.01)	-0.13 (-2.80)	0.02 (0.39)	0.02 (0.50)	-0.11 (-1.63)	-0.10 (-1.50)
RET_STOCK _{t-20,t} ⁱ	12.96 (4.96)	12.78 (4.98)	13.55 (4.75)	13.21 (4.75)	11.94 (4.21)	11.72 (4.32)	11.49 (3.78)	11.08 (3.86)	7.55 (2.35)	7.86 (2.46)	13.87 (3.99)	14.24 (4.10)
OIB_BOND _{t-20,t} ⁱ		-0.05 (-2.74)		-0.02 (-0.46)		-0.05 (-1.64)		-0.04 (-1.41)			-0.11 (-2.61)	-0.03 (-0.50)
VOLAT_BOND _{t-20,t} ⁱ	0.09 (2.60)	0.09 (2.57)	0.06 (1.93)	0.06 (1.91)	0.05 (1.71)	0.05 (1.71)	0.05 (1.78)	0.05 (1.78)	0.14 (2.06)	0.14 (2.04)	0.04 (1.18)	0.04 (1.20)
TURN_BOND _{t-20,t} ⁱ	2.48 (1.68)	2.75 (1.75)	2.22 (1.67)	2.71 (1.88)	0.97 (0.94)	1.21 (1.07)	0.82 (0.86)	1.32 (1.23)	2.19 (0.34)	3.28 (0.50)	4.18 (0.58)	4.82 (0.67)
ln(PAR_DEBT _t ⁱ)	-15.40 (-2.06)	-14.79 (-2.00)	-12.63 (-1.94)	-12.19 (-1.86)	-7.93 (-1.51)	-7.28 (-1.45)	-7.50 (-1.43)	-7.11 (-1.39)	-34.28 (-2.41)	-34.56 (-2.36)	-19.10 (-2.07)	-19.29 (-1.96)
TTM _t ⁱ	-0.39 (-0.48)	-0.37 (-0.44)	-0.30 (-0.36)	-0.26 (-0.32)	-0.33 (-0.46)	-0.29 (-0.41)	-0.33 (-0.46)	-0.29 (-0.40)	-1.20 (-1.15)	-1.31 (-1.20)	-1.17 (-0.99)	-1.22 (-1.03)
ln(MCAP _t ⁱ)	13.98 (3.89)	13.78 (3.92)	14.43 (3.82)	14.33 (3.82)	9.34 (2.13)	9.01 (2.11)	8.33 (1.95)	8.28 (1.94)	17.90 (4.01)	17.99 (3.98)	17.22 (3.72)	17.17 (3.68)
BM _t ⁱ	-0.02 (-0.01)	-0.28 (-0.10)	-0.05 (-0.02)	-0.31 (-0.15)	-2.22 (-0.67)	-2.55 (-0.77)	-2.28 (-0.62)	-2.52 (-0.70)	2.21 (0.95)	1.62 (0.76)	2.83 (0.91)	2.37 (0.83)
LEVERAGE _t ⁱ	-1.24 (-1.65)	-1.32 (-1.76)	-1.61 (-2.02)	-1.69 (-2.11)	-1.40 (-1.63)	-1.48 (-1.76)	-1.58 (-1.81)	-1.64 (-1.89)	-0.57 (-0.55)	-0.64 (-0.63)	-0.79 (-0.63)	-0.97 (-0.78)
IHOLDING _t ⁱ	0.12 (3.45)	0.12 (3.59)	0.12 (4.00)	0.13 (4.23)	0.12 (3.20)	0.13 (3.47)	0.14 (3.45)	0.15 (3.71)	-0.01 (-0.22)	-0.01 (-0.17)	-0.05 (-0.69)	-0.04 (-0.57)
INTERCEPT	-44.14 (-0.40)	-49.50 (-0.45)	-80.35 (-0.80)	-85.59 (-0.84)	-62.06 (-0.72)	-65.83 (-0.75)	-52.88 (-0.61)	-58.15 (-0.66)	133.7 (0.85)	136.1 (0.85)	-29.79 (-0.25)	-26.90 (-0.22)
Adj. R ²	15.95%	16.20%	16.46%	16.75%	17.35%	17.70%	17.84%	18.20%	19.84%	20.15%	19.49%	19.75%

Table IA6

Do Bond Short Sellers Have Information about Stock Returns? Cross-Sectional Regressions

Table IA6 presents Fama-MacBeth regressions predicting 20-day stock abnormal returns. Each day we estimate the following cross-sectional predictive regression:

$$\text{RET_STOCK}_{t+2,t+21}^i = \alpha_{1t}\text{SHORT_FIRM}_t^i + \alpha_{2t}\text{SHORT_STOCK}_t^i + \alpha_{3t}\text{RET_STOCK}_{t-20,t}^i + \alpha_{4t}\text{RET_BOND}_{t-20,t}^i + \alpha_{5t}\text{OIB_STOCK}_{t-20,t}^i + \gamma_t X_t^i + u_t^i.$$

We average then each coefficient over time-series dimension. The sample consists of all corporate bonds that have the corresponding stock traded, have entries in the Markit securities lending database for which corresponding data is available in the FISD and TRACE databases from Jan. 1, 2006 to Dec. 30, 2011. Stocks that are in the upper market capitalization quintile across the sample five days prior to the sorting are categorized as Large stocks; stocks that are in the lowest market capitalization quintile are categorized as Small stocks. Pre-Lehman period (Panel B) consists of all trading days from Jan. 1, 2006 to May 31, 2008, the post-Lehman period (Panel C) is from Jan. 1, 2009 to Dec. 30, 2011 and the Lehman period (Panel D) is from Jun. 1, 2008 to Dec. 30, 2008. Dependent variable is a simple average of abnormal stock returns over the future 20 days defined as a raw return minus the return from the corresponding size and book-to-market matching portfolio (annualized and expressed in percent); SHORT_FIRM_t^i is an average value-weighted ratio of the daily number of bonds on loan (shorted) for bond issue i on day t to the number of bonds outstanding for all bonds issued by the firm except bond i (in percent); SHORT_STOCK_t^i is a ratio of the daily number of shares on loan (shorted) for stock corresponding to bond issue i on day t to a number of shares outstanding (in percent); $\text{RET_BOND}_{t-20,t}^i$ is a simple average of abnormal returns on bond i over the past 20 days (in percent); $\text{RET_STOCK}_{t-20,t}^i$ is a simple average of abnormal returns on stock corresponding to bond issue i over the past 20 days (in percent); $\text{OIB_STOCK}_{t-20,t}^i$ is a simple average over past 20 days of a trade imbalance of stock i defined as daily difference between buy and sell trading volumes scaled by the total trading volume of the stock (in percent). Control variables X_t^i include: $\text{VOLAT_STOCK}_{t-20,t}^i$ is defined as a sum of absolute daily returns on stock i over the past 20 days (annualized and expressed in percent); $\text{TURN_STOCK}_{t-20,t}^i$ is total daily number of shares of stock i traded scaled by the total number of shares outstanding (in percent); $\ln(\text{MCAP}_t^i)$ is the log value of market capitalization of the firm i (in USD dollars); BM_t^i is book-to-market ratio; LEVERAGE_t^i is defined as the sum of long-term and short-term debts divided by stockholders total equity; IHOLDING_t^i institutional holding is defined as the number of shares held by institutional investors as recorded in 13F filings and are scaled by the total number of shares outstanding (in percent). The t -statistics are reported in parentheses are based on the time series of coefficient estimates from the cross-sectional regressions using Newey–West with 20 lags.

Table IA6 continued.

Panel A. Full Sample

	All Stocks				Large Stocks				Small Stocks			
SHORT_FIRM $_t^i$	0.24 (0.45)	0.10 (0.20)	0.25 (0.49)	0.29 (0.60)	-0.37 (-0.16)	-0.63 (-0.28)	-0.46 (-0.19)	-0.80 (-0.35)	0.03 (0.06)	-0.02 (-0.04)	0.09 (0.17)	0.23 (0.43)
SHORT_STOCK $_t^i$			-0.75 (-2.21)	-0.79 (-2.29)			0.12 (0.18)	0.16 (0.24)			-1.41 (-2.53)	-1.44 (-2.93)
RET_STOCK $_{t-20,t}^i$	0.01 (0.56)	0.01 (0.94)	0.01 (0.84)	0.01 (0.82)	0.02 (0.73)	0.03 (1.36)	0.02 (0.96)	0.03 (1.27)	0.00 (0.01)	0.00 (0.10)	0.00 (0.17)	0.00 (0.03)
RET_BOND $_{t-20,t}^i$	-0.01 (-0.11)	-0.01 (-0.18)	-0.01 (-0.12)	-0.01 (-0.15)	-0.01 (-0.10)	-0.03 (-0.26)	-0.05 (-0.45)	-0.06 (-0.56)	-0.01 (-0.33)	-0.01 (-0.46)	0.00 (0.06)	-0.00 (-0.08)
OIB_STOCK $_{t-20,t}^i$		-0.09 (-0.34)		-0.13 (-0.49)		0.22 (0.26)		0.53 (0.66)		0.56 (1.74)		0.51 (1.59)
VOLAT_STOCK $_{t-20,t}^i$	-0.01 (-0.10)	0.10 (0.20)	-0.03 (-0.40)	-0.02 (-0.31)	-0.05 (-0.31)	-0.63 (-0.28)	0.06 (0.35)	0.07 (0.36)	-0.23 (-1.00)	-0.02 (-0.04)	-0.28 (-1.20)	-0.28 (-1.22)
TURN_STOCK $_{t-20,t}^i$	-3.22 (-2.12)	-2.37 (-1.51)	-1.49 (-0.94)	-2.02 (-1.22)	-2.50 (-0.37)	-2.36 (-0.36)	-4.69 (-0.58)	-6.00 (-0.76)	-1.88 (-0.74)	-1.20 (-0.46)	0.33 (0.13)	-0.31 (-0.11)
$\ln(\text{MCAP}_t^i)$	-1.86 (-2.32)	-1.72 (-2.23)	-2.68 (-3.41)	4.70 (0.67)	-27.76 (-2.86)	-26.77 (-2.74)	-32.51 (-3.24)	24.25 (1.13)	0.18 (0.17)	0.18 (0.17)	-0.85 (-0.81)	0.12 (0.02)
BM $_t^i$	2.44 (1.10)	2.47 (1.11)	2.84 (1.30)	2.79 (1.28)	-0.44 (-0.10)	-1.94 (-0.43)	-6.35 (-1.23)	-7.59 (-1.46)	4.43 (1.84)	4.44 (1.88)	4.30 (1.70)	4.20 (1.68)
LEVERAGE $_t^i$	0.53 (1.54)	0.50 (1.49)	0.60 (1.76)	0.64 (1.85)	1.73 (1.70)	1.28 (1.21)	1.68 (1.61)	1.27 (1.19)	-0.40 (-1.04)	-0.43 (-1.13)	-0.40 (-1.08)	-0.36 (-0.95)
IHOLDING $_t^i$	0.02 (0.36)	0.01 (0.20)	0.04 (0.57)	0.05 (0.67)	0.23 (1.03)	0.24 (1.17)	0.21 (0.92)	0.24 (1.18)	0.01 (0.11)	-0.00 (-0.01)	-0.01 (-0.17)	0.00 (0.02)
INTERCEPT	27.76 (1.89)	26.01 (1.82)	40.52 (2.88)	38.40 (2.79)	330.9 (2.80)	318.5 (2.67)	392.0 (3.18)	371.2 (2.97)	-2.49 (-0.12)	-1.50 (-0.07)	17.38 (0.87)	16.93 (0.85)
<i>Adj. R</i> ²	7.19%	7.33%	7.66%	7.87%	13.84%	14.86%	15.12%	15.79%	8.68%	8.85%	9.32%	9.51%

Table IA6 continued.

Panel B. Pre-Lehman Period

	All Stocks				Large Stocks				Small Stocks			
SHORT_FIRM _t ⁱ	-0.04 (-0.05)	-0.18 (-0.20)	-0.11 (-0.13)	-0.24 (-0.29)	-0.39 (-0.09)	-1.13 (-0.27)	-0.45 (-0.10)	-1.33 (-0.31)	-0.51 (-0.57)	-0.50 (-0.56)	-0.50 (-0.56)	-0.48 (-0.54)
SHORT_STOCK _t ⁱ			-0.29 (-0.66)	-0.26 (-0.60)			0.38 (0.38)	0.43 (0.46)			-1.25 (-2.50)	-1.22 (-2.43)
RET_STOCK _{t-20,t} ⁱ	-0.02 (-1.64)	-0.02 (-1.27)	-0.02 (-1.43)	-0.02 (-1.25)	-0.02 (-0.62)	0.02 (0.54)	-0.01 (-0.20)	0.01 (0.42)	-0.02 (-1.50)	-0.02 (-1.55)	-0.02 (-1.26)	-0.02 (-1.31)
RET_BOND _{t-20,t} ⁱ	0.01 (0.43)	0.01 (0.33)	0.01 (0.44)	0.01 (0.36)	-0.08 (-0.49)	-0.06 (-0.37)	-0.11 (-0.67)	-0.09 (-0.54)	0.04 (1.07)	0.04 (1.05)	0.04 (1.19)	0.04 (1.16)
OIB_STOCK _{t-20,t} ⁱ		-0.30 (-0.71)		-0.30 (-0.74)		-1.56 (-1.36)		-1.21 (-1.11)		0.73 (1.65)		0.66 (1.49)
VOLAT_STOCK _{t-20,t} ⁱ	0.01 (0.11)	-0.00 (-0.02)	-0.01 (-0.09)	-0.01 (-0.13)	-0.13 (-0.65)	-0.19 (-0.88)	-0.09 (-0.40)	-0.09 (-0.40)	-0.55 (-1.74)	-0.55 (-1.76)	-0.59 (-1.86)	-0.59 (-1.89)
TURN_STOCK _{t-20,t} ⁱ	-2.64 (-1.73)	-2.44 (-1.63)	-1.85 (-1.20)	-1.81 (-1.18)	0.74 (0.07)	1.63 (0.16)	-1.36 (-0.12)	-1.75 (-0.15)	3.22 (1.10)	3.43 (1.16)	4.68 (1.62)	4.80 (1.63)
ln(MCAP _t ⁱ)	-3.47 (-3.06)	-3.28 (-3.09)	-3.68 (-3.78)	-3.46 (-3.81)	-42.80 (-2.84)	-42.47 (-2.81)	-49.99 (-3.26)	-48.71 (-3.13)	-1.04 (-0.83)	-0.98 (-0.78)	-1.85 (-1.42)	-1.81 (-1.40)
BM _t ⁱ	4.27 (2.22)	4.07 (2.09)	4.25 (2.24)	4.09 (2.16)	4.82 (3.45)	1.35 (0.22)	-2.53 (-0.38)	-4.79 (-0.71)	1.44 (0.52)	1.49 (0.54)	0.58 (0.21)	0.57 (0.20)
LEVERAGE _t ⁱ	1.61 (3.99)	1.61 (4.04)	1.61 (4.10)	1.61 (4.11)	-39.24 (-0.09)	4.37 (2.84)	4.17 (2.87)	3.84 (2.49)	0.19 (0.38)	0.16 (0.33)	0.24 (0.49)	0.20 (0.41)
IHOLDING _t ⁱ	-0.07 (-0.91)	-0.07 (-0.92)	-0.07 (-0.89)	-0.07 (-0.86)	0.26 (0.90)	0.29 (1.02)	0.10 (0.33)	0.13 (0.44)	-0.06 (-0.87)	-0.06 (-0.85)	-0.07 (-0.95)	-0.06 (-0.88)
INTERCEPT	57.46 (2.90)	54.42 (2.87)	61.44 (3.52)	57.78 (3.45)	510.5 (2.73)	507.7 (2.73)	608.1 (3.22)	592.0 (3.11)	21.83 (0.84)	20.75 (0.80)	37.26 (1.40)	36.25 (1.37)
Adj. R ²	6.67%	6.91%	7.13%	7.37%	11.66%	12.62%	12.40%	12.92%	8.33%	8.33%	8.67%	8.71%

Table IA6 continued.

Panel C. Post-Lehman Period

	All Stocks				Large Stocks				Small Stocks			
SHORT_FIRM _t ⁱ	0.47 (1.37)	0.27 (0.65)	0.39 (1.14)	0.68 (1.81)	-0.01 (-0.01)	0.14 (0.12)	-0.35 (-0.27)	-0.21 (-0.17)	0.38 (1.44)	0.18 (0.52)	0.30 (1.13)	0.59 (1.83)
SHORT_STOCK _t ⁱ			-0.75 (-2.29)	-0.93 (-2.44)			-0.04 (-0.02)	0.12 (0.07)			-1.16 (-1.89)	-1.26 (-1.93)
RET_STOCK _{t-20,t} ⁱ	0.03 (1.72)	0.04 (1.98)	0.04 (1.91)	0.03 (1.73)	0.07 (1.76)	0.06 (1.60)	0.07 (1.76)	0.06 (1.63)	0.01 (0.41)	0.02 (0.56)	0.01 (0.49)	0.01 (0.31)
RET_BOND _{t-20,t} ⁱ	0.01 (0.30)	0.01 (0.30)	0.01 (0.40)	0.01 (0.42)	0.12 (0.97)	0.06 (0.49)	0.06 (0.51)	0.01 (0.11)	-0.07 (-1.52)	-0.08 (-1.72)	-0.05 (-1.18)	-0.06 (-1.38)
OIB_STOCK _{t-20,t} ⁱ		0.17 (0.64)		0.08 (0.29)		2.66 (2.35)		2.78 (2.60)		0.34 (0.80)		0.26 (0.60)
VOLAT_STOCK _{t-20,t} ⁱ	-0.04 (-0.29)	-0.05 (-0.34)	-0.08 (-0.51)	-0.06 (-0.36)	-0.06 (-0.18)	-0.00 (-0.01)	0.20 (0.58)	0.21 (0.58)	0.12 (0.31)	0.10 (0.26)	0.07 (0.17)	0.07 (0.17)
TURN_STOCK _{t-20,t} ⁱ	-4.60 (-1.48)	-2.67 (-0.80)	-1.95 (-0.62)	-3.38 (-1.00)	-8.09 (-0.83)	-7.39 (-0.81)	-12.29 (-0.99)	-13.43 (-1.13)	-4.62 (-1.06)	-3.09 (-0.70)	-1.88 (-0.44)	-3.69 (-0.81)
ln(MCAP _t ⁱ)	-1.41 (-1.36)	-1.28 (-1.23)	-2.31 (-1.88)	-2.31 (-1.86)	7.60 (0.73)	8.01 (0.73)	5.54 (0.48)	6.01 (0.51)	1.53 (1.06)	1.46 (1.05)	0.65 (0.46)	0.69 (0.49)
BM _t ⁱ	-5.31 (-1.28)	-4.95 (-1.19)	-4.59 (-1.12)	-4.51 (-1.11)	-6.54 (-0.89)	-6.33 (-0.86)	-12.64 (-1.40)	-13.04 (-1.39)	6.53 (1.58)	6.94 (1.72)	8.21 (1.75)	8.18 (1.79)
LEVERAGE _t ⁱ	-1.14 (-2.20)	-1.21 (-2.39)	-1.01 (-1.9)	-0.90 (-1.56)	-2.49 (-2.18)	-3.03 (-2.84)	-1.93 (-1.46)	-2.50 (-2.04)	-0.51 (-0.86)	-0.59 (-0.99)	-0.51 (-0.89)	-0.40 (-0.64)
IHOLDING _t ⁱ	0.11 (1.24)	0.09 (0.94)	0.12 (1.33)	0.13 (1.53)	-0.19 (-0.70)	-0.13 (-0.53)	-0.11 (-0.42)	-0.00 (-0.01)	0.10 (1.01)	0.09 (0.81)	0.07 (0.66)	0.09 (0.92)
INTERCEPT	22.83 (1.22)	21.83 (1.17)	37.57 (1.77)	36.63 (1.70)	-57.64 (-0.43)	-69.85 (-0.49)	-0.11 (-0.23)	-0.00 (-0.01)	-33.08 (-1.06)	-29.67 (-0.97)	-14.61 (-0.50)	-15.29 (-0.52)
Adj. R ²	6.34%	6.49%	6.77%	6.96%	16.09%	17.25%	18.44%	19.37%	7.81%	8.30%	8.50%	8.99%

Table IA6 continued.

Panel D. Lehman Period

	All Stocks				Large Stocks				Small Stocks			
SHORT_FIRM _t ⁱ	0.89 (0.51)	0.99 (0.59)	1.69 (1.11)	1.75 (1.18)	-1.77 (-0.52)	-0.96 (-0.28)	-0.94 (-0.29)	-0.27 (-0.08)	1.67 (0.68)	1.83 (0.76)	2.63 (1.25)	2.81 (1.36)
SHORT_STOCK _t ⁱ			-3.68 (-1.68)	-3.20 (-1.64)			-2.68 (-1.03)	-2.26 (-0.93)			-3.32 (-0.99)	-3.33 (-0.99)
RET_STOCK _{t-20,t} ⁱ	0.04 (0.71)	0.04 (0.71)	0.04 (0.86)	0.04 (0.85)	-0.01 (-0.10)	-0.01 (-0.15)	-0.00 (-0.03)	-0.01 (-0.14)	0.07 (0.90)	0.07 (0.92)	0.07 (1.02)	0.07 (1.05)
RET_BOND _{t-20,t} ⁱ	-0.13 (-1.53)	-0.13 (-1.51)	-0.15 (-1.65)	-0.15 (-1.63)	-0.12 (-0.37)	-0.17 (-0.56)	-0.11 (-0.33)	-0.15 (-0.47)	-0.01 (-0.18)	-0.01 (-0.18)	0.00 (0.05)	0.01 (0.06)
OIB_STOCK _{t-20,t} ⁱ		-0.03 (-0.03)		-0.06 (-0.05)		0.38 (0.11)		1.27 (0.36)		0.41 (0.32)		0.60 (0.48)
VOLAT_STOCK _{t-20,t} ⁱ	0.06 (0.48)	0.06 (0.47)	0.05 (0.39)	0.05 (0.37)	0.43 (1.88)	0.46 (1.96)	0.38 (1.66)	0.41 (1.77)	0.13 (0.96)	0.14 (1.02)	0.07 (0.40)	0.07 (0.45)
TURN_STOCK _{t-20,t} ⁱ	-1.08 (-0.22)	-1.06 (-0.21)	2.09 (0.32)	2.03 (0.31)	2.18 (0.10)	-4.03 (-0.19)	8.02 (0.36)	0.98 (0.05)	-20.32 (-3.03)	-20.44 (-2.96)	-16.06 (-1.60)	-16.20 (-1.58)
ln(MCAP _t ⁱ)	5.67 (2.87)	5.56 (2.86)	1.70 (0.52)	1.63 (0.52)	-88.41 (-7.19)	-81.29 (-6.50)	-90.20 (-7.44)	-83.40 (-6.44)	1.63 (0.26)	1.57 (0.25)	-1.26 (-0.20)	-1.39 (-0.22)
BM _t ⁱ	24.27 (4.82)	24.18 (4.78)	25.72 (5.81)	25.73 (5.83)	-3.64 (-0.26)	-3.01 (-0.23)	-2.48 (-0.18)	-1.36 (-0.11)	11.09 (1.14)	10.29 (1.00)	8.50 (0.95)	7.74 (0.81)
LEVERAGE _t ⁱ	1.31 (1.79)	1.38 (1.90)	1.52 (1.88)	1.58 (1.96)	1.78 (0.48)	1.63 (0.46)	2.61 (0.73)	2.36 (0.69)	-3.26 (-2.61)	-3.10 (-2.46)	-3.53 (-3.57)	-3.36 (-3.37)
IHOLDING _t ⁱ	0.19 (0.48)	0.18 (0.45)	1.52 (1.88)	1.58 (1.96)	1.83 (1.88)	1.61 (1.82)	2.22 (2.18)	1.97 (2.16)	-0.02 (-0.08)	-0.04 (-0.14)	-0.02 (-0.06)	-0.03 (-0.11)
INTERCEPT	-125.5 (-2.83)	-123.0 (-2.84)	-71.91 (-1.28)	-70.17 (-1.30)	912.0 (6.28)	845.0 (5.42)	920.1 (6.34)	855.1 (5.25)	-14.44 (-0.15)	-12.00 (-0.12)	35.14 (0.39)	38.28 (0.43)
<i>Adj. R</i> ²	13.33%	13.41%	14.60%	14.67%	17.27%	18.10%	17.19%	17.60%	14.53%	14.30%	16.70%	16.47%

Table IA7
Explaining Bond Short Interest: Cross-Sectional Regressions

This table presents Fama-MacBeth regression of 5-day bond short interest. Each day we estimate the following cross-sectional regression:

$$\begin{aligned} \text{SHORT_BOND}_{t+2,t+6}^i = & \alpha_{1t} \text{RET_BOND}_{t-5,t}^{\text{high}} + \alpha_{2t} \text{RET_BOND}_{t-5,t}^{\text{low}} + \alpha_{3t} \text{OIB_BOND}_{t-5,t}^i + \alpha_{4t} \text{VOLAT_BOND}_{t-5,t}^i + \alpha_{5t} \text{TURN_BOND}_{t-5,t}^i \\ & + \alpha_{6t} \ln(\text{PAR_DEBT}_t^i) + \alpha_{7t} \text{SHORT_BOND}_{t-5,t}^i + \alpha_{8t} \text{SHORT_FIRM}_{t-5,t}^i + \alpha_{9t} \text{RET_BOND}_{t+1,t+5}^i \\ & + \alpha_{10t} \text{OIB_BOND}_{t+1,t+5}^i + \alpha_{11t} \text{VOLAT_BOND}_{t+1,t+5}^i + u_t^i. \end{aligned}$$

We average then each coefficient over time-series dimension. The sample consists of all corporate bonds in the Markit securities lending database for which corresponding data is available in the FIRD and TRACE databases and the issuer's stock from Jan. 1, 2006 to Dec. 30, 2011. Bonds with Moody's credit rating of "Baa-3" and higher five days prior to the sorting are categorized as Investment-Grade Bonds; others are categorized as High-Yield Bonds. Pre-Lehman period (Panel B) consists of all trading days from Jan. 1, 2006 to May 31, 2008, the post-Lehman period (Panel C) is from Jan. 1, 2009 to Dec. 30, 2011 and the Lehman period (Panel D) is from Jun. 1, 2008 to Dec. 30, 2008. Dependent variable $\text{SHORT_BOND}_{t+2,t+6}^i$ is a simple average of bond short interest over the future 5 days defined a ratio of the daily number of bonds on loan (shorted) for bond issue i on day t to the number of bonds outstanding (expressed in percent). To define $\text{RET_BOND}_{t-5,t}^{\text{high}}$ and $\text{RET_BOND}_{t-5,t}^{\text{low}}$ variables, we sort bonds on day t into terciles based on $\text{RET_BOND}_{t-5,t}^i$, where $\text{RET_BOND}_{t-5,t}^i$ is a simple average of abnormal returns on bond i over the past 5 days (in percent). $\text{RET_BOND}_{t-5,t}^{\text{high}} = 1$ if the bond abnormal return over the past 5 trading days falls into the highest tercile and $\text{RET_BOND}_{t-5,t}^{\text{high}} = 0$ otherwise. Similarly, $\text{RET_BOND}_{t-5,t}^{\text{low}} = 1$ if the bond abnormal return over the past 5 trading days falls into the lowest tercile and $\text{RET_BOND}_{t-5,t}^{\text{low}} = 0$ otherwise; $\text{SHORT_FIRM}_{t-5,t}^i$ is simple average over the past 5 days of an average value-weighted ratio of the daily number of bonds on loan (shorted) for bond issue i on day t to the number of bonds outstanding for all bonds issued by the firm except bond i (in percent); $\text{OIB_BOND}_{t-5,t}^i$ is a simple average over past and future 5 days of a trade imbalance of bond i defined as daily difference between buy and sell trading volumes scaled by the total trading volume of the bond (in percent); $\text{VOLAT_BOND}_{t-5,t}^i$ is defined as a sum of absolute daily returns on bond i over the past and future 5 days respectively (daily and expressed in percent); $\text{TURN_BOND}_{t-5,t}^i$ is total daily number of bonds of issue i traded scaled by the total number of bonds outstanding (in percent); $\ln(\text{PAR_DEBT}_t^i)$ is the log value of total amount of bonds outstanding for bond issue i (in USD dollars). The t -statistics are reported in parentheses are based on the time series of coefficient estimates from the cross-sectional regressions using Newey-West with 20 lags.

Panel A. Full Sample

	All Bonds	IG Bonds	HY Bonds
$\text{RET_BOND}_{t-5,t}^{\text{high}}$	0.025 (5.92)	0.026 (6.16)	0.013 (1.61)
$\text{RET_BOND}_{t-5,t}^{\text{low}}$	0.025 (5.47)	0.014 (2.97)	0.023 (3.13)
$\text{OIB_BOND}_{t-5,t}^i$	0.323 (43.0)	0.29 (35.3)	0.453 (39.73)
$\text{VOLAT_BOND}_{t-5,t}^i$	-1.107 (-2.05)	0.31 (0.54)	-2.998 (-3.14)
$\text{TURN_BOND}_{t-5,t}^i$	4.312 (6.41)	4.063 (6.20)	6.486 (4.17)
$\ln(\text{PAR_DEBT}_t^i)$	1.114 (3.96)	1.595 (4.72)	1.410 (2.87)
$\text{RET_BOND}_{t+1,t+5}^i$	0.139 (0.30)	1.944 (3.77)	7.669 (0.98)
$\text{OIB_BOND}_{t+1,t+5}^i$	0.001 (0.43)	-0.007 (-3.51)	0.027 (6.8)
$\text{VOLAT_BOND}_{t+1,t+5}^i$	0.923 (3.12)	0.515 (1.68)	1.669 (3.53)
$\text{SHORT_BOND}_{t-5,t}^i$	0.960 (227.5)	0.957 (195.6)	0.963 (229.8)
$\text{SHORT_FIRM}_{t-5,t}^i$	0.011 (7.13)	0.009 (4.73)	0.009 (3.42)
<i>Adj. R</i> ²	91.87%	91.04%	93.15%

Table IA7 continued.

Panel B. Pre-Lehman Period

	All Bonds	IG Bonds	HY Bonds
RET_BOND _{t-5,t} ^{high}	0.013 (1.77)	0.014 (2.01)	-0.007 (-0.45)
RET_BOND _{t-5,t} ^{low}	0.039 (4.72)	0.027 (3.06)	0.036 (2.76)
OIB_BOND _{t-5,t} ⁱ	0.302 (28.7)	0.253 (21.36)	0.47 (27.3)
VOLAT_BOND _{t-5,t} ⁱ	-2.076 (-1.72)	0.435 (0.35)	-5.268 (-2.47)
TURN_BOND _{t-5,t} ⁱ	5.715 (7.27)	5.043 (7.08)	9.535 (3.90)
ln(PAR_DEBT _t ⁱ)	0.360 (0.71)	0.819 (1.43)	0.768 (0.80)
RET_BOND _{t+1,t+5} ⁱ	-0.912 (-0.90)	1.316 (1.18)	17.50 (0.94)
OIB_BOND _{t+1,t+5} ⁱ	0.004 (1.2)	-0.009 (-2.21)	0.042 (6.26)
VOLAT_BOND _{t+1,t+5} ⁱ	1.702 (2.65)	0.844 (1.24)	3.010 (3.04)
SHORT_BOND _{t-5,t} ⁱ	0.979 (203.0)	0.979 (185.0)	0.976 (175.4)
SHORT_FIRM _{t-5,t} ⁱ	0.006 (3.89)	0.006 (2.77)	0.006 (2.92)
Adj. R ²	93.37%	93.33%	93.47%

Panel C. Post-Lehman Period

	All Bonds	IG Bonds	HY Bonds
RET_BOND _{t-5,t} ^{high}	0.032 (7.82)	0.035 (8.21)	0.028 (3.57)
RET_BOND _{t-5,t} ^{low}	0.011 (3.39)	0.002 (0.63)	0.018 (2.34)
OIB_BOND _{t-5,t} ⁱ	0.354 (41.62)	0.329 (37.5)	0.455 (30.4)
VOLAT_BOND _{t-5,t} ⁱ	-0.160 (-0.60)	0.402 (0.87)	-0.895 (-2.60)
TURN_BOND _{t-5,t} ⁱ	3.610 (3.28)	3.782 (3.44)	5.735 (2.74)
ln(PAR_DEBT _t ⁱ)	1.369 (4.87)	1.621 (4.86)	2.172 (5.01)
RET_BOND _{t+1,t+5} ⁱ	0.936 (3.21)	2.657 (7.21)	0.425 (1.04)
OIB_BOND _{t+1,t+5} ⁱ	0.354 (41.62)	0.329 (37.5)	0.455 (30.4)
VOLAT_BOND _{t+1,t+5} ⁱ	0.405 (2.33)	0.291 (1.46)	0.884 (2.55)
SHORT_BOND _{t-5,t} ⁱ	0.953 (229.0)	0.950 (200.0)	0.957 (193.3)
SHORT_FIRM _{t-5,t} ⁱ	0.015 (6.14)	0.015 (5.76)	0.010 (2.29)
Adj. R ²	90.96%	89.84%	92.74%

Panel D. Lehman Period

	All Bonds	IG Bonds	HY Bonds
RET_BOND _{t-5,t} ^{high}	0.044 (2.21)	0.036 (1.58)	0.019 (1.12)
RET_BOND _{t-5,t} ^{low}	0.034 (1.55)	0.019 (0.87)	-0.014 (-0.49)
OIB_BOND _{t-5,t} ⁱ	0.254 (12.09)	0.247 (14.5)	0.357 (10.1)
VOLAT_BOND _{t-5,t} ⁱ	-1.776 (-3.14)	-0.831 (-2.22)	-3.909 (-3.04)
TURN_BOND _{t-5,t} ⁱ	1.439 (0.83)	0.847 (0.44)	-4.206 (-1.29)
ln(PAR_DEBT _t ⁱ)	3.364 (4.77)	5.261 (4.76)	0.185 (0.11)
RET_BOND _{t+1,t+5} ⁱ	0.730 (1.63)	0.954 (1.36)	0.906 (2.76)
OIB_BOND _{t+1,t+5} ⁱ	-0.007 (-0.82)	-0.015 (-1.94)	0.034 (2.50)
VOLAT_BOND _{t+1,t+5} ⁱ	0.065 (0.20)	0.179 (0.36)	-0.424 (-0.97)
SHORT_BOND _{t-5,t} ⁱ	0.908 (40.7)	0.890 (34.4)	0.933 (43.1)
SHORT_FIRM _{t-5,t} ⁱ	0.010 (2.13)	-0.008 (-0.81)	0.011 (1.22)
Adj. R ²	89.76%	86.72%	93.96%