

Market Transparency Report

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

December 2022

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 2022

	Median Yield (bps)	Daily Trade Volume	Buy/Sell Ratio
Agency	-15	0.2%	-0.4
CD	-2	-11.0%	-1.2
Corp	-30	-1.4%	-0.3
Municipal	-41	-4.5%	-0.1
Treasury	5	-8.2%	-3.5

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

Yield Matrix

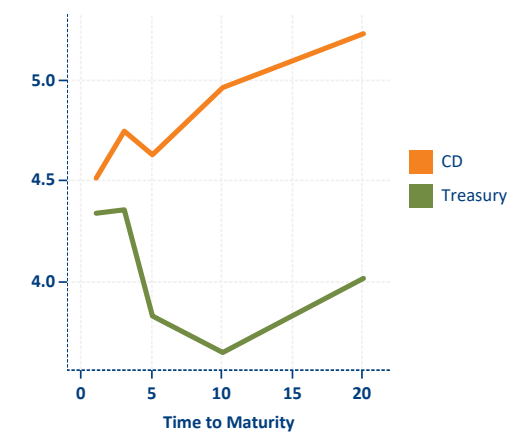
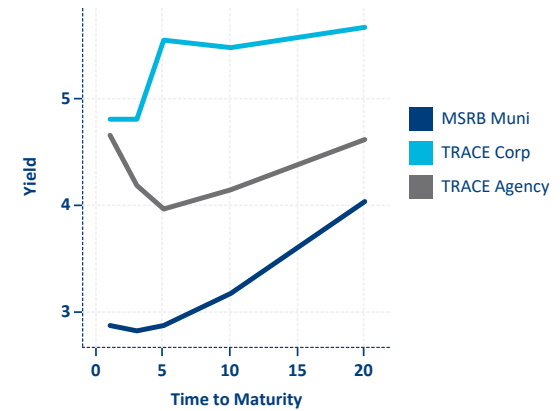
Average Yield, % for December 2022

Market	TTM					Median Maturity (Years)
	1	3	5	10	20	
MSRB Muni	2.9	2.8	2.9	3.2	4.0	9
TRACE Corp	4.8	4.8	5.6	5.5	5.7	3
TRACE Agency	4.7	4.2	4.0	4.2	4.6	1
CD	4.5	4.8	4.6	5.0	5.2	1
Treasury	4.3	4.4	3.8	3.7	4.0	1

Asset Class

Market	Category (Filtered)	Rating Key	1	3	5	10	20	Median Maturity (Years)
TRACE Corp	Financial	AA	3.5	4.6	4.6			6
		A	4.7	4.5	4.4	4.9	5.2	1
		BBB	4.8	4.9	4.9	5.8	5.8	3
		HY	5.8	8.0	8.3	9.8		5
		AAA	1.5				4.4	18
	Non-Financial	AA	4.6	4.4	3.9	4.7	4.6	7
		A	4.1	4.6	4.5	4.5	5.7	3
		BBB	5.0	5.0	5.1	5.6	6.3	3
		HY	6.6	6.3	15.4	7.6	7.3	5
MSRB Muni	GO	AAA	2.7	2.7	2.7	3.0	3.8	7
		AA	2.8	2.8	2.8	3.2	4.0	8
		A	3.0	3.0	3.1	3.3	4.1	7
		BBB	3.5	3.9	4.1	4.3	4.8	10
		HY	7.5	4.6	5.4	5.1	5.8	13
	Revenue	AAA	2.8	2.7	2.8	3.0	3.8	8
		AA	2.9	2.8	2.9	3.1	3.9	10
		A	3.0	3.0	3.1	3.4	4.2	14
		BBB	3.5	3.7	3.8	4.3	4.8	16
		HY	11.3	6.7	5.5	6.5	6.2	9

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.

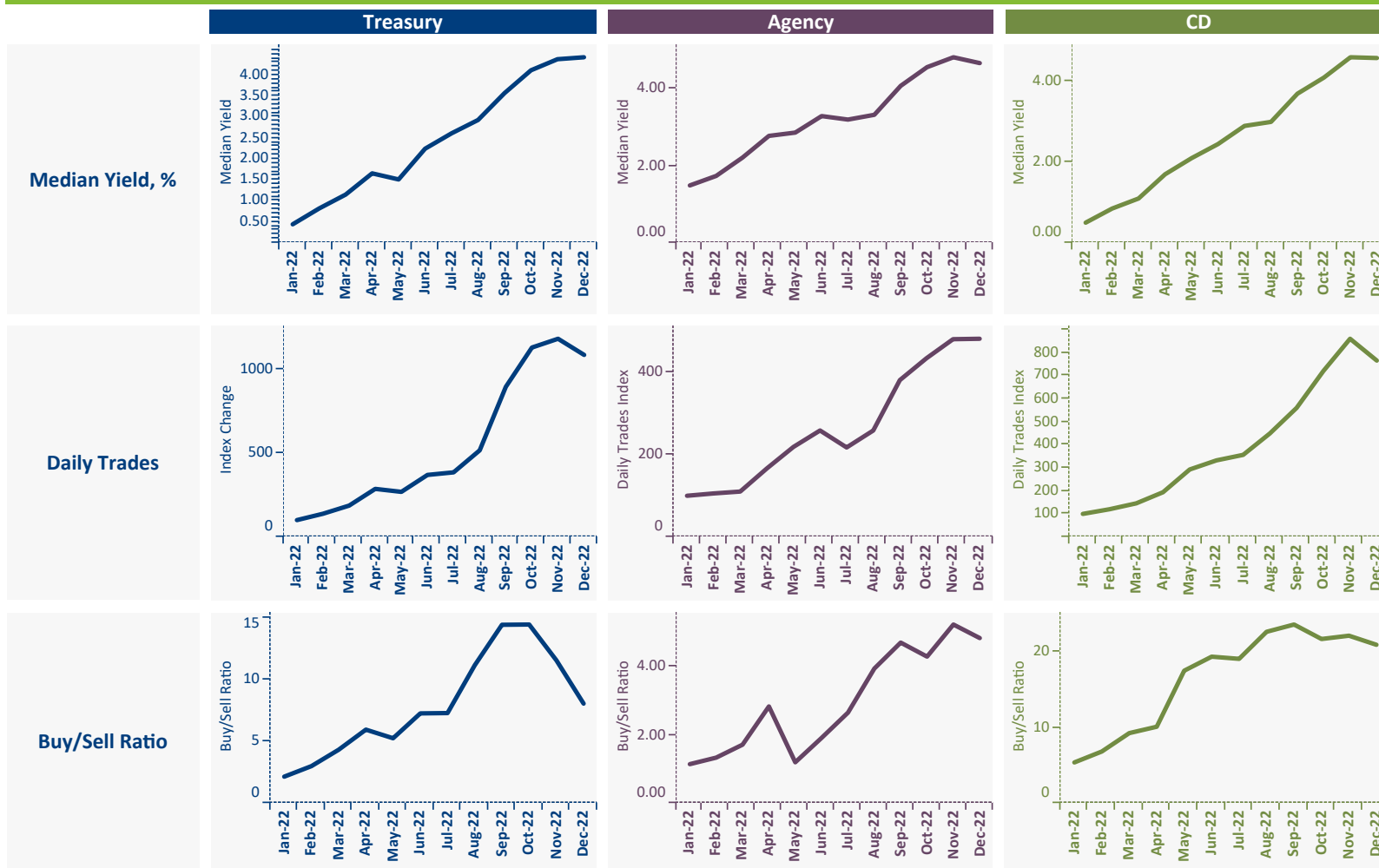
-The weights are based on transaction size.

-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

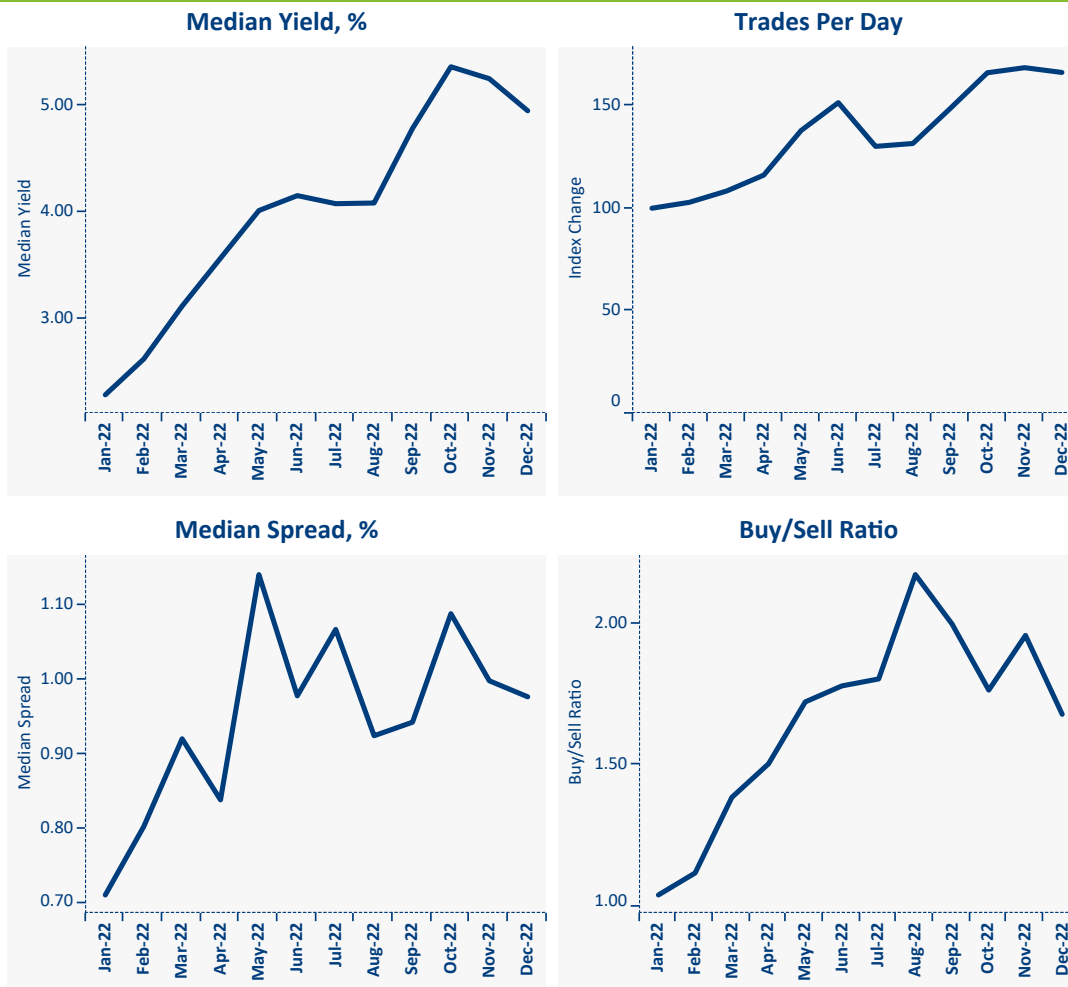
-Treasury and CD are based on transactions on the Tradeweb Direct Platform. Median yields are based on all customer buy transactions.

-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

December 2022

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	A	961	3.2%	27,377	1.4	501	4.7	4.6	4.8	5.4	5.3
2	GS	GOLDMAN SACHS	A	1,241	3.1%	26,859	1.6	461	4.9	4.9	4.8	5.2	5.4
3	C	CITIGROUP	BBB	872	2.6%	22,660	1.5	392	4.8	5.0	5.1	5.5	5.5
4	BAC	BANK OF AMERICA	A	435	2.6%	22,039	1.8	478	4.7	4.9	5.0	5.3	5.3
5	MS	MORGAN STANLEY	A	1,317	2.0%	16,844	1.5	297	4.9	4.9	4.9	5.1	5.2
6	WFC	WELLS FARGO	A	171	1.8%	15,775	1.3	266	4.8	4.8	5.0	5.5	5.5
7	GM	GENERAL MOTORS FINANCIAL COMPANY INC	BBB	92	1.6%	13,577	2.9	292	5.2	5.4	5.5	6.0	6.4
8	VZ	VERIZON	BBB	157	1.4%	12,148	1.4	182	4.8	4.6	4.7	5.0	5.5
9	AAPL	APPLE INC	AA	52	1.3%	10,943	1.7	188	4.6	4.3	4.3	4.2	4.6
10	T	AT&T	BBB	106	1.2%	10,488	1.5	147	4.9	4.8	4.7	5.0	5.5
11	CMCS	COMCAST	A	60	1.1%	9,619	1.1	148	4.8	4.6	4.6	4.7	5.1
12	AMZN	AMAZON COM INC	AA	37	1.1%	9,139	2.3	157	4.5	4.5	4.3	4.4	4.7
13	ORCL	ORACLE CORP	BBB	37	1.0%	8,712	1.1	146	4.9	4.9	5.0	5.4	5.8
14	BA	BOEING CO	BBB	52	0.9%	8,134	2.3	171	5.2	5.2	5.2	5.6	5.9
15	COF	CAPITAL ONE FINL CORP	BBB	29	0.9%	7,568	1.3	115	5.0	5.1	5.0		
16	BRK	BERKSHIRE HATHAWAY	A	151	0.9%	7,514	1.7	158	4.9	4.4	4.7	4.7	5.0
17	AXP	AMERICAN EXPRESS	A	29	0.9%	7,384	1.7	112	4.8	4.7	4.8		4.8
18	CVS	CVS CAREMARK CORP	BBB	39	0.8%	7,044	1.1	104	4.7	4.6	4.8	4.7	5.3
19	DUK	DUKE ENERGY	BBB	120	0.8%	6,553	1.7	104	4.8	4.7	4.8	4.9	5.3
20	GE	GENERAL ELEC CAP CORP MEDIUM TERM NTS BO	BBB	230	0.7%	6,335	1.8	125	5.0	5.7	5.3	5.7	5.4

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.

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

December 2022

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	NEM	NEWMONT MINING	BBB	8	0.6%	5,267	5,120	147	34.8	22				4.9	5.5
2	CRM	SALESFORCE COM INC	A	8	0.7%	5,630	5,251	379	13.9	68			4.4	4.6	4.7
3	CE	CELANESE US HLDGS LLC	BBB	7	0.4%	3,244	2,875	369	7.8	64	5.6	6.0	6.3	6.7	
4	ARCC	ARES CAP CORP	BBB	9	0.4%	3,611	3,153	458	6.9	31	6.1	6.5	6.8	6.6	
5	PM	PHILIP MORRIS INTL INC	A	27	0.6%	5,044	4,244	800	5.3	90	4.9	4.8	4.9	5.2	5.6
6	LNC	LINCOLN NATL CORP IND	BBB	17	0.3%	2,213	1,814	399	4.6	55	4.9	4.9	5.2	5.8	6.1
7	VIA	VIACOM INC NEW	BBB	28	0.4%	3,196	2,469	727	3.4	60	5.2	5.2	5.6	6.3	7.0
8	BX	APRIA HEALTHCARE GROUP INC	BBB	29	0.4%	3,026	2,304	722	3.2	57	5.5	5.5	6.0	5.8	4.6
9	ALLY	ALLY FINANCIAL	BBB	55	0.6%	4,851	3,677	1,174	3.1	96	5.4	5.9	6.2	6.8	
10	TRP	TRANSCANADA PIPELINES LTD	BBB	31	0.3%	2,185	1,627	558	2.9	42	4.9	5.0	5.1	5.3	5.5
11	GM	GENERAL MOTORS FINANCIAL COMPANY INC	BBB	92	1.6%	13,577	10,093	3,484	2.9	292	5.2	5.4	5.5	6.0	6.4
12	AMT	AMERICAN TOWER CORP NEW	BBB	30	0.5%	4,044	2,977	1,067	2.8	66	5.1	5.1	5.2	5.2	
13	CI	CIGNA CORP	BBB	35	0.5%	3,944	2,863	1,081	2.7	65	4.9	4.7	4.9	5.0	5.3
14	DE	DEERE JOHN CAP CORP MEDIUM TERM NTS-BOOK	A	60	0.5%	4,025	2,911	1,114	2.6	83	4.6	4.4	4.4	4.4	4.4
15	HPQ	HEWLETT PACKARD	BBB	20	0.5%	4,543	3,279	1,264	2.6	73	5.0	5.0	5.0	5.8	6.0
16	ETP	ENERGY TRANSFER PARTNERS L P	BBB	32	0.4%	3,841	2,713	1,128	2.4	78	5.3	5.3	5.3	5.9	6.2
17	MO	ALTRIA GROUP INC	BBB	23	0.4%	3,179	2,235	944	2.4	70	5.1	4.8	5.0	5.6	6.3
18	BA	BOEING CO	BBB	52	0.9%	8,134	5,699	2,435	2.3	171	5.2	5.2	5.2	5.6	5.9
19	AMZN	AMAZON COM INC	AA	37	1.1%	9,139	6,389	2,750	2.3	157	4.5	4.5	4.3	4.4	4.7
20	LOW	LOWES COS INC	BBB	37	0.6%	5,499	3,844	1,655	2.3	69	4.7	4.5	4.6	4.9	5.2

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 2022

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	RDS	SHELL	AA	25	0.4%	3,195	1,310	1,885	0.69	44	5.1	4.4	4.3	4.7	5.0
2	CS	CREDIT SUISSE	N/R	444	0.5%	4,205	1,931	2,274	0.85	65	8.2	7.5	7.2	6.7	7.3
3	EDP	ENTERPRISE PRODS OPER LLC	BBB	33	0.4%	3,646	1,783	1,863	0.96	49	5.2	4.9	5.0	5.6	5.6
4	ICE	IntercontinentalExchange Group Inc	A	15	0.4%	3,236	1,618	1,618	1.00	36		4.5	4.6	4.8	4.9
5	KO	COCA COLA CO	A	26	0.2%	2,101	1,070	1,031	1.04	35	4.9	4.8	4.2	4.3	4.6
6	ORCL	ORACLE CORP	BBB	37	1.0%	8,712	4,499	4,213	1.07	146	5.2	5.0	5.0	5.4	5.8
7	SIVB	SVB FINL GROUP	BBB	11	0.2%	1,967	1,015	952	1.07	31		5.3	5.7	6.0	
8	CMCS	COMCAST	A	60	1.1%	9,619	5,074	4,545	1.12	148	4.8	4.6	4.7	4.7	5.0
9	CVS	CVS CAREMARK CORP	BBB	39	0.8%	7,044	3,733	3,311	1.13	104	5.2	4.7	4.8	4.8	5.3
10	PEP	PEPSICO	A	35	0.3%	2,466	1,315	1,151	1.14	47	4.7	4.3	4.2	4.3	4.5
11	NEE	FPL GROUP CAP INC	BBB	58	0.7%	5,699	3,057	2,642	1.16	91	5.0	4.7	4.8	4.8	4.9
12	BK	BANK NEW YORK INC MEDIUM TERM SR NTS BOO	A	49	0.5%	4,338	2,353	1,985	1.19	84	4.9	4.7	4.7	4.8	
13	DELL	DELL	BBB	22	0.5%	4,558	2,523	2,035	1.24	79	5.5	5.1	5.4	5.6	6.4
14	SCHW	SCHWAB CHARLES CORP NEW	BBB	36	0.5%	4,400	2,461	1,939	1.27	97	4.8	4.6	4.4	4.7	
15	BP	BP	A	26	0.6%	5,216	2,950	2,266	1.30	64		4.4	4.5	4.7	4.9
16	COF	CAPITAL ONE FINL CORP	BBB	29	0.9%	7,568	4,271	3,297	1.30	115	5.4	5.2	5.0		
17	XOM	XTO ENERGY INC	AA	22	0.4%	3,066	1,743	1,323	1.32	51	4.6	4.5	4.1	4.3	4.8
18	WFC	WELLS FARGO	A	171	1.8%	15,775	9,005	6,770	1.33	266	5.1	4.9	5.0	5.9	5.6
19	FISV	FISERV INC	BBB	9	0.3%	2,882	1,658	1,224	1.35	33	5.3	5.1	4.9	5.0	
20	BUD	ANHEUSER BUSCH INBEV WORLDWIDE INC	BBB	40	0.5%	4,685	2,699	1,986	1.36	62		4.7	4.7	4.7	5.1

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

December 2022

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	NEM	NEWMONT MINING	Jul-32	BBB	2.600	5,037	85	5,122	19	4.9	5.1	82.5	81.6
2	CRM	SALESFORCE COM INC	Apr-28	A	3.700	5,005	124	5,129	58	4.4	4.4	96.8	96.5
3	ARCC	ARES CAP CORP	Mar-24	BBB	4.625	2,081	108	2,189	6	0.4	0.5	105.8	105.0
4	EEFT	Null	Mar-49	BBB	0.750	1,739	154	1,893	5	1.0	1.1	95.1	93.1
5	LOW	LOWES COS INC	Apr-26	BBB	2.500	1,620	335	1,955	12	4.5	4.6	93.9	93.6
6	AMZN	AMAZON COM INC	Dec-27	AA	4.550	1,616	107	1,723	19	4.3	4.4	101.0	100.6
7	AXP	AMERICAN EXPRESS	Nov-27	A	5.850	1,523	59	1,582	16	4.8	4.9	104.3	104.2
8	PM	PHILIP MORRIS INTL INC	Nov-24	A	5.125	1,487	61	1,548	18	5.0	5.0	100.2	100.2
9	T	AT&T	Jun-27	BBB	2.300	1,443	235	1,678	13	4.7	4.8	90.5	90.0
10	JPM	JP MORGAN CHASE	Sep-27	A	1.470	1,424	70	1,494	13			87.6	87.1
11	HPQ	HEWLETT PACKARD	Oct-25	BBB	4.900	1,416	541	1,957	17	5.0	5.1	99.7	99.5
12	CVS	CVS CAREMARK CORP	Mar-28	BBB	4.300	1,404	1,419	2,823	23	4.8	4.9	97.6	97.4
13	AAPL	APPLE INC	Nov-27	AA	3.000	1,380	471	1,851	12	4.3	4.3	94.5	94.3
14	GM	GENERAL MOTORS FINANCIAL COMPANY INC	Jan-24	BBB	5.100	1,360	94	1,454	29	5.3	5.5	99.8	99.6
15	C	CITIGROUP	Apr-26	BBB	3.106	1,332	115	1,447	9			95.4	95.1
16	UTX	UNITED TECHNOLOGIES CORP	Aug-25	BBB	3.950	1,325	484	1,809	12	4.7	4.7	98.1	98.1
17	GE	GENERAL ELEC CAP CORP MEDIUM TERM NTS BO	Null	BBB	8.099	1,317	511	1,828	44	8.1	6.8	98.7	97.8
18	CMCS	COMCAST	Oct-28	A	4.150	1,279	1,059	2,338	22	4.7	4.7	97.3	97.2
19	WFC	WELLS FARGO	Jul-27	BBB	4.300	1,274	413	1,687	22	4.9	5.0	97.4	97.1
20	SO	GEORGIA POWER CO	Jul-23	BBB	2.950	1,211	512	1,723	12	4.7	5.3	99.1	98.7

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).

Corporate Bonds: Top 20 Most Sold Issues

December 2022

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	CVS	CVS CAREMARK CORP	Mar-28	BBB	4.300	1,404	1,419	2,823	23	4.8	4.9	97.6	97.4
2	ICE	IntercontinentalExchange Group Inc	May-25	A	3.650	583	1,251	1,834	9	4.5	4.5	98.1	98.1
3	COF	CAPITAL ONE FINL CORP	Jan-24	BBB	3.900	232	1,198	1,430	16	5.1	5.4	98.7	98.4
4	AXP	AMERICAN EXPRESS	Feb-24	A	3.400	105	1,140	1,245	8	4.8	4.9	98.4	98.3
5	NEE	FPL GROUP CAP INC	Jun-25	BBB	4.450	138	1,100	1,238	8	4.7	4.7	99.5	99.4
6	DELL	DELL	Jul-25	BBB	5.850	115	1,087	1,202	8	5.1	5.1	101.8	101.6
7	CMCS	COMCAST	Oct-28	A	4.150	1,279	1,059	2,338	22	4.7	4.7	97.3	97.2
8	VZ	VERIZON	Mar-27	BBB	4.125	619	995	1,614	17	4.6	4.6	98.3	98.1
9	LVS	Null	Aug-24	BBB	3.200	164	914	1,078	8	6.1	6.1	95.6	95.5
10	GS	GOLDMAN SACHS	Mar-30	A	3.800	695	874	1,569	15	5.2	5.2	91.8	91.4
11	WFC	WELLS FARGO	May-28	A	3.584	283	754	1,037	6			93.7	93.4
12	T	AT&T	Dec-33	BBB	2.550	408	629	1,037	5	5.0	5.0	79.5	79.4
13	BP	BP	Sep-27	A	3.279	807	619	1,426	8	4.5	4.5	94.9	94.8
14	C	CITIGROUP	Jul-28	BBB	3.668	593	604	1,197	9			93.0	92.8
15	C	CITIGROUP	Jan-28	BBB	3.887	361	590	951	6			94.5	94.4
16	GS	GOLDMAN SACHS	Feb-26	A	3.750	940	589	1,529	14	4.8	4.9	97.0	96.8
17	JPM	JP MORGAN CHASE	Dec-29	A	4.452	422	580	1,002	6			95.7	95.5
18	AMZN	AMAZON COM INC	Jun-30	AA	1.500	466	569	1,035	5	4.4	4.4	81.9	81.8
19	BA	BOEING CO	May-25	BBB	4.875	1,121	551	1,672	29	5.2	5.4	99.3	98.9
20	BUD	ANHEUSER BUSCH INBEV WORLDWIDE INC	Feb-46	BBB	4.900	253	545	798	4	5.1	5.1	96.9	96.8

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).

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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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