

Market Transparency Report

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

December 2018

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 December 2018

	Median Yield (bps)	Daily Trade Volume	Buy/Sell Ratio
Agency	-19	-8.4%	-0.1
CD	5	4.3%	0.2
Corp	-1	-4.3%	-0.1
Municipal	-25	-9.2%	-0.1
Treasury	4	12.1%	-0.7

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

Yield Matrix

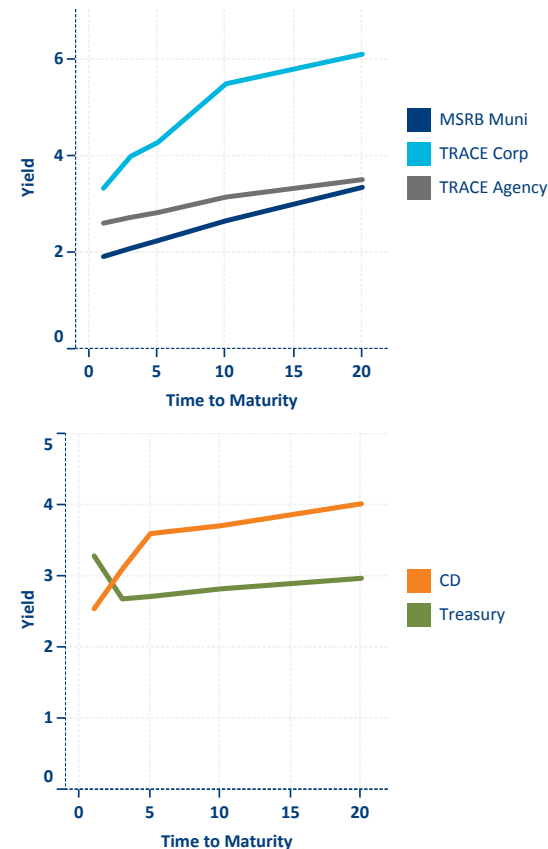
Average Yield, % for December 2018

Market	TTM					Median Maturity (Years)
	1	3	5	10	20	
MSRB Muni	1.9	2.1	2.3	2.7	3.4	11
TRACE Corp	3.3	4.0	4.3	5.5	6.1	3
TRACE Agency	2.6	2.7	2.8	3.2	3.5	3
CD	2.5	3.1	3.6	3.7	4.0	1
Treasury	2.4	2.7	2.7	2.8	3.0	1

Asset Class

Market	Category (Filtered)	Rating Key	TTM					Median Maturity (Years)
			1	3	5	10	20	
TRACE Corp	Financial	AA	2.9	3.2	4.3			2
		A	3.0	3.5	3.7	4.1	4.7	2
		BBB	3.9	5.0	5.1	5.7	6.4	4
		HY	3.9	4.8	5.1	8.7	7.2	4
	Non-Financial	AAA	1.9	2.5	3.0	3.5	4.0	2
		AA	2.8	3.1	3.3	3.8	4.2	1
		A	3.0	3.4	3.3	4.1	4.5	3
		BBB	3.6	5.3	5.4	6.3	6.5	5
		HY	9.8	9.3	15.0	9.9	19.2	8
MSRB Muni	GO	AAA	1.8	2.0	2.1	2.5	3.3	8
		AA	1.9	2.0	2.2	2.6	3.3	9
		A	2.0	2.2	2.5	2.9	3.5	8
		BBB	2.8	3.2	3.4	3.8	4.3	9
	Revenue	HY	4.3	4.8	7.3	5.8	5.1	9
		AAA	1.9	2.0	2.1	2.4	3.0	8
		AA	1.9	2.0	2.2	2.6	3.3	11
		A	2.0	2.2	2.4	2.7	3.3	14
		BBB	2.4	2.8	3.0	3.4	3.9	16
		HY	4.4	6.9	5.6	5.6	6.3	13

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.

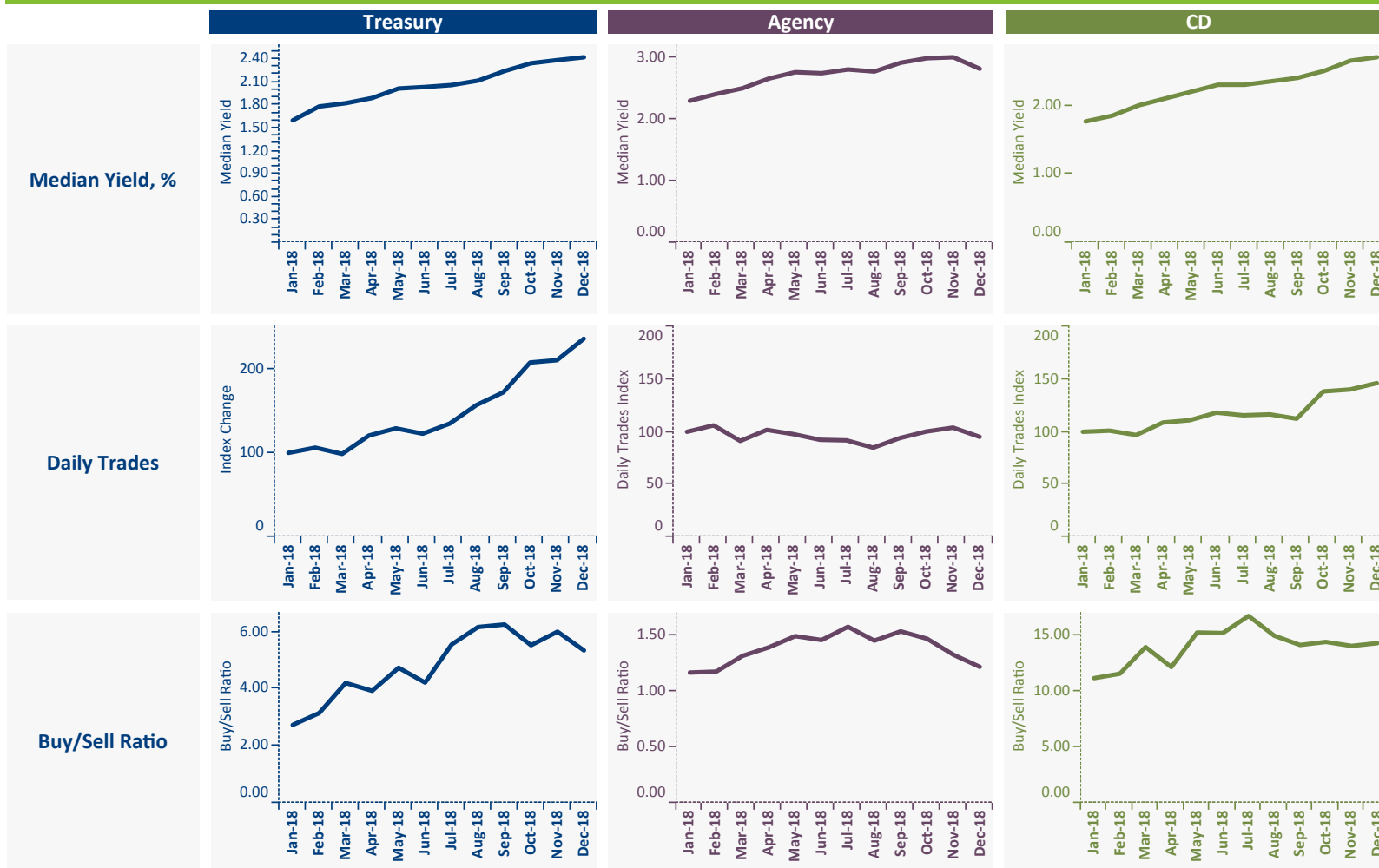
-The weights are based on transaction size.

-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



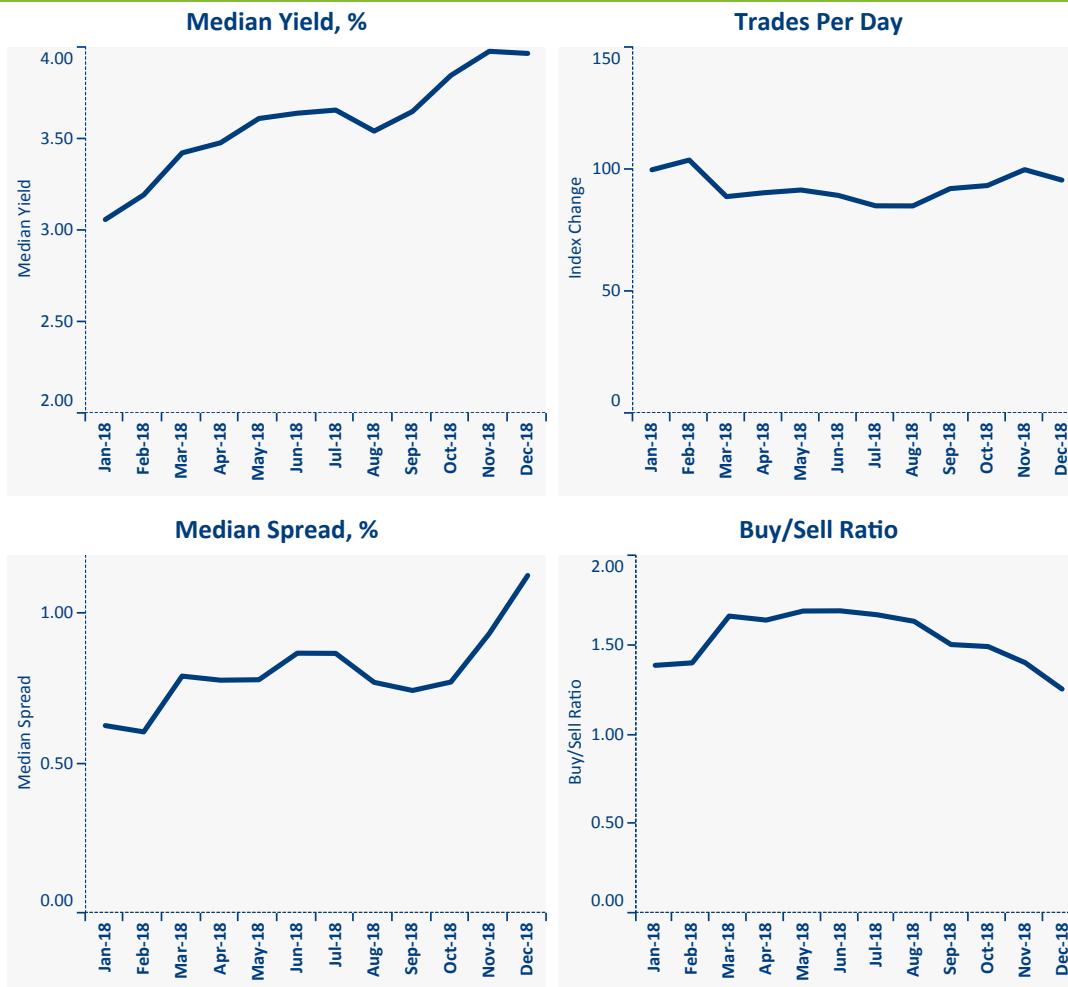
Daily Trades: First month = 100

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.

Corporate Bonds: Odd-Lot Customer Transaction Trend Summary



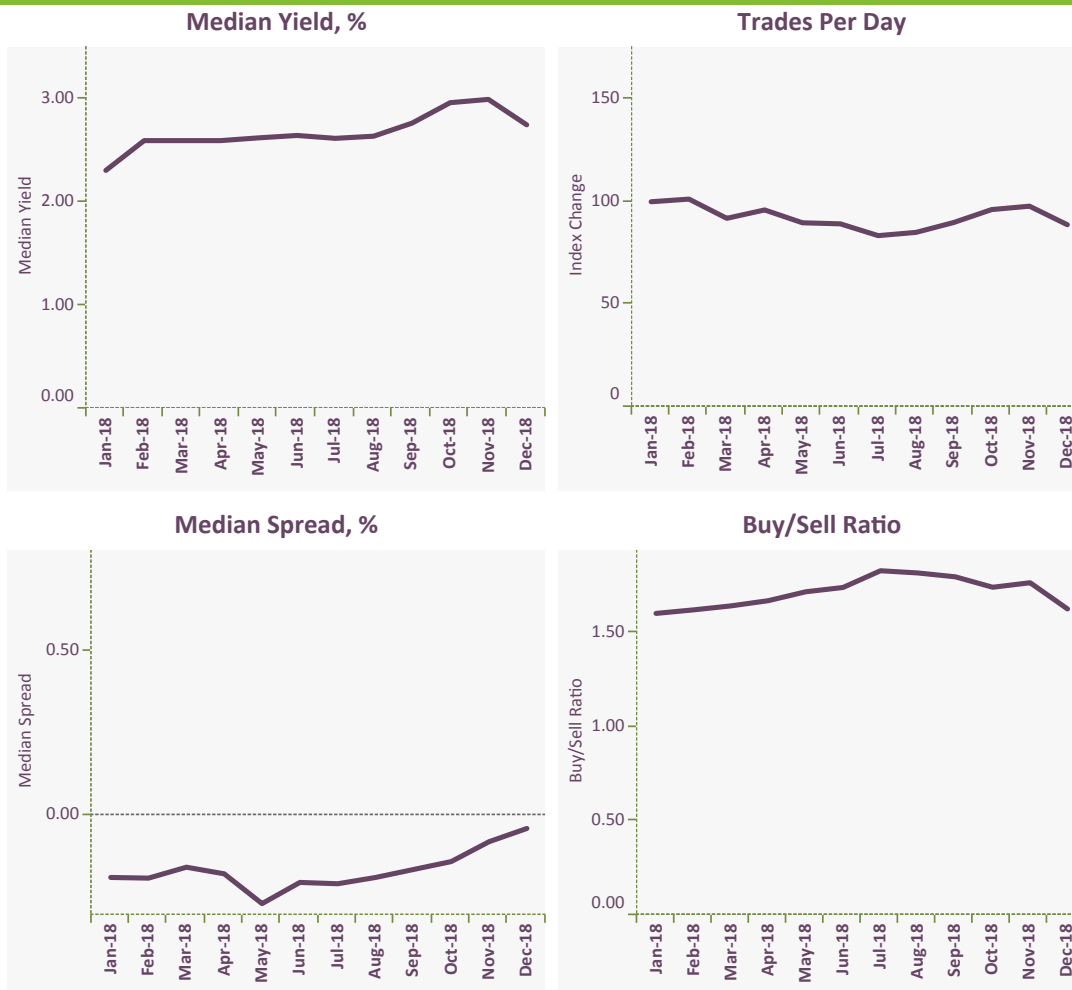
Daily Trades: First month = 100

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...

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

December 2018

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	GE	GENERAL ELEC CAP CORP MEDIUM TERM NTS BO	BBB	340	3.7%	17,678	1.2	327	3.8	5.5	6.2	6.8	6.6
2	GS	GOLDMAN SACHS	BBB	977	3.7%	17,654	1.4	360	3.2	3.9	4.1	4.7	5.2
3	JPM	JP MORGAN CHASE	A	634	3.7%	17,639	1.3	349	3.1	3.5	3.9	4.3	4.7
4	BAC	BANK OF AMERICA	A	441	2.9%	13,918	1.0	262	3.1	3.5	3.9	4.5	4.8
5	C	CITIGROUP	BBB	414	2.8%	13,399	1.1	283	3.1	3.7	4.0	4.7	4.9
6	WFC	WELLS FARGO	A	214	2.2%	10,241	1.3	224	3.2	3.5	4.0	4.5	4.9
7	MS	MORGAN STANLEY	BBB	964	2.0%	9,661	1.1	197	3.2	3.7	4.1	4.6	5.0
8	T	AT&T	BBB	97	1.7%	8,017	1.3	155	3.3	3.6	4.0	4.6	5.5
9	AAPL	APPLE INC	AA	56	1.3%	6,339	1.2	133	2.7	3.1	3.4	3.7	4.0
10	GM	GENERAL MOTORS FINANCIAL COMPANY INC	BBB	89	1.3%	6,022	1.8	131	3.5	4.3	4.9	5.5	6.6
11	BRK	BERKSHIRE HATHAWAY	A	139	1.1%	5,282	1.8	121	2.9	3.2	3.6	4.6	4.7
12	CVS	CVS CAREMARK CORP	BBB	43	0.9%	4,416	1.8	92	3.3	3.7	4.0	4.5	5.0
13	BUD	ANHEUSER BUSCH INBEV WORLDWIDE INC	BBB	38	0.9%	4,308	2.0	89	3.2	3.5	4.0	4.4	5.1
14	AXP	AMERICAN EXPRESS	BBB	39	0.9%	4,249	1.7	92	3.2	3.5	3.9	3.8	4.5
15	F	FORD	BBB	253	0.9%	4,144	1.7	85	3.6	4.5	5.4	6.0	6.5
16	VZ	VERIZON	BBB	116	0.9%	4,098	1.0	82	3.0	3.3	3.8	4.1	4.7
17	CMCS	COMCAST	A	61	0.9%	4,017	1.4	77	3.1	3.3	3.6	4.1	4.5
18	ORCL	ORACLE CORP	AA	31	0.8%	3,897	1.0	71	2.8	3.2	3.5	3.8	4.2
19	MSFT	MICROSOFT CORP	AAA	39	0.8%	3,805	1.0	82	2.6	2.9	3.2	3.5	3.9
20	HBC	HSBC	N/R	487	0.8%	3,685	0.7	60	3.1	3.7	4.3	4.2	5.3

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

December 2018

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	MYL	MYLAN INC	BBB	9	0.3%	1,419	1,360	59	23.1	12	3.1	4.1	4.6	5.2	6.4
2	CAH	CARDINAL HEALTH INC	BBB	15	0.3%	1,576	1,457	119	12.2	15	3.1	4.0	4.2	4.7	5.3
3	CHRC	BAYSIDE CMNTY CHURCH SARASOTA INC BRADEN	N/R	76	0.2%	1,093	1,001	92	10.9	8		4.4			6.9
4	BRCM	BROADCOM CORP	BBB	15	0.3%	1,612	1,405	207	6.8	19	3.6	4.2	4.6	5.4	
5	OMC	OMNICOM GROUP INC	BBB	5	0.2%	1,108	943	165	5.7	12	3.0	4.1	4.2		
6	AIG	AIG	BBB	29	0.5%	2,255	1,740	515	3.4	33	3.0	4.0	4.1	4.7	5.2
7	SAN	ABBAY NATL TREAS SVCS PLC	BBB	32	0.3%	1,358	1,044	314	3.3	36	3.4	4.1	4.1	5.2	
8	MAR	MARRIOTT INTL INC NEW	BBB	22	0.2%	1,108	849	259	3.3	21	3.0	3.7	4.0	4.6	4.7
9	PCG	PACIFIC GAS & ELEC CO	BBB	26	0.3%	1,310	997	313	3.2	19		5.7	5.8	5.7	6.4
10	KR	KROGER CO	BBB	25	0.3%	1,201	873	328	2.7	24	3.1	3.6	3.9	4.4	5.2
11	GIS	GENERAL MLS INC	BBB	16	0.2%	1,041	753	288	2.6	21	3.1	3.5	3.9	4.4	5.2
12	PFE	PFIZER	AA	40	0.3%	1,625	1,133	492	2.3	42	2.7	3.0	3.3	3.6	4.1
13	TWX	TIME WARNER	BBB	27	0.3%	1,222	843	379	2.2	22	3.2	3.6	4.1	4.6	5.5
14	CAT	CATERPILLAR	A	101	0.5%	2,479	1,703	776	2.2	52	3.0	3.2	3.4	3.8	4.4
15	AMZN	AMAZON COM INC	A	15	0.4%	2,070	1,394	676	2.1	41	2.7	3.1	3.4	3.7	4.1
16	TM	TOYOTA	AA	61	0.5%	2,133	1,432	701	2.0	50	2.9	3.2	3.5	3.6	
17	ABBV	ABBVIE INC	BBB	16	0.4%	2,055	1,362	693	2.0	43	3.4	3.6	3.9	4.6	5.0
18	BUD	ANHEUSER BUSCH INBEV WORLDWIDE INC	BBB	38	0.9%	4,308	2,846	1,462	2.0	89	3.2	3.5	4.0	4.4	5.1
19	MO	ALTRIA GROUP INC	BBB	14	0.3%	1,190	787	403	2.0	25	3.2	3.7	4.1	4.4	5.3
20	PEMX	PETROLEOS MEXICANOS	BBB	39	0.6%	2,724	1,794	930	1.9	81	4.5	5.5	6.0	7.2	7.8

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

December 2018

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	ASCMA	Null	C	1	0.2%	1,089	97	992	0.10	3	195.6				
2	CM	CANADIAN IMPERIAL BK COMM TORONTO ONT	N/R	105	0.3%	1,537	214	1,323	0.16	12	3.4	3.5	3.6		
3	CS	CREDIT SUISSE	N/R	449	0.5%	2,389	624	1,765	0.35	30	4.1	3.8	4.3	5.0	4.6
4	BNS	BANK NOVA SCOTIA B C	N/R	157	0.6%	2,952	789	2,163	0.36	33	3.3	3.4	4.7	5.0	
5	BCS	BARCLAYS	N/R	562	0.5%	2,492	688	1,804	0.38	35	4.0	4.2	4.4	4.9	5.0
6	FTR	FRONTIER COMMUNICATIONS CORP	C	24	0.4%	1,741	575	1,166	0.49	24	14.6	22.5	23.4	9.5	18.7
7	RY	ROYAL BANK OF CANADA	BBB	317	0.6%	2,781	1,074	1,707	0.63	48	3.2	3.3	3.8	4.9	5.0
8	EDP	ENTERPRISE PRODS OPER LLC	BBB	32	0.3%	1,264	495	769	0.64	24	3.5	3.6	3.8	4.2	5.2
9	HBC	HSBC	N/R	487	0.8%	3,685	1,534	2,151	0.71	60	3.4	3.9	4.5	4.9	5.3
10	CTL	CENTURYLINK	B	34	0.5%	2,128	923	1,205	0.77	44	5.3	6.1	7.1	9.5	9.6
11	ETP	ENERGY TRANSFER PARTNERS L P	BBB	33	0.4%	1,740	767	973	0.79	26		4.3	4.6	5.2	6.4
12	VIA	VIACOM INC NEW	BBB	38	0.3%	1,346	605	741	0.82	28	3.5	3.9	4.4	4.7	6.1
13	KMI	KINDER MORGAN ENERGY PARTNERS L P	BBB	66	0.3%	1,619	760	859	0.88	31	3.8	4.1	4.4	5.7	5.8
14	USB	U S BANCORP MEDIUM TERM NTS- BOOK ENTRY	A	28	0.5%	2,159	1,040	1,119	0.93	39	3.2	3.5	3.9	3.9	
15	HD	HOME DEPOT	A	26	0.4%	1,747	854	893	0.96	34	3.1	3.1	3.3	3.7	4.3
16	PTRB	PETROBRAS	BB	24	0.4%	2,090	1,031	1,059	0.97	73		4.5	5.6	6.7	7.2
17	CSCO	CISCO	AA	20	0.5%	2,219	1,110	1,109	1.00	40	3.1	3.1	3.4	3.7	4.2
18	DB	DEUTSCHE BANK	BBB	111	0.3%	1,525	763	762	1.00	27	5.6	5.1	5.8		
19	STI	SUNTRUST BKS INC	BBB	31	0.3%	1,517	760	757	1.00	33	3.5	3.6	3.8	5.0	
20	VZ	VERIZON	BBB	116	0.9%	4,098	2,050	2,048	1.00	82	3.2	3.4	3.8	4.2	4.9

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.

Corporate Bonds: Top 20 Most Bought Issues

December 2018

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	MYL	MYLAN INC	Jun-21	BBB	3.150	1,168	17	1,185	7	4.1	4.1	97.7	97.7
2	CAH	CARDINAL HEALTH INC	Jun-22	BBB	2.616	1,145	11	1,156	6	4.0	3.9	95.6	95.9
3	AIG	AIG	Jun-22	BBB	4.875	1,111	56	1,167	9	4.1	3.9	102.6	103.2
4	BRCM	BROADCOM CORP	Jan-22	BBB	3.000	1,087	20	1,107	6	4.2	4.3	96.5	96.2
5	GE	GENERAL ELEC CAP CORP MEDIUM TERM NTS BO	Null	BBB	5.000	1,054	1,666	2,720	42	6.4	6.5	78.3	77.5
6	JPM	JP MORGAN CHASE	Null	BBB	5.990	953	237	1,190	15	6.0	6.0	100.0	99.4
7	OMC	OMNICOM GROUP INC	May-22	BBB	3.625	832	32	864	6	4.1	4.2	98.4	98.3
8	WFC	WELLS FARGO	Null	BBB	5.570	742	479	1,221	26	6.0	6.1	93.3	91.6
9	JPM	JP MORGAN CHASE	Jan-20	A	2.250	659	169	828	18	3.2	3.4	99.0	98.8
10	GS	GOLDMAN SACHS	Dec-19	BBB	2.300	637	67	704	17	3.2	3.4	99.1	98.9
11	CHTR	CCO HOLDINGS LLC	Feb-21	BBB	4.125	588	23	611	3	4.0	4.1	100.2	100.0
12	GS	GOLDMAN SACHS	Oct-19	BBB	2.550	548	150	698	15	3.1	3.4	99.5	99.3
13	C	CITIGROUP	Null	BB	6.300	521	342	863	21	6.5	6.6	96.9	95.2
14	EXAS	Null	Jan-25	N/R	1.000	492	23	515	3	0.1	0.1	114.1	112.5
15	TDOC	Null	Dec-22	N/R	3.000	487	8	495	3			135.6	137.4
16	GS	GOLDMAN SACHS	Apr-22	N/R	4.500	459	1	460	10	4.8	6.0	99.0	95.5
17	PCG	PACIFIC GAS & ELEC CO	Jun-25	BBB	3.500	441	22	463	3	5.6	5.9	88.6	87.2
18	DISH	DISH DBS CORP	Sep-19	B	7.875	440	20	460	4	3.9	4.6	102.8	102.2
19	GS	GOLDMAN SACHS	Mar-24	BBB	4.000	432	294	726	15	4.2	4.3	99.1	98.5
20	JPM	JP MORGAN CHASE	Null	BBB	6.750	410	223	633	11	6.4	6.5	105.8	104.0

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

December 2018

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	GE	GENERAL ELEC CAP CORP MEDIUM TERM NTS BO	Null	BBB	5.000	1,054	1,666	2,720	42	6.4	6.5	78.3	77.5
2	ASCMA	Null	Apr-20	C	9.125	97	992	1,089	3	99.0	195.6	41.8	21.7
3	ETP	ENERGY TRANSFER PARTNERS L P	Nov-66	BB	5.559	42	567	609	4			76.9	71.5
4	C	CITIGROUP	Null	BB	5.950	165	554	719	12	6.2	6.2	95.8	95.8
5	WFC	WELLS FARGO	Null	BBB	5.570	742	479	1,221	26	6.0	6.1	93.3	91.6
6	GM	GENERAL MOTORS FINANCIAL COMPANY INC	Null	BB	5.750	245	461	706	15	6.9	7.1	83.0	81.1
7	T	AT&T	Feb-22	BBB	3.000	281	453	734	6	3.6	3.7	98.1	97.9
8	JPM	JP MORGAN CHASE	Null	BBB	5.150	310	421	731	16	5.3	5.4	97.0	95.8
9	AAPL	APPLE INC	May-23	AA	2.400	296	409	705	15	3.4	3.4	96.1	96.0
10	JPM	JP MORGAN CHASE	Oct-26	A	2.950	220	397	617	5	4.2	4.2	91.9	91.7
11	ANW	Aegean Marine Petroleum Network	Nov-48	N/R	4.000	5	396	401	2			24.8	22.8
12	WFC	WELLS FARGO	Null	BBB	6.558	233	372	605	11	6.1	6.1	100.4	99.9
13	BTI	BAT INTERNATIONAL FINANCE PLC	Jun-25	BBB	4.450	82	371	453	8	4.9	5.0	97.4	97.2
14	JPM	JP MORGAN CHASE	Null	BBB	5.300	308	369	677	16	5.3	5.3	100.5	99.7
15	AAPL	APPLE INC	Feb-26	AA	3.250	225	364	589	6	3.7	3.7	97.4	97.1
16	BUD	ANHEUSER BUSCH INBEV WORLDWIDE INC	Feb-26	A	3.650	293	360	653	13	4.4	4.5	95.3	94.6
17	GE	GENERAL ELEC CAP CORP MEDIUM TERM NTS BO	Jan-38	BBB	5.875	129	345	474	8	6.2	6.4	96.0	94.7
18	C	CITIGROUP	Null	BB	6.300	521	342	863	21	6.5	6.6	96.9	95.2
19	VZ	VERIZON	Nov-24	BBB	3.500	234	341	575	6	3.8	3.9	98.2	98.0
20	ORCL	ORACLE CORP	Nov-27	AA	3.250	190	315	505	4	3.8	3.8	95.8	95.7

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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