

Market Transparency Report

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

November 2020

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 November 2020

	Median Yield (bps)	Daily Trade Volume	Buy/Sell Ratio
Agency	-28	-10.8%	-0.4
CD	0	-5.1%	-0.2
Corp	-2	0.9%	-0.1
Municipal	-15	-9.0%	-0.2
Treasury	-1	7.9%	0.1

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

Yield Matrix

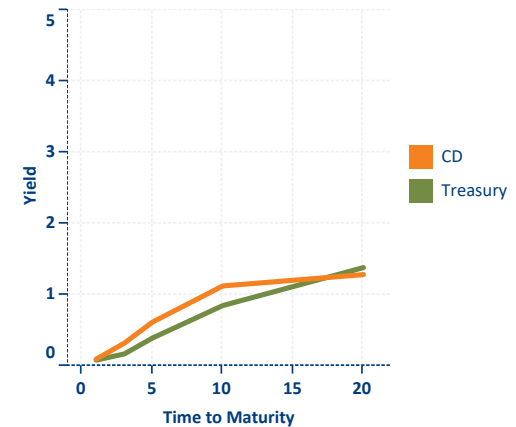
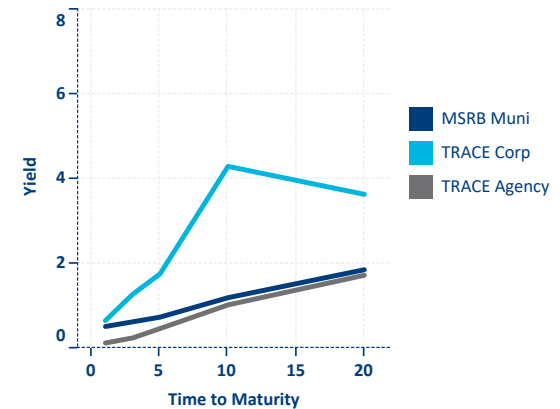
Average Yield, % for November 2020

Market	TTM					Median Maturity (Years)
	1	3	5	10	20	
MSRB Muni	0.5	0.6	0.7	1.2	1.9	10
TRACE Corp	0.7	1.3	1.8	4.3	3.6	4
TRACE Agency	0.1	0.3	0.5	1.0	1.7	4
CD	0.1	0.3	0.6	1.1	1.3	1
Treasury	0.1	0.2	0.4	0.8	1.4	1

Asset Class

Market	Category (Filtered)	Rating Key	TTM					Median Maturity (Years)
			1	3	5	10	20	
TRACE Corp	Financial	AA	0.2	0.3	0.9	1.5	2.8	1
		A	0.2	0.5	0.8	1.7	2.8	3
		BBB	0.7	0.9	1.3	2.5	3.7	4
		HY	3.0	8.0	8.9	5.0	7	
		AAA	0.2	1.3	2.1	9		
	Non-Financial	AA	0.3	0.7	1.0	1.4	2.2	9
		A	0.3	0.4	1.0	1.6	2.8	2
		BBB	0.6	1.4	2.2	3.3	4.0	6
		HY	2.1	9.0	5.0	7.4	5.1	6
		AAA	0.4	0.4	0.4	0.8	1.3	6
MSRB Muni	GO	AA	0.4	0.5	0.6	1.1	1.7	9
		A	0.5	0.6	0.9	1.3	1.7	8
		BBB	1.8	2.6	2.7	3.2	3.6	8
		HY	3.1	8.7	5.1	4.9	21	
		AAA	0.4	0.5	0.5	0.8	1.4	7
	Revenue	AA	0.4	0.5	0.6	1.0	1.6	10
		A	0.6	0.7	0.9	1.3	1.8	12
		BBB	1.2	1.6	2.0	2.2	2.7	15
		HY	2.7	4.9	4.7	4.6	4.6	11
		AAA	0.4	0.4	0.4	0.8	1.3	6

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.

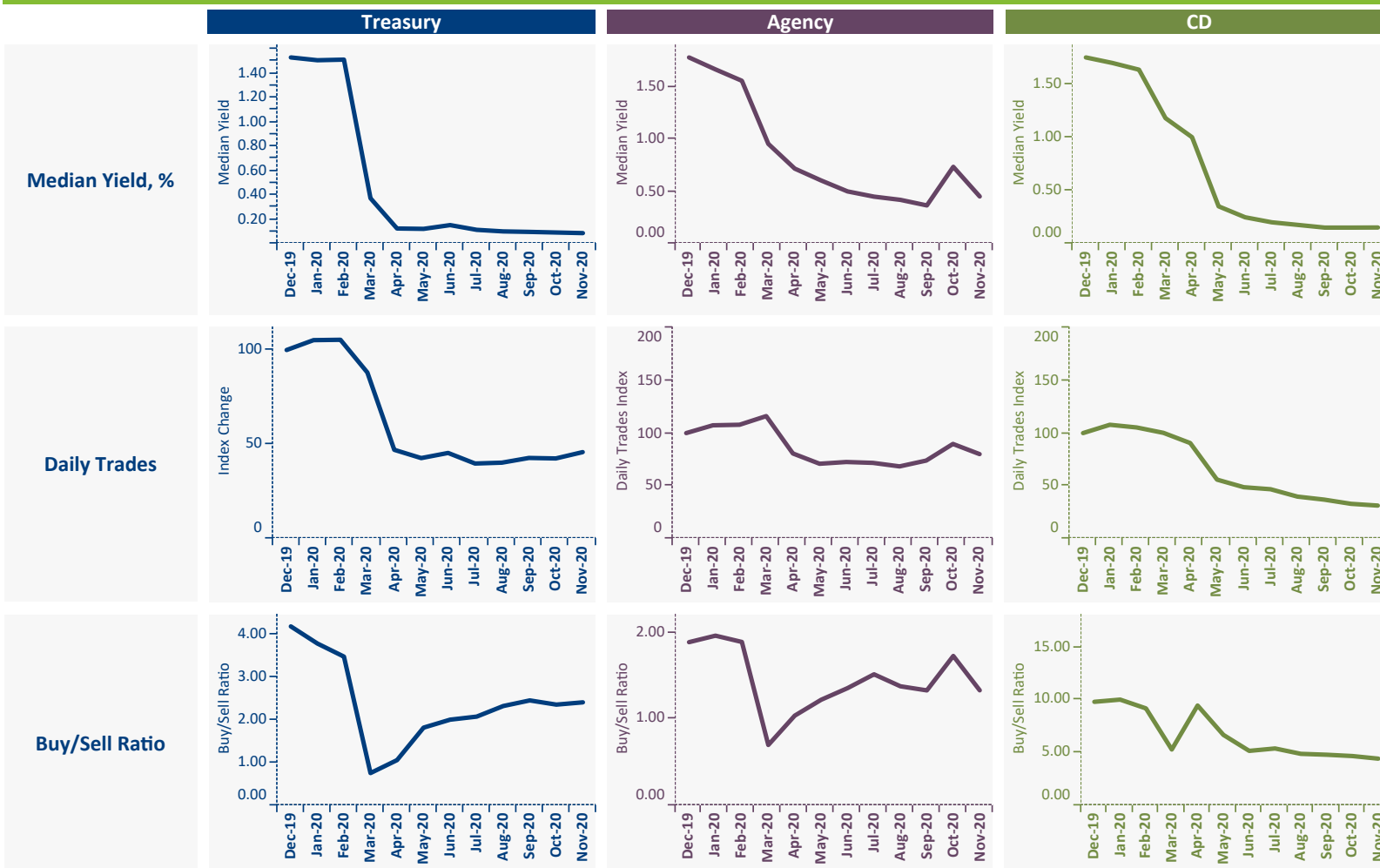
-The weights are based on transaction size.

-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

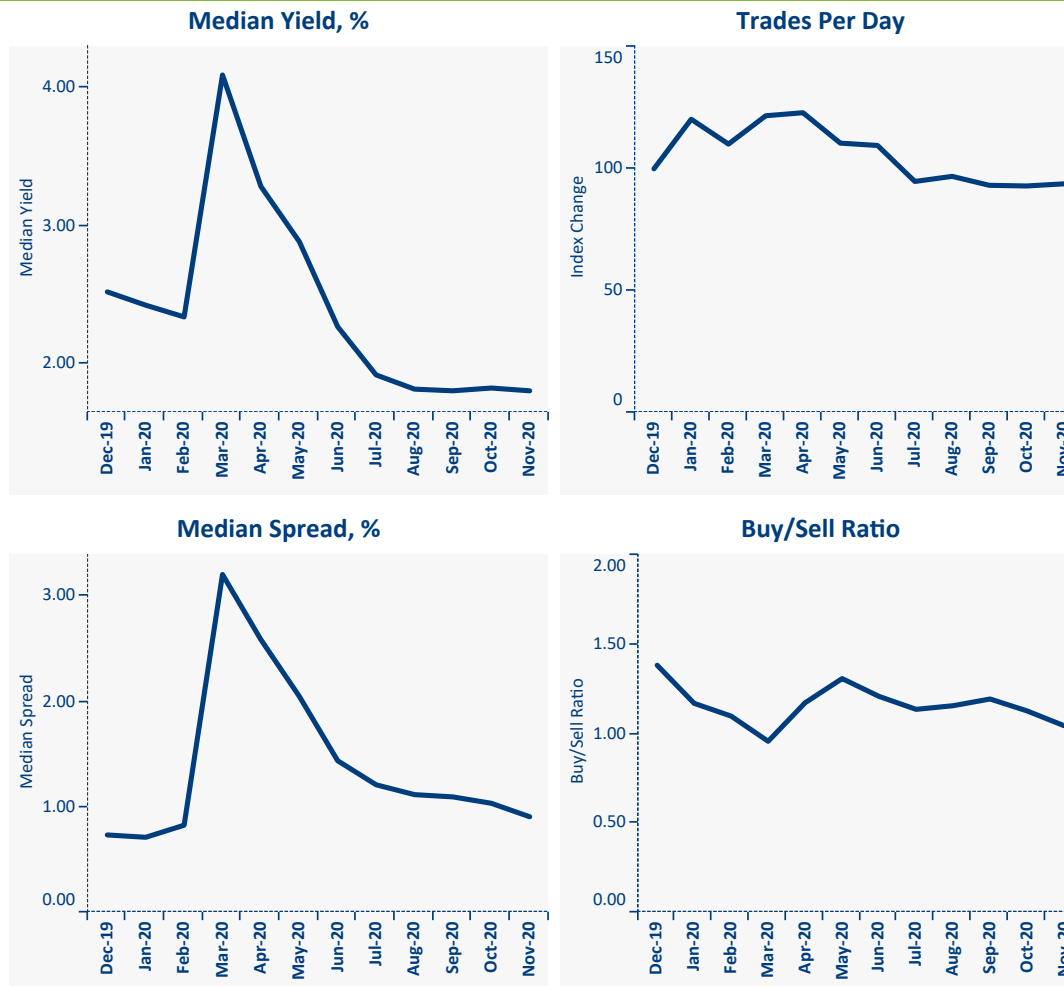
-Treasury and CD are based on transactions on the Tradeweb Direct Platform. Median yields are based on all customer buy transactions.

-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

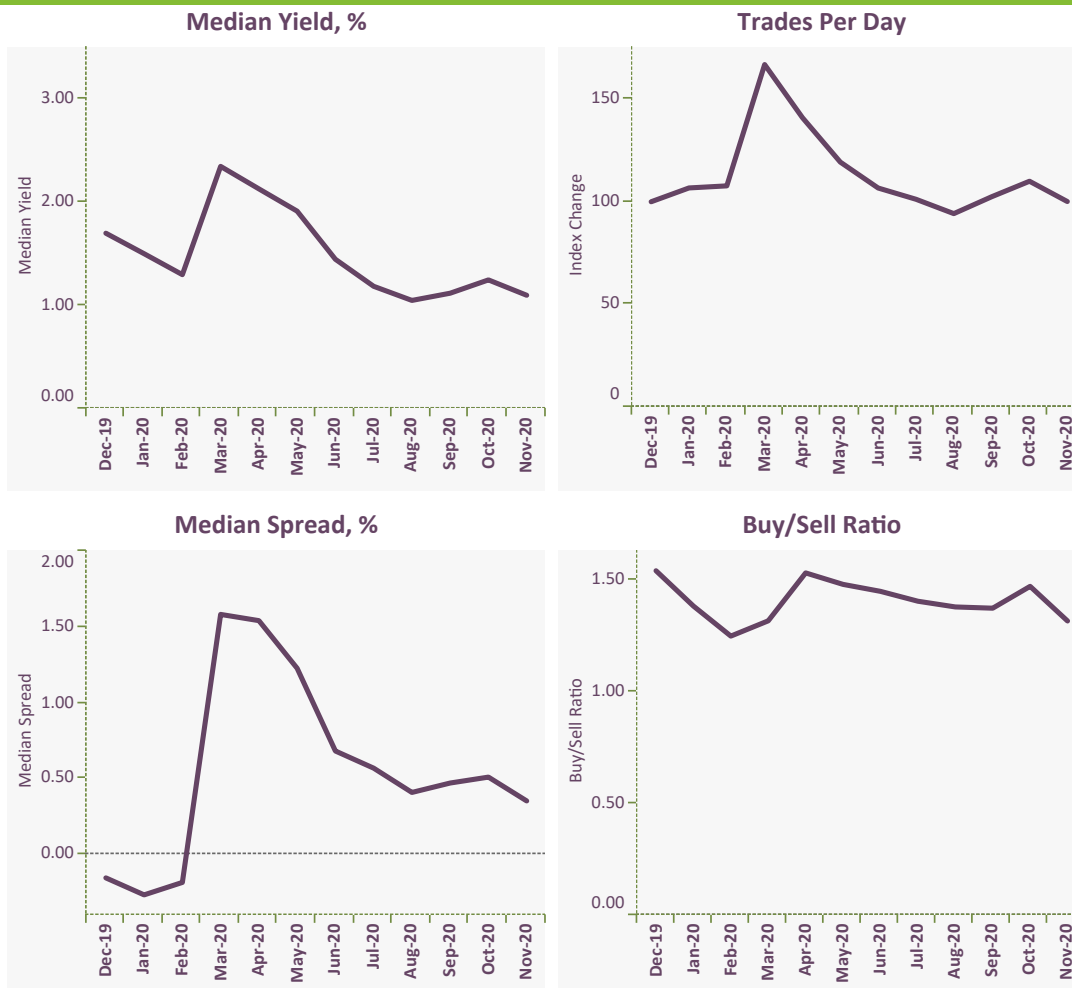
-Based on odd-lot customer transactions (<100M) reported in TRACE.

-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

November 2020

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	JPM	JP MORGAN CHASE	BBB	727	3.0%	11,778	1.0	273	0.1	0.5	1.0	0.7	2.4
2	GS	GOLDMAN SACHS	BBB	939	2.7%	10,518	1.0	230	0.4	0.8	1.1	1.9	3.6
3	C	CITIGROUP	BBB	483	2.4%	9,590	1.1	201	0.4	0.6	1.2	1.8	2.6
4	BAC	BANK OF AMERICA	A	318	2.2%	8,733	1.1	190	0.3	0.7	1.1	2.1	3.1
5	WFC	WELLS FARGO	A	222	1.6%	6,543	1.0	147	0.4	0.7	1.1	1.7	3.0
6	MS	MORGAN STANLEY	A	779	1.6%	6,218	0.7	144	0.4	0.7	1.0	1.9	2.6
7	GE	GENERAL ELEC CAP CORP MEDIUM TERM NTS BO	BBB	275	1.5%	5,948	1.1	131	0.6	0.9	1.9	3.3	3.8
8	GM	GENERAL MOTORS FINANCIAL COMPANY INC	BBB	103	1.3%	5,046	0.8	123	0.8	1.3	1.6	2.8	3.9
9	T	AT&T	BBB	110	1.2%	4,765	0.8	116	0.5	0.6	0.8	2.0	3.2
10	AAPL	APPLE INC	AA	51	1.2%	4,739	1.1	102	0.2	0.4	0.7	1.3	2.3
11	F	FORD	BB	242	1.1%	4,332	1.1	101	2.2	3.2	4.0	4.8	5.0
12	VZ	VERIZON	BBB	128	1.0%	4,158	1.1	85	0.3	0.6	0.8	1.6	2.4
13	BA	BOEING CO	BBB	56	1.0%	4,109	3.7	101	1.1	1.7	2.3	3.1	4.1
14	CVS	CVS CAREMARK CORP	BBB	49	1.0%	4,072	1.1	88	0.3	0.5	0.9	1.9	2.9
15	ORCL	ORACLE CORP	A	31	0.9%	3,733	1.1	72	0.2	0.4	0.8	1.6	2.6
16	CMCS	COMCAST	A	62	0.9%	3,626	1.1	83	0.2	0.5	0.8	1.5	2.5
17	BRK	BERKSHIRE HATHAWAY	A	140	0.8%	2,978	0.7	79	0.2	0.4	0.8	1.4	2.7
18	MSFT	MICROSOFT CORP	AAA	33	0.7%	2,951	0.7	60	0.2	0.3	0.7		2.0
19	AXP	AMERICAN EXPRESS	BBB	27	0.7%	2,670	1.3	60	0.3	0.5	0.8		2.5
20	TFC	Null	BBB	48	0.6%	2,541	1.5	55	0.3	0.6	0.7	1.5	

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.

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

November 2020

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	AVGO	Null	BBB	16	0.4%	1,771	1,568	203	7.7	28		1.1	1.4	2.5	
2	PBFQ	PBF HLDG CO LLC / PBF FIN CORP	B	2	0.2%	944	756	188	4.0	12		10.4	23.1		
3	LPI	LAREDO PETE INC	C	2	0.4%	1,480	1,184	296	4.0	11			20.8		
4	BA	BOEING CO	BBB	56	1.0%	4,109	3,240	869	3.7	101	1.1	1.7	2.3	3.1	4.1
5	HBAN	HUNTINGTON NATL BK COLUMBUS OHIO MEDIUM	BBB	13	0.2%	973	737	236	3.1	22	0.3	0.8	0.8	1.9	
6	MAR	MARRIOTT INTL INC NEW	BBB	25	0.4%	1,437	1,064	373	2.9	30	0.9	1.8	2.9	3.0	
7	GEO	GEO GROUP INC	B	4	0.3%	1,266	924	342	2.7	11	8.9	14.7	14.5		
8	FITB	FIFTH THIRD BANCORP	BBB	17	0.3%	1,379	985	394	2.5	28	0.3	0.7	0.9		3.2
9	FLR	FLUOR CORP NEW	BBB	2	0.4%	1,405	1,004	401	2.5	21			4.6	4.7	
10	CNP	CENTERPOINT ENERGY INC	BBB	32	0.3%	1,087	775	312	2.5	25	0.4	3.7	0.8	5.4	5.9
11	PSEC	PROSPECT CAP CORP INTERNOTES BOOK ENTRY	BBB	152	0.3%	1,047	740	307	2.4	17		4.1	5.3	5.3	6.2
12	BAM	BROOKFIELD ASSET MGMT INC	BBB	14	0.4%	1,515	1,039	476	2.2	5		0.9	1.2	2.0	
13	KSS	KOHL'S CORP	BBB	8	0.5%	2,008	1,373	635	2.2	47		2.2	3.6	5.2	6.1
14	GILD	GILEAD SCIENCES INC	BBB	22	0.4%	1,538	1,020	518	2.0	32	0.3	0.4	0.8	1.7	2.8
15	BMJ	BRISTOL MYERS SQUIBB CO	A	50	0.3%	1,085	711	374	1.9	31	0.3	0.6	0.8	1.4	2.5
16	EXC	EXELON GENERATION CO LLC	BBB	71	0.3%	1,254	818	436	1.9	34	0.2	0.5	1.3	1.9	4.6
17	JWN	NORDSTROM INC	BBB	7	0.5%	2,006	1,304	702	1.9	39	2.8			6.2	7.1
18	SPG	SIMON PPTY GROUP L P	A	21	0.3%	1,036	643	393	1.6	22	0.3	1.1	1.3	2.3	3.5
19	TEVA	TEVA PHARMACEUTICAL FIN CO B V	BB	12	0.3%	1,301	791	510	1.6	31	2.4	3.5	4.5		5.7
20	TFC	Null	BBB	48	0.6%	2,541	1,535	1,006	1.5	55	0.3	0.6	0.7	1.5	

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

November 2020

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	HBC	HSBC	N/R	386	0.4%	1,460	415	1,045	0.40	35	0.5	1.3	1.9	3.5	3.2
2	BCS	BARCLAYS	N/R	661	0.4%	1,760	532	1,228	0.43	39	0.6	1.7	1.8	2.2	2.9
3	MSFT	MICROSOFT CORP	AAA	33	0.7%	2,951	1,183	1,768	0.67	60	0.3	0.3	0.7		2.2
4	PTRB	PETROBRAS	BB	24	0.3%	1,210	487	723	0.67	48	1.4	1.9	2.8	3.9	5.3
5	MS	MORGAN STANLEY	A	779	1.6%	6,218	2,528	3,690	0.69	144	0.4	0.8	1.1	1.9	2.5
6	BUD	ANHEUSER BUSCH INBEV WORLDWIDE INC	BBB	44	0.5%	1,821	760	1,061	0.72	45		0.6	1.0	1.8	2.9
7	DELL	DELL	BBB	10	0.2%	970	406	564	0.72	22		2.0	1.4	2.3	4.7
8	BRK	BERKSHIRE HATHAWAY	A	140	0.8%	2,978	1,253	1,725	0.73	79	0.4	0.4	0.8	1.6	2.7
9	CTL	CENTURYLINK	B	26	0.4%	1,400	595	805	0.74	32	2.2	3.3	3.5	6.0	6.3
10	ETSY	Null	N/R	2	0.2%	945	405	540	0.75	14					
11	RY	ROYAL BANK OF CANADA	A	192	0.3%	1,166	498	668	0.75	28	0.3	0.5	1.0	2.1	
12	RDS	SHELL	AA	29	0.4%	1,571	678	893	0.76	35	0.4	0.4	0.9	1.6	2.8
13	SCHW	SCHWAB CHARLES CORP NEW	BBB	24	0.3%	1,123	485	638	0.76	26	0.3	0.5	0.8	1.5	
14	GM	GENERAL MOTORS FINANCIAL COMPANY INC	BBB	103	1.3%	5,046	2,252	2,794	0.81	123	1.0	1.4	1.9	2.6	4.0
15	MET	METLIFE	BBB	24	0.6%	2,515	1,128	1,387	0.81	56		0.5	0.7	1.7	2.7
16	PNC	PNC FDG CORP	A	31	0.3%	1,233	553	680	0.81	27	0.3	0.6	0.9	1.5	
17	T	AT&T	BBB	110	1.2%	4,765	2,167	2,598	0.83	116	1.3	0.7	0.9	2.1	3.4
18	EDP	ENTERPRISE PRODS OPER LLC	BBB	38	0.3%	1,209	553	656	0.84	29	0.5	0.5	0.9	1.9	3.7
19	AIG	AIG	BBB	31	0.3%	1,031	475	556	0.85	25		0.8	1.0	1.9	3.0
20	BP	BP	A	54	0.6%	2,258	1,044	1,214	0.86	51	0.4	0.8	1.1	1.8	

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

November 2020

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	LPI	LAREDO PETE INC	Jan-25	C	9.500	1,178	290	1,468	11	20.8	20.9	69.4	69.3
2	BAM	BROOKFIELD ASSET MGMT INC	Null	BBB	4.500	990	400	1,390	3			25.0	25.0
3	UNKNO..	VTR FIN B V	Null	BBB	4.500		4	4	0				25.0
4	AVGO	Null	Nov-30	BBB	4.150	937	16	953	8	2.5	2.4	114.6	114.8
5	GE	GENERAL ELEC CAP CORP MEDIUM TERM NTS BO	Dec-49	BBB	5.000	935	486	1,421	33	5.6	5.7	89.5	88.0
6	FLR	FLUOR CORP NEW	Dec-24	BBB	3.500	859	255	1,114	15	4.6	4.5	95.9	96.4
7	JPM	JP MORGAN CHASE	Aug-70	BBB	3.684	631	240	871	24	3.7	3.8	99.5	97.7
8	KSS	KOHL'S CORP	Jul-45	BBB	5.550	575	178	753	19	5.9	6.1	95.5	93.5
9	PBFQ	PBF HLDG CO LLC / PBF FIN CORP	May-23	B	6.875	565	138	703	9	10.4	10.5	92.5	92.2
10	X	UNITED STS STL CORP NEW	Mar-26	C	6.250	507	371	878	10	10.0	10.6	84.8	82.7
11	COF	CAPITAL ONE FINL CORP	Aug-70	BB	4.025	469	273	742	18	4.1	4.2	98.2	96.8
12	FITB	FIFTH THIRD BANCORP	Dec-49	BBB	4.500	459	13	472	8			104.0	103.7
13	TFC	Null	Jun-49	BBB	5.125	432	98	530	7	4.9	4.9	104.3	103.7
14	MOS	MOSAIC CO NEW	Nov-23	BBB	4.250	425	91	516	3	1.0	1.0	108.9	108.7
15	C	CITIGROUP	Nov-27	N/R	8.100	415		415	3			100.0	
16	BMRN	BIOMARIN PHARMACEUTICAL INC	Aug-24	N/R	0.599	408	45	453	3	0.1	0.2	104.5	103.6
17	LITEV	Null	Mar-24	BB	0.250	404	39	443	3			149.9	149.0
18	CVS	CVS CAREMARK CORP	Jul-25	BBB	3.875	402	104	506	6	0.9	0.9	113.0	112.8
19	ETSY	Null	Oct-26	N/R	0.125	397	145	542	10			163.3	162.0
20	ZNGA	Null	Jun-24	N/R	0.250	385	17	402	2			120.5	119.3

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

November 2020

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	GPOR	GULFPORT ENERGY CORP	May-23	N/R	6.625	30	662	692	6	33.0	34.7	57.7	55.9
2	MCFH	HARLAND CLARKE HLDGS CORP	Feb-21	C	5.750	21	91	112	1	572.8	662.4	39.5	36.2
3	REV	Null	Feb-21	C	5.750	133	490	623	13	10.7	22.4	98.8	96.1
4	MSFT	MICROSOFT CORP	Aug-26	AAA	2.400	220	502	722	8	0.7	0.7	109.0	108.9
5	GE	GENERAL ELEC CAP CORP MEDIUM TERM NTS BO	Dec-49	BBB	5.000	935	486	1,421	33	5.6	5.7	89.5	88.0
6	MET	METLIFE	Jun-47	BBB	4.700	221	468	689	19	4.5	4.5	103.6	102.6
7	CVS	CVS CAREMARK CORP	Mar-28	BBB	4.300	282	408	690	14	1.7	1.7	117.5	117.1
8	EXAS	Null	Jan-25	N/R	1.000	17	406	423	3			175.0	171.6
9	BAM	BROOKFIELD ASSET MGMT INC	Null	BBB	4.500	990	400	1,390	3			25.0	25.0
10	UNKNO..	VTR FIN B V	Null	BBB	4.500		4	4	0				25.0
11	NOW	Null	Jun-22	BBB	0.000	5	397	402	4			382.2	356.3
12	MCHP	MICROCHIP TECHNOLOGY INC	Feb-25	N/R	1.625	16	396	412	4			274.8	267.1
13	ETSY	Null	Mar-23	N/R	0.000	8	395	403	4			388.4	347.7
14	TDG	TRANSDIGM INC	Jul-24	B	6.500	12	391	403	3	3.5	5.7	102.0	100.5
15	C	CITIGROUP	Aug-24	BBB	4.000	62	388	450	6	1.0	1.1	110.9	110.5
16	X	UNITED STS STL CORP NEW	Mar-26	C	6.250	507	371	878	10	10.0	10.6	84.8	82.7
17	ORCL	ORACLE CORP	Sep-21	A	1.900	80	358	438	7	0.2	0.3	101.3	101.2
18	X	UNITED STS STL CORP NEW	Aug-25	C	6.875	263	333	596	9	10.2	10.0	87.5	88.4
19	AAPL	APPLE INC	May-23	AA	2.400	238	326	564	12	0.3	0.4	105.0	105.0
20	TDG	TRANSDIGM INC	May-25	B	6.500	28	314	342	5	4.5	6.5	102.6	99.8

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).

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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