

Market Transparency Report

Monthly Guide to the U.S. Retail Fixed Income Markets

July 2019

www.tradeweb.com

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Overview

About the Market Transparency Report

The data and analysis contained in this monthly report are intended to provide transparency into the dynamics of the U.S. Fixed Income markets for retail investors. The report presents the important trends in the market, including trade volumes, most active issuers, yield/spread movements and buy/sell ratios. Retail trades are defined as odd-lot transactions under 100 bonds (i.e. less than \$100,000 par value). The retail market is much smaller than the institutional market on a par value basis, but it accounts for more than 2/3 of the trades that occur in the marketplace.

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Market Commentary

Monthly Change Table for July 2019

	Median Yield (bps)	Daily Trade Volume	Buy/Sell Ratio
Agency	-7	10.3%	-0.1
CD	-30	-8.1%	-0.8
Corp	-12	1.9%	0.1
Municipal	-8	-13.6%	0.0
Treasury	-5	3.7%	0.9

For monthly security trend data, see slides 5, 6 and 7

Yield Matrix

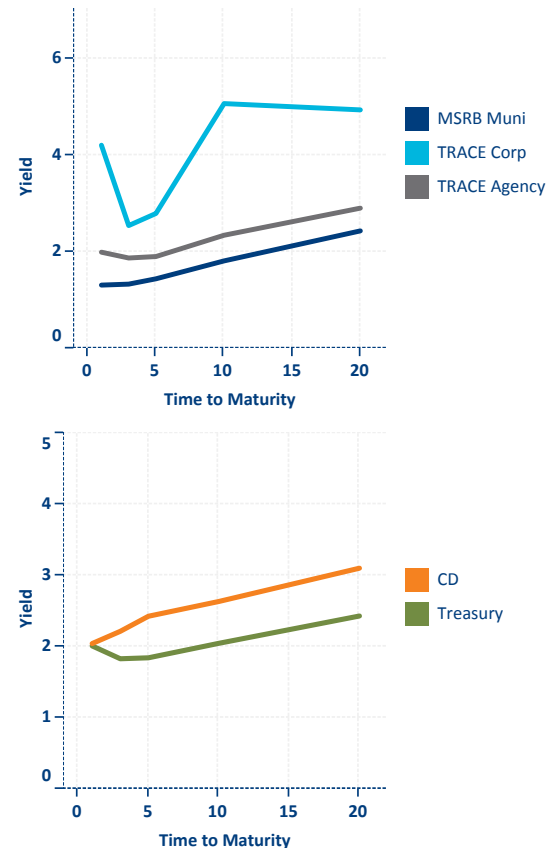
Average Yield, % for July 2019

Market	TTM					Median Maturity (Years)
	1	3	5	10	20	
MSRB Muni	1.3	1.3	1.4	1.8	2.4	11
TRACE Corp	4.2	2.5	2.8	5.1	4.9	3
TRACE Agency	2.0	1.9	1.9	2.3	2.9	3
CD	2.0	2.2	2.4	2.8	3.1	1
Treasury	2.0	1.8	1.8	2.0	2.4	0

Asset Class

Market	Category (Filtered)	Rating Key	TTM					Median Maturity (Years)
			1	3	5	10	20	
TRACE Corp	Financial	AA	2.2	2.1	2.8			2
		A	2.2	2.3	2.5	2.9	3.8	3
		BBB	2.7	2.9	3.1	3.6	4.6	4
		HY	2.5	3.3	3.2	7.3	6.3	5
		AAA	1.9		2.0	2.4	3.2	2
	Non-Financial	AA	2.0	2.2	2.2	2.7	3.2	1
		A	2.2	2.3	2.6	3.0	4.0	3
		BBB	2.5	2.7	3.2	4.4	5.5	9
		HY	15.0	4.7	8.2	8.5	22.8	1
MSRB Muni	GO	AAA	1.2	1.2	1.3	1.6	2.2	8
		AA	1.3	1.3	1.4	1.8	2.4	10
		A	1.4	1.5	1.6	2.0	2.4	8
		BBB	2.2	2.2	2.3	2.7	3.1	10
		HY	2.5	4.7	3.7	3.5		12
	Revenue	AAA	1.3	1.2	1.3	1.7	2.3	8
		AA	1.3	1.3	1.3	1.7	2.2	11
		A	1.4	1.4	1.5	1.8	2.4	13
		BBB	1.7	1.9	2.1	2.4	2.8	16
		HY	4.5	3.7	5.2	4.6	4.7	12

Average Yield, %



WA Yield = "Weighted Average Yield"

Source: TRACE, RTRS (MSRB's Real-time Transactional Reporting System) and Tradeweb Direct

-The yields in each cell for Corporate/Agency/Municipal are the weighted average yield based on odd-lot customer buy transactions reported in TRACE/MSRB.

-The yields in each cell for Treasury/CD are the weighted average yield based on buy transactions on the Tradeweb Direct Platform.

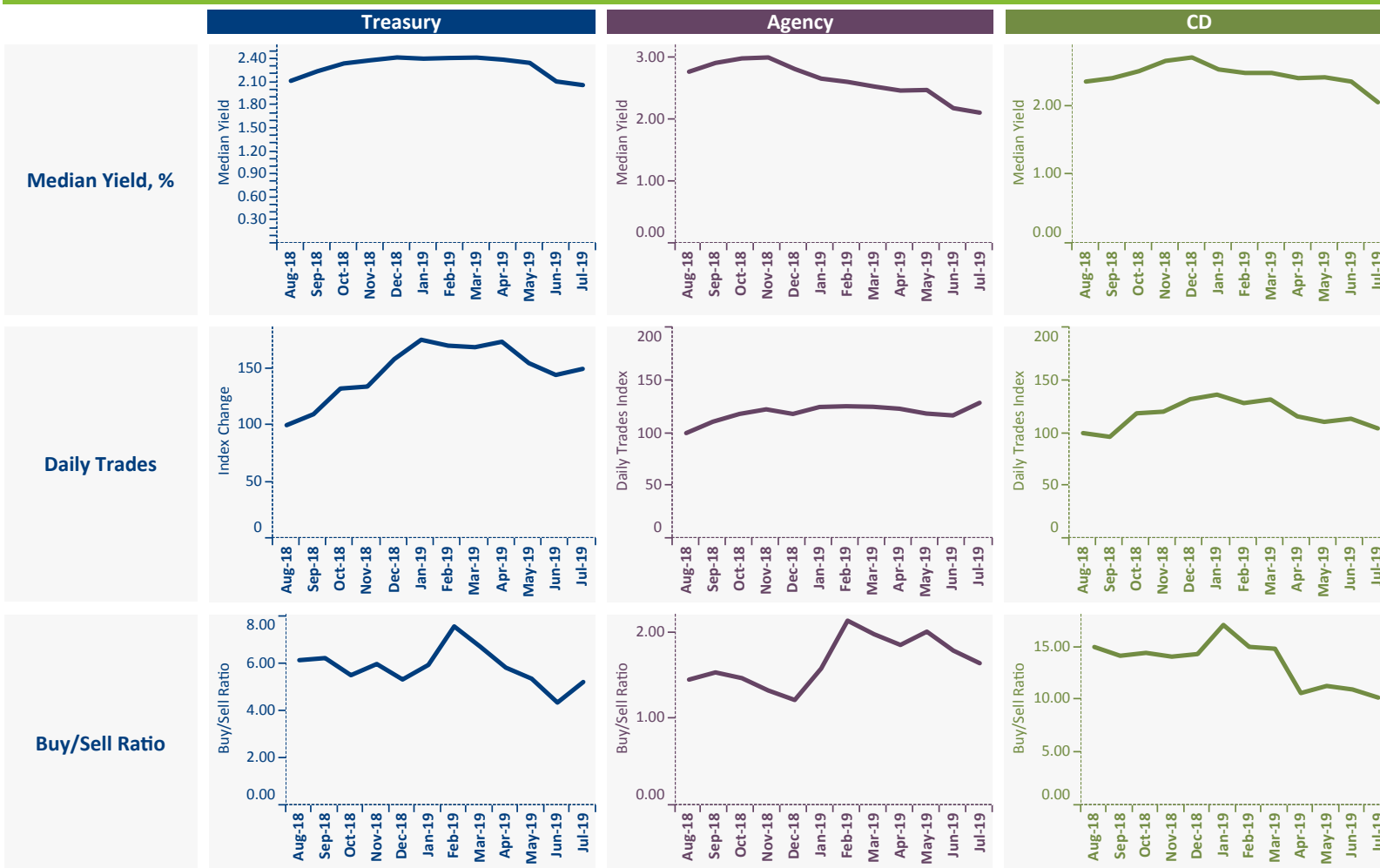
-The weights are based on transaction size.

-Yield summaries for Corporate and Agency exclude transactions in callable or floating-rate coupon bonds.

-Yield summaries for Municipal exclude transactions in taxable bonds.

-See appendix for the definition of maturity and rating buckets.

Treasury, Agency, CD Transaction Trend Summary



Daily Trades: First month = 100

Source: TRACE and Tradeweb Direct

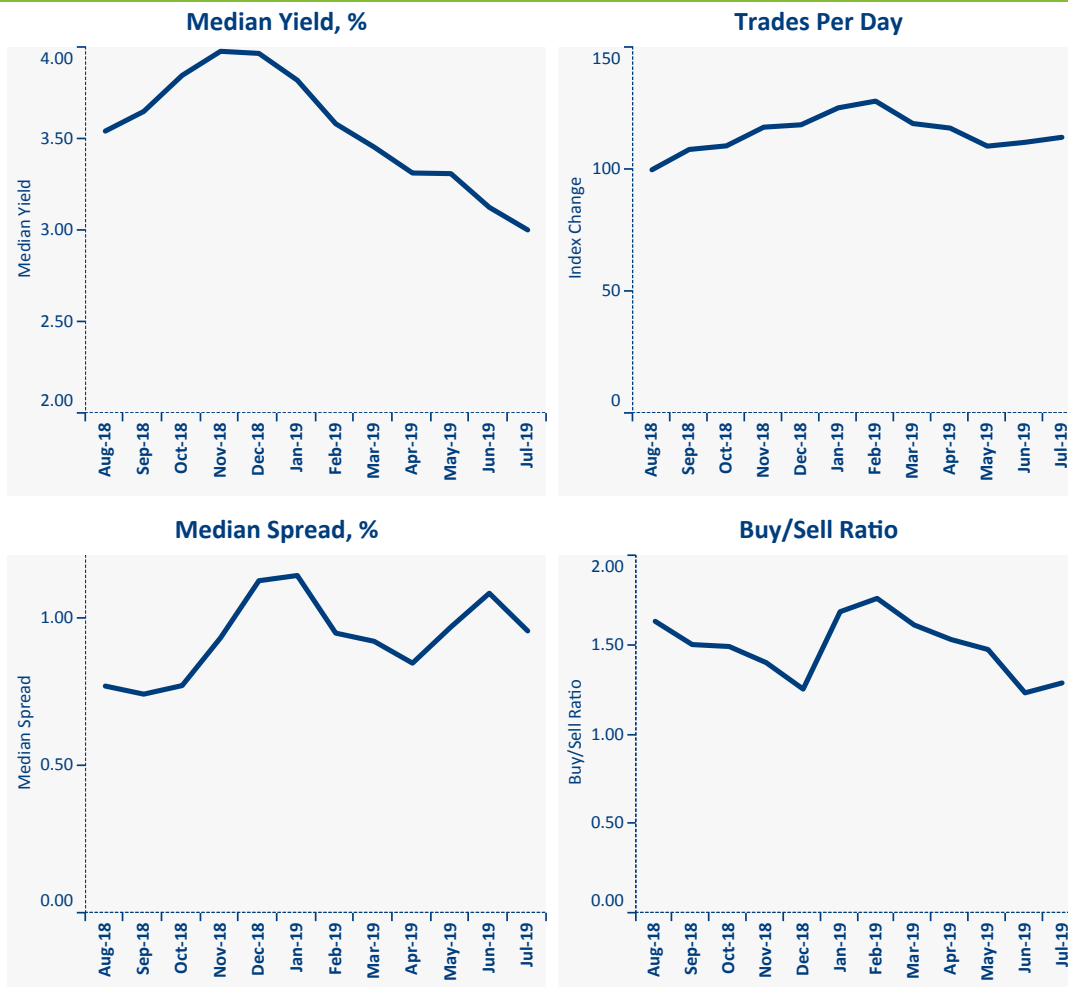
-Treasury and CD are based on transactions on the Tradeweb Direct Platform. Median yields are based on all customer buy transactions.

-Agency is based on odd-lot customer transactions (<100M) reported in TRACE. Median yields are based on all odd-lot customer buy transactions.

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Corporate Bonds: Odd-Lot Customer Transaction Trend Summary



Daily Trades: First month = 100

Source: TRACE and Tradeweb Direct

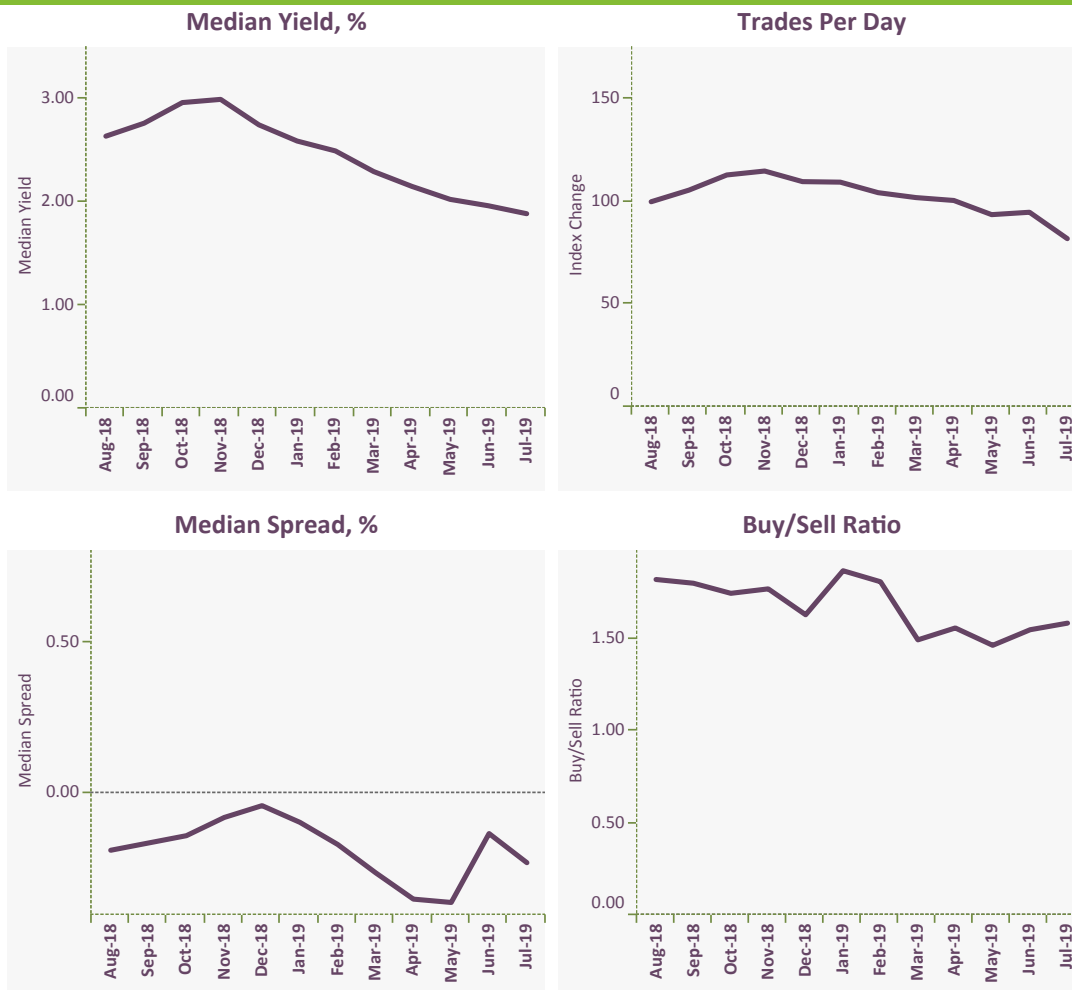
-Based on odd-lot customer transactions (<100M) reported in TRACE.

-Median yields and spreads are based on all odd-lot customer buy transactions...

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Municipal Bonds: Odd-Lot Customer Transaction Trend Summary



Daily Trades: First month = 100

Source: RTRS (MSRB's Real-time Transaction Reporting System) and Tradeweb Direct

-Based on odd-lot customer transactions (<100M) reported in MSRB.

-Median yields and spreads are based on all odd-lot customer buy transactions.

-Spread for each transaction is calculated against the Treasury yield for the same maturity.

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Corporate Bonds: Top 20 Most Active Issuers

July 2019

Index	Ticker	Company	Rating Key (Med)	Issues Traded	% of Total Trades	Trades	Buy/Sell Ratio	Dollar Vol. Traded (MM)	1Y Yield (Buy)	3Y Yield (Buy)	5Y Yield (Buy)	10Y Yield (Buy)	20Y Yield (Buy)
1	GS	GOLDMAN SACHS	BBB	1,006	3.4%	17,722	1.1	344	2.3	2.5	2.9	3.3	4.3
2	JPM	JP MORGAN CHASE	BBB	577	3.0%	15,905	1.1	333	2.3	2.4	2.6	3.1	3.5
3	BAC	BANK OF AMERICA	A	422	2.4%	12,316	1.2	261	2.2	2.3	2.9	3.0	3.9
4	C	CITIGROUP	BBB	443	2.2%	11,537	1.0	242	2.3	2.4	2.8	3.3	3.5
5	GE	GENERAL ELEC CAP CORP MEDIUM TERM NTS BO	BBB	323	2.1%	11,199	1.4	220	2.4	2.8	3.1	3.9	4.6
6	T	AT&T	BBB	116	1.8%	9,279	0.8	184	2.4	2.4	2.8	3.2	4.3
7	MS	MORGAN STANLEY	BBB	809	1.6%	8,253	0.9	183	2.2	2.5	2.6	3.1	3.8
8	GM	GENERAL MOTORS FINANCIAL COMPANY INC	BBB	102	1.6%	8,222	3.2	200	2.5	2.9	3.4	4.0	5.1
9	WFC	WELLS FARGO	A	210	1.6%	8,208	1.2	181	2.3	2.4	2.6	3.1	3.9
10	BRK	BERKSHIRE HATHAWAY	A	156	1.3%	6,767	1.1	136	2.5	2.2	2.4	3.1	3.7
11	AAPL	APPLE INC	AA	50	1.2%	6,528	1.0	130	2.0	2.1	2.2	2.6	3.4
12	VZ	VERIZON	BBB	141	1.1%	5,936	0.7	109		2.3	2.4	3.0	3.6
13	F	FORD	BBB	247	1.1%	5,734	2.4	133	2.6	2.8	3.1	5.1	5.7
14	CVS	CVS CAREMARK CORP	BBB	40	1.0%	5,272	2.0	118	2.4	2.6	3.0	3.5	4.4
15	CMCS	COMCAST	A	63	1.0%	5,232	0.8	95	2.2	2.2	2.4	2.8	3.5
16	PEMX	PETROLEOS MEXICANOS	BBB	41	0.9%	4,801	2.1	147	3.2	4.8	5.2	6.8	7.4
17	AXP	AMERICAN EXPRESS	BBB	40	0.9%	4,717	0.9	90	2.2	2.3	2.5	2.6	3.8
18	MSFT	MICROSOFT CORP	AAA	38	0.9%	4,655	0.8	89	2.0	2.0	2.1	2.4	3.0
19	ORCL	ORACLE CORP	A	29	0.8%	4,360	0.8	75	2.0	2.2	2.3	2.6	3.3
20	MET	METLIFE	BBB	21	0.7%	3,847	2.1	79		2.3	2.3	4.2	3.4

Source: TRACE and Tradeweb Direct

-Based on odd-lot customer transactions (<100M) reported in TRACE.

-Issuer ratings are based on median rating of traded bonds from each issuer. Bond ratings are from Moody's and S&P.

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Corporate Bonds: Top 20 Issuers with Highest Buy/Sell Ratio

July 2019

Index	Ticker	Company	Rating Key (Med)	Issues Traded	% of Total Trades	Trades	Trades (Buy)	Trades (Sell)	Buy/Sell Ratio	Dollar Vol. Traded (MM)	1Y Yield (Buy)	3Y Yield (Buy)	5Y Yield (Buy)	10Y Yield (Buy)	20Y Yield (Buy)
1	FET	Forum Energy Technologies, Inc.	B	1	0.3%	1,313	1,249	64	19.5	13		10.7			
2	BZH	BEAZER HOMES USA INC	B	4	0.3%	1,631	1,518	113	13.4	16		7.0	6.9	7.2	
3	BRCM	BROADCOM CORP	BBB	8	0.4%	1,920	1,666	254	6.6	37	2.5	3.0	3.4	4.4	
4	AR	Null	BB	3	0.3%	1,345	1,151	194	5.9	29		6.8	6.5		
5	X	UNITED STS STL CORP NEW	B	3	0.4%	2,132	1,808	324	5.6	40					8.2
6	FDX	FEDEX CORP	BBB	24	0.3%	1,310	1,072	238	4.5	27	2.2	2.4	2.5	3.0	4.2
7	MYL	MYLAN INC	BBB	9	0.5%	2,415	1,876	539	3.5	54	2.7		3.8	4.7	5.8
8	BPL	BUCKEYE PARTNERS	BBB	9	0.4%	2,046	1,576	470	3.4	45		4.4	5.0	5.7	6.8
9	JCP	JC PENNEY	C	9	0.5%	2,713	2,081	632	3.3	25	15.4		30.2		27.6
10	GM	GENERAL MOTORS FINANCIAL COMPANY INC	BBB	102	1.6%	8,222	6,254	1,968	3.2	200	2.5	2.9	3.4	4.0	5.1
11	BBBY	BED BATH & BEYOND INC	BBB	3	0.3%	1,691	1,256	435	2.9	22			5.2		8.1
12	APC	ANADARKO PETE CORP	A	45	0.3%	1,524	1,120	404	2.8	34		2.5	2.9	3.1	4.6
13	PSEC	PROSPECT CAP CORP INTERNOTES BOOK ENTRY	BBB	165	0.3%	1,425	1,022	403	2.5	25	2.9	3.9	5.0	5.1	6.2
14	F	FORD	BBB	247	1.1%	5,734	4,058	1,676	2.4	133	2.6	2.8	3.1	5.1	5.7
15	WAG	WALGREEN CO	BBB	9	0.3%	1,387	979	408	2.4	31		2.4	2.9		4.5
16	CBL	CBL & ASSOCS LTD PARTNERSHIP	BB	3	0.4%	2,092	1,447	645	2.2	19			13.4		
17	PEMX	PETROLEOS MEXICANOS	BBB	41	0.9%	4,801	3,245	1,556	2.1	147	3.2	4.8	5.2	6.8	7.4
18	MET	METLIFE	BBB	21	0.7%	3,847	2,598	1,249	2.1	79		2.3	2.3	4.2	3.4
19	GT	GOODYEAR TIRE & RUBBER	BB	5	0.3%	1,467	988	479	2.1	38	2.9		3.4	5.5	
20	UNH	UNITEDHEALTH	A	47	0.4%	1,919	1,290	629	2.1	50	2.2	2.2	2.5	2.7	3.5

Source: TRACE and Tradeweb Direct

-Based on odd-lot customer transactions (<100M) reported in TRACE.

-The top 20 issuers are selected among the top 100 most active issuers in odd-lot TRACE.

-Issuer ratings are based on median rating of traded bonds from each issuer. Bond ratings are from Moody's and S&P.

Corporate Bonds: Top 20 Issuers with Lowest Buy/Sell Ratio

July 2019

Index	Ticker	Company	Rating Key (Med)	Issues Traded	% of Total Trades	Trades	Trades (Buy)	Trades (Sell)	Buy/Sell Ratio	Dollar Vol. Traded (MM)	1Y Yield (Sell)	3Y Yield (Sell)	5Y Yield (Sell)	10Y Yield (Sell)	20Y Yield (Sell)
1	ETN	EATON CORP	BBB	8	0.3%	1,488	150	1,338	0.11	8	2.7	2.4	3.1	2.9	
2	MMC	MARSH & MCLENNAN COS INC	BBB	17	0.3%	1,455	340	1,115	0.30	17	2.5	2.4	2.6	3.0	3.6
3	TMO	THERMO FISHER SCIENTIFIC INC	BBB	14	0.3%	1,315	351	964	0.36	16	2.7	2.4	2.4	2.9	3.8
4	AMZN	AMAZON COM INC	A	15	0.5%	2,695	787	1,908	0.41	43	2.2	1.9	2.3	2.5	3.1
5	V	VIVENDI	AA	8	0.4%	1,928	608	1,320	0.46	28	2.1	2.1		2.5	3.0
6	NRX	NATIONAL RURAL UTILS COOP FIN CORP	A	212	0.3%	1,818	620	1,198	0.52	22	2.6	2.8	2.9	3.2	
7	EDP	ENTERPRISE PRODS OPER LLC	BBB	36	0.5%	2,509	880	1,629	0.54	37	2.5	2.5	2.6	3.1	4.2
8	FTR	FRONTIER COMMUNICATIONS CORP	C	24	0.3%	1,636	582	1,054	0.55	21	49.8	30.1	23.7	18.1	15.8
9	PTRB	PETROBRAS	BB	20	0.6%	2,975	1,076	1,899	0.57	116	2.8	3.4	3.8	4.9	5.9
10	MAR	MARRIOTT INTL INC NEW	BBB	24	0.3%	1,741	653	1,088	0.60	20	2.5	2.6	2.7	3.3	4.1
11	USB	U S BANCORP MEDIUM TERM NTS- BOOK ENTRY	BBB	30	0.6%	3,033	1,272	1,761	0.72	44	2.2	2.3	2.5	2.6	
12	BP	BP	A	47	0.6%	3,366	1,415	1,951	0.73	56	2.4	2.3	2.5	2.8	
13	VZ	VERIZON	BBB	141	1.1%	5,936	2,522	3,414	0.74	109		2.8	2.4	3.5	3.7
14	BMO	BANK MONTREAL MEDIUM TERM SR NTS BOOK EN	AA	58	0.3%	1,532	660	872	0.76	28	2.3	2.3	2.5		
15	ORCL	ORACLE CORP	A	29	0.8%	4,360	1,877	2,483	0.76	75	2.2	2.2	2.4	2.7	3.3
16	CI	CIGNA CORP	BBB	29	0.4%	2,325	1,012	1,313	0.77	31	2.6	2.6	2.9	3.2	4.7
17	VIA	VIACOM INC NEW	BBB	38	0.4%	1,945	854	1,091	0.78	40		3.0	2.9	3.4	4.6
18	BCS	BARCLAYS	N/R	525	0.4%	2,087	921	1,166	0.79	43	3.1	3.5	3.4	3.5	4.1
19	CMCS	COMCAST	A	63	1.0%	5,232	2,339	2,893	0.81	95	2.4	2.2	2.4	2.8	3.6
20	MSFT	MICROSOFT CORP	AAA	38	0.9%	4,655	2,107	2,548	0.83	89	2.1	2.1	2.1	2.4	3.1

Source: TRACE and Tradeweb Direct

-Based on odd-lot customer transactions (<100M) reported in TRACE.

-The top 20 issuers are selected among top 100 most active issuers in odd-lot TRACE.

-Issuer ratings are based on median rating of traded bonds from each user. Bond ratings are from Moody's and S&P.

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Corporate Bonds: Top 20 Most Bought Issues

July 2019

Index	Ticker	Company	Maturity	Rating Key (Med)	Coupon	Trades (Buy)	Trades (Sell)	Trades	Dollar Vol. Traded (MM)	Yield (Buy)	Yield (Sell)	Price (Buy)	Price (Sell)
1	JCP	JC PENNEY	Jun-20	C	5.650	1,911	509	2,420	22	15.4	14.3	92.5	93.3
2	GE	GENERAL ELEC CAP CORP MEDIUM TERM NTS BO	Null	BBB	5.000	1,865	785	2,650	50	5.2	5.2	97.1	95.8
3	BZH	BEAZER HOMES USA INC	Oct-27	B	5.875	1,456	81	1,537	15	7.2	7.3	91.8	91.2
4	CBL	CBL & ASSOCS LTD PARTNERSHIP	Dec-26	BB	5.950	1,329	512	1,841	16	11.8	11.9	71.5	71.2
5	FET	Forum Energy Technologies, Inc.	Oct-21	B	6.250	1,249	64	1,313	13	10.7	11.5	91.4	90.0
6	MET	METLIFE	Jun-27	BBB	3.700	1,062	68	1,130	25	4.2	4.4	96.5	95.5
7	X	UNITED STS STL CORP NEW	Mar-26	B	6.250	1,061	137	1,198	18	8.1	8.2	90.5	90.1
8	GS	GOLDMAN SACHS	May-25	BBB	3.750	938	940	1,878	17	2.9	2.9	104.4	104.2
9	BBBY	BED BATH & BEYOND INC	Aug-34	BBB	4.915	911	206	1,117	11	8.1	8.1	72.9	72.5
10	GM	GENERAL MOTORS FINANCIAL COMPANY INC	Sep-49	BB	6.500	884	74	958	28	6.6	6.8	98.6	96.2
11	AOI	ALLIANCE ONE INTL INC	Jul-21	C	9.875	725	172	897	9	18.5	18.8	86.1	85.6
12	BRCM	BROADCOM CORP	Jan-27	BBB	3.875	693	42	735	13	4.4	4.4	96.5	96.5
13	GM	GENERAL MOTORS FINANCIAL COMPANY INC	Null	BB	5.750	653	128	781	13	6.2	6.2	93.4	93.0
14	F	FORD	Dec-26	BBB	4.346	617	205	822	24	4.1	4.3	101.3	100.3
15	WDC	WESTERN DIGITAL CORP	Feb-26	BBB	4.750	610	137	747	18	4.8	4.9	100.0	99.1
16	AL	AIR LEASE CORP	Mar-25	BBB	3.250	595	21	616	10	3.1	3.2	100.7	100.3
17	AR	Null	Jun-23	BB	5.625	586	93	679	19	6.8	7.4	96.1	94.2
18	X	UNITED STS STL CORP NEW	Aug-25	B	6.875	577	149	726	17	7.6	7.7	96.8	96.1
19	CVS	CVS CAREMARK CORP	Jul-20	BBB	2.800	530	117	647	16	2.4	2.6	100.3	100.2
20	AR	Null	Dec-22	BB	5.125	529	92	621	9	6.9	7.0	94.7	94.4

Source: TRACE and Tradeweb Direct

-Based on odd-lot customer transactions (<100M) reported in TRACE.

-Ratings (AAA, AA, A, BBB, BB, B, C) are based on aggregate ratings from Moody's and S&P (when available).

Corporate Bonds: Top 20 Most Sold Issues

July 2019

Index	Ticker	Company	Maturity	Rating Key (Med)	Coupon	Trades (Buy)	Trades (Sell)	Trades	Dollar Vol. Traded (MM)	Yield (Buy)	Yield (Sell)	Price (Buy)	Price (Sell)
1	GS	GOLDMAN SACHS	Jan-22	BBB	5.750	255	1,259	1,514	19	2.5	2.6	107.8	107.7
2	BAC	BANK OF AMERICA	Apr-26	A	3.500	205	1,181	1,386	11	2.8	2.9	104.4	103.8
3	VZ	VERIZON	Aug-26	BBB	2.625	162	991	1,153	10	2.7	2.9	99.4	98.5
4	C	CITIGROUP	Jul-28	BBB	4.125	118	979	1,097	11	3.4	3.4	105.9	105.4
5	JPM	JP MORGAN CHASE	May-23	BBB	3.375	263	979	1,242	13	2.6	2.7	102.7	102.4
6	USB	U S BANCORP MEDIUM TERM NTS- BOOK ENTRY	Null	BBB	5.300	229	970	1,199	8	5.0	5.1	105.2	104.8
7	GS	GOLDMAN SACHS	May-25	BBB	3.750	938	940	1,878	17	2.9	2.9	104.4	104.2
8	T	AT&T	Jan-25	BBB	3.950	73	934	1,007	8	2.8	2.9	105.7	105.3
9	V	VIVENDI	Dec-45	AA	4.300	30	927	957	6	3.2	3.3	118.7	118.0
10	MSFT	MICROSOFT CORP	Feb-47	AAA	4.250	48	923	971	7	3.3	3.3	117.7	117.1
11	BK	BANK NEW YORK INC MEDIUM TERM SR NTS BOO	Null	BBB	4.500	176	910	1,086	10	4.5	4.6	99.5	98.3
12	ORCL	ORACLE CORP	May-35	A	3.900	35	908	943	5	3.2	3.3	108.2	106.8
13	ETN	EATON CORP	Nov-22	BBB	2.750	65	907	972	5	2.4	2.4	101.2	101.1
14	TJX	TJX COS INC NEW	Sep-26	A	2.250	48	898	946	5	2.5	2.6	98.1	97.6
15	AMZN	AMAZON COM INC	Dec-24	A	3.800	84	894	978	6	2.2	2.3	107.6	107.4
16	BP	BP	May-26	A	3.119	34	887	921	4	2.7	2.7	102.8	102.3
17	BRK	BERKSHIRE HATHAWAY	Apr-36	A	6.125	27	881	908	4	3.4	3.4	134.5	134.1
18	CI	CIGNA CORP	Feb-22	BBB	4.000	87	878	965	5	2.5	2.6	103.4	103.1
19	DLTR	Null	May-23	BBB	3.700	21	875	896	4	2.6	2.7	103.7	103.4
20	MAR	MARRIOTT INTL INC NEW	Jun-26	BBB	3.125	89	874	963	5	2.9	3.0	101.1	100.5

Source: TRACE and Tradeweb Direct

-Based on odd-lot customer transactions (<100M) reported in TRACE.

-Ratings (AAA, AA, A, BBB, BB, B, C) are based on aggregate ratings from Moody's and S&P (when available).

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Appendix

Maturity

We consider the following maturity ranges for maturity buckets. TTM is Time to Maturity in years.

1Y: $0.5 \leq TTM \leq 1.5$
 3Y: $2 \leq TTM \leq 4$
 5Y: $4 < TTM \leq 6$
 10Y: $7.5 \leq TTM \leq 12.5$
 20Y: $15 \leq TTM \leq 25$

Rating

Rating buckets (AAA, AA, A, BBB, HY) in yield matrix are based on aggregate ratings from Moody's and S&P (when available).

For Corporate, we only consider transactions in bonds that are rated by both rating agencies.

-Corporate AAA: Bonds rated AAA by both rating agencies.

-Corporate AA: Bonds rated AA by both rating agencies.

-Corporate A: Bonds rated A by both rating agencies.

-Corporate BBB: Bonds rated BBB by both rating agencies.

-Corporate High Yield: Bonds rated High Yield by both rating agencies.

(Transactions in corporate bonds that are rated as AA by one agency and as A by another agency are excluded.)

-Municipal AAA: Bonds rated AAA by both rating agencies, or AAA by one agency and not rated by another agency.

-Municipal AA: Bonds rated AA by both rating agencies, or AA by one agency and not rated by another agency.

-Municipal A: Bonds rated A by both rating agencies, or A by one agency and not rated by another agency.

-Municipal BBB: Bonds rated High Yield by both rating agencies, or BBB by one agency and not rated by another agency.

-Municipal High Yield: Bonds rated High Yield by both rating agencies, or High Yield by one agency and not rated by another agency.

(Transactions in municipal bonds that are rated as AA by one agency and as A by another agency are excluded.)

(Transactions in municipal bonds that are rated as AA by one agency and not rated by the other agency are included.)

Disclosures

This report represents certain customer trades in securities that have been reported by dealers to FINRA's Trade Reporting and Compliance Engine ("TRACE"), and the Municipal Securities Rulemaking Board ("MSRB"). The report does not necessarily reflect all transactions that were effected on dates noted. There is the possibility of errors or delays in the trade submission process. Prices for transactions vary with market conditions and can be affected by trade size and other factors. The information provided has been obtained from sources deemed to be reliable, however Tradeweb Direct does not guarantee the accuracy of the information contained in this report.

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