

# **Market Transparency Report**

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

**October 2022** 

### www.tradeweb.com

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### **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.

2

### **Page Reference**

- 3. Market Commentary
- 4. Yield Matrix
- 5. Treasury, Agency, CD Transaction Trend Summary 6. Corporate Bonds: Odd-Lot Customer Transaction Trend Summary 7. Municipal Bonds: Odd-Lot Customer Transaction Trend Summary
- 8. Corporate Bonds: Top 20 Most Active Issuers
- 9. Corporate Bonds: Top 20 Issuers with Highest Buy/Sell Ratio
- 10. Corporate Bonds: Top 20 Issuers with Highest Buy/Sell Ratio 11. Corporate Bonds: Top 20 Issuers with Lowest Buy/Sell Ratio 11. Corporate Bonds: Top 20 Most Bought Issues
- 12. Corporate Bonds: Top 20 Most Sold Issues
- 13. Appendix 14. Disclosures



# **Market Commentary**

	Median Yield (bps)	Daily Trade Volume	Buy/Sell Ratio
Agency	49	13.9%	-0.4
CD	40	28.6%	-1.9
Corp	58	11.7%	-0.2
Municipal	32	23.3%	-0.1
Treasury	54	26.2%	0.0

### Monthly Change Table for October 2022

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

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# Yield Matrix

Average	Yield.	% for	October	2022	

Average `	Yield, % for Octobe	2022							Average Yield, %
					TTM			Median	
Market			1	3	5	10	20	Maturity (Years)	6-
MSRB Muni			3.2	3.3	3.4	3.8	4.5	9	
TRACE Corp			4.6	5.3	5.9	5.9	6.4	3	
TRACE Agen	су		4.4	4.4	4.3	4.4	5.0	1	MSRB MI
CD			4.0	4.6	4.8	4.6	4.9	1	
Treasury			4.1	4.4	4.3	4.0	4.4	1	
Asset Cla	ss								
								Median	2-
Market	Category (Filtered)	Rating Key	1	3	5	10	20	Maturity	
WINKEL	Category (Filtereu)	Rating Key	1	5	5	10	20	(Years)	
		AA	3.1	4.9				1	0
		А	4.6	5.0	5.0	5.3	6.1	1	0 5 10 15 20
	Financial	BBB	4.5	5.5	5.7	5.9	6.3	3	
		HY	6.8	7.5	8.8	10.3		3	Time to Maturity
TRACE – Corp		AAA	3.0				5.0	17	5
Corp		AA	4.0	4.2	4.4	5.4	5.2	7	5-
	Non-Financial	A	4.5	4.9	4.8	5.1	6.0	5	
		BBB	5.0	5.4	5.7	6.0	7.2	4	4
		HY	4.1	7.0	16.0	7.8	8.0	5	4
								Median	
			1	3	5	10	20	Maturity	3CD
								(Years)	Treasury
		AAA	3.0	3.2	3.3	3.6	4.1	7	
		AA	3.1	3.3	3.4	3.7	4.4	8	2
	GO	A	3.2	3.4	3.6	3.8	4.3	6	
		BBB	3.8	4.1	4.3	4.9	5.1	14	
MSRB		HY	4.2		4.5	6.1	5.5	12	1-
Muni		AAA	3.1	3.2	3.3	3.6	4.2	8	
		AA	3.2	3.3	3.4	3.7	4.4	10	0
	Revenue	A	3.3	3.5	3.6	4.0	4.7	17	
		BBB	3.7	4.1	4.3	4.6	5.1	14	0 5 10 15 20
		HY	5.8	5.7	4.9	6.2	5.7	10	Time to Maturity

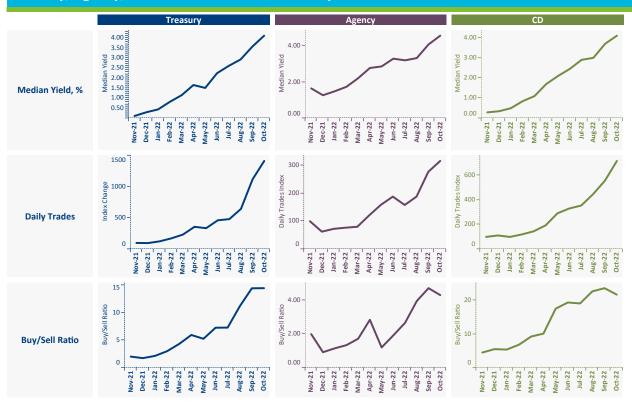
4

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 bdd-lot customer buy transcations 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



6

Daily Trades: First month = 100

-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



7

Daily Trades: First month = 100

-Bource: 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.



### Corporate Bonds: Top 20 Most Active Issuers

#### October 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	GS	GOLDMAN SACHS	Α	989	3.4%	28,101	2.0	469	5.1	5.6	5.7	6.0	6.4
2	JPM	JP MORGAN CHASE	Α	719	3.2%	26,423	1.4	478	4.6	5.2	5.5	5.8	6.2
3	BAC	BANK OF AMERICA	Α	376	3.0%	24,579	2.3	485	4.6	5.6	5.8	5.5	6.2
4	с	CITIGROUP	BBB	688	2.9%	23,909	1.7	392	4.6	5.6	6.0	6.3	6.4
5	MS	MORGAN STANLEY	A	729	2.4%	19,213	1.9	319	4.9	5.3	5.8	6.1	6.3
6	WFC	WELLS FARGO	A	134	2.1%	16,736	1.5	260	4.9	5.6	5.9	6.1	6.6
7	GM	GENERAL MOTORS FINANCIAL COMPANY INC	BBB	81	1.8%	14,931	3.9	291	5.3	6.1	6.4	7.0	7.4
8	AAPL	APPLE INC	AA	52	1.4%	11,752	1.6	181	4.2	4.6	4.7	4.8	5.2
9	VZ	VERIZON	BBB	138	1.3%	10,568	1.1	139	4.7	5.0	5.4	5.7	6.0
10	т	AT&T	BBB	102	1.2%	9,858	1.0	122	4.9	5.4	5.4	5.8	6.2
11	CMCS	COMCAST	Α	58	1.1%	8,954	0.9	114	4.9	5.0	5.3	5.4	5.8
12	DUK	DUKE ENERGY	BBB	114	1.0%	8,485	2.6	113	4.8	5.4	5.4	5.8	6.1
13	BRK	BERKSHIRE HATHAWAY	AA	149	1.0%	8,339	1.3	146	4.4	4.8	5.3	5.4	6.0
14	BA	BOEING CO	BBB	54	1.0%	7,905	3.9	158	5.0	5.9	5.9	6.4	7.0
15	CVS	CVS CAREMARK CORP	BBB	38	0.9%	7,475	0.9	101	4.8	5.1	5.6	5.6	6.2
16	ORCL	ORACLE CORP	BBB	34	0.9%	7,134	1.1	117	4.9	5.4	5.8	6.2	6.9
17	AMZN	AMAZON COM INC	AA	34	0.8%	6,900	1.3	110	4.1	4.6	4.8	4.9	5.6
18	COF	CAPITAL ONE FINL CORP	BBB	29	0.8%	6,692	2.1	103	5.2	5.5	6.0		
19	TD	TORONTO DOMINION BK SR MEDIUM TERM BK NT	A	165	0.8%	6,602	1.8	110	4.9	5.3	5.5	5.8	
20	RY	ROYAL BANK OF CANADA	Α	225	0.8%	6,599	2.3	112	4.7	5.4	5.5	5.7	

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 <u>Highest</u> Buy/Sell Ratio

#### October 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	EEFT	Null	BBB	1	0.3%	2,185	2,100	85	24.7	5					
2	ARCC	ARES CAP CORP	BBB	9	0.4%	3,418	3,177	241	13.2	26	1.5	7.1	7.4	7.6	
3	TRP	TRANSCANADA PIPELINES LTD	BBB	31	0.6%	5,289	4,803	486	9.9	39	4.9	5.3	5.7	5.9	6.4
4	CE	CELANESE US HLDGS LLC	BBB	8	0.4%	2,968	2,669	299	8.9	58		7.0	7.3	7.5	
5	LUV	SOUTHWEST AIRLS CO	BBB	8	0.3%	2,097	1,691	406	4.2	33		5.4	5.5		
6	PM	PHILIP MORRIS INTL INC	А	23	0.3%	2,490	2,004	486	4.1	45	4.5	5.3	5.5	6.0	7.0
7	TM	ΤΟΥΟΤΑ	А	68	0.7%	6,099	4,903	1,196	4.1	101	4.5	4.8	5.1	5.2	
8	DFS	DISCOVER BK NEW CASTLE DEL	BBB	33	0.2%	1,847	1,477	370	4.0	35	4.7	6.0	6.8	6.1	
9	GM	GENERAL MOTORS FINANCIAL COMPANY INC	BBB	81	1.8%	14,931	11,910	3,021	3.9	291	5.3	6.1	6.4	7.0	7.4
10	BA	BOEING CO	BBB	54	1.0%	7,905	6,300	1,605	3.9	158	5.0	5.9	5.9	6.4	7.0
11	PRU	PRUDENTIAL	BBB	43	0.3%	2,368	1,888	480	3.9	33		5.1	4.9	6.1	5.7
12	CI	CIGNA CORP	BBB	39	0.6%	4,484	3,573	911	3.9	74	5.0	5.2	5.5	5.5	6.0
13	ALLY	ALLY FINANCIAL	BBB	50	0.5%	3,784	2,974	810	3.7	67	5.2	6.2	6.6	7.5	
14	вх	APRIA HEALTHCARE GROUP INC	BBB	29	0.3%	2,158	1,677	481	3.5	42		6.3	6.1	6.2	5.0
15	EIX	EDISON MISSION	А	53	0.4%	3,352	2,596	756	3.4	61	4.9	5.5	6.2	6.0	6.4
16	SAN	ABBEY NATL TREAS SVCS PLC	BBB	39	0.2%	1,890	1,451	439	3.3	46	5.4	6.1	6.4	7.1	
17	MO	ALTRIA GROUP INC	BBB	23	0.3%	2,844	2,174	670	3.2	56	5.1	5.5	5.7	6.6	7.3
18	AEP	AMERICAN ELEC PWR CO INC	BBB	66	0.2%	2,028	1,537	491	3.1	38	5.1	5.3	5.5	5.9	6.3
19	HPQ	HEWLETT PACKARD	BBB	20	0.6%	4,913	3,683	1,230	3.0	69	4.8	5.3	6.0	7.1	7.1
20	LOW	LOWES COS INC	BBB	38	0.7%	5,543	4,129	1,414	2.9	71	4.5	5.1	5.3	5.6	6.1

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

#### October 2022

Index	Ticker	Company	Rating Key (Med)	lssues 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	PYPL	Null	А	11	0.3%	2,154	554	1,600	0.35	25	5.1	5.1	5.0	5.4	
2	RDS	SHELL	AA	24	0.4%	3,330	1,132	2,198	0.52	41	4.8	5.1		5.1	5.8
3	V	VIVENDI	AA	12	0.4%	2,871	1,092	1,779	0.61	36		4.7	4.8	4.9	5.4
4	EDP	ENTERPRISE PRODS OPER LLC	BBB	34	0.5%	3,895	1,777	2,118	0.84	45	5.5	5.4	5.6	6.4	6.4
5	CMCS	COMCAST	А	58	1.1%	8,954	4,151	4,803	0.86	114	5.0	5.1	5.3	5.4	5.9
6	CVS	CVS CAREMARK CORP	BBB	38	0.9%	7,475	3,493	3,982	0.88	101	5.1	5.3	5.7	5.7	6.3
7	CS	CREDIT SUISSE	N/R	572	0.6%	5,024	2,391	2,633	0.91	81	8.3	8.2	7.4	7.4	
8	т	AT&T	BBB	102	1.2%	9,858	4,986	4,872	1.02	122	4.9	5.6	5.5	5.8	6.3
9	VZ	VERIZON	BBB	138	1.3%	10,568	5,496	5,072	1.08	139	4.8	5.1	5.4	5.7	6.0
10	ORCL	ORACLE CORP	BBB	34	0.9%	7,134	3,763	3,371	1.12	117	5.0	5.6	5.9	6.3	6.9
11	USB	U S BANCORP MEDIUM TERM NTS- BOOK ENTRY	А	28	0.6%	5,237	2,798	2,439	1.15	63	4.9	5.1	5.1	5.5	
12	FISV	FISERV INC	BBB	9	0.4%	2,928	1,584	1,344	1.18	33	5.3	5.7	5.8	5.8	
13	NOC	NORTHROP GRUMMAN CORP	BBB	18	0.3%	2,598	1,413	1,185	1.19	30	4.8	5.1	5.5	5.4	5.8
14	GILD	GILEAD SCIENCES INC	BBB	17	0.2%	1,907	1,053	854	1.23	33	5.0	5.1	5.3	5.3	5.9
15	AIG	AIG	BBB	25	0.3%	2,097	1,164	933	1.25	22	5.3	3.9	5.8	5.5	6.2
16	AMZN	AMAZON COM INC	AA	34	0.8%	6,900	3,879	3,021	1.28	110	4.5	4.7	4.8	5.0	5.4
17	ВК	BANK NEW YORK INC MEDIUM TERM SR NTS BOO	А	49	0.4%	3,478	1,950	1,528	1.28	62	5.0	5.1	5.3	5.4	
18	BRK	BERKSHIRE HATHAWAY	AA	149	1.0%	8,339	4,697	3,642	1.29	146	4.9	4.9	5.4	5.4	5.8
19	HD	HOME DEPOT	А	36	0.5%	3,712	2,106	1,606	1.31	62	4.6	4.9	4.9	5.1	5.6
20	BP	BP	А	25	0.6%	4,806	2,736	2,070	1.32	58		5.0	5.3	5.4	5.6

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 <u>Bought</u> Issues

### October 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	TRP	TRANSCANADA PIPELINES LTD	Aug-76	BBB	5.875	3,147	175	3,322	7			93.9	92.5
2	ARCC	ARES CAP CORP	Mar-24	BBB	4.625	2,330	73	2,403	7	1.5	2.4	107.7	103.1
3	EEFT	Null	Mar-49	BBB	0.750	2,100	85	2,185	5	1.1	1.2	92.2	90.6
4	тм	ΤΟΥΟΤΑ	Feb-25	A	1.800	1,990	23	2,013	15	4.8	4.9	93.6	93.2
5	GM	GENERAL MOTORS FINANCIAL COMPANY INC	Oct-23	BBB	5.400	1,965	42	2,007	40	5.4	5.6	100.0	99.8
6	BAC	BANK OF AMERICA	Aug-24	BBB	4.200	1,637	216	1,853	34	5.4	5.4	98.0	97.9
7	WFC	WELLS FARGO	Jul-27	BBB	4.300	1,590	631	2,221	27	5.9	6.1	93.6	92.6
8	AAPL	APPLE INC	Nov-27	AA	3.000	1,578	407	1,985	12	4.7	4.7	92.5	92.3
9	HPQ	HEWLETT PACKARD	Oct-25	BBB	4.900	1,535	541	2,076	15	5.3	5.3	98.9	99.0
10	LOW	LOWES COS INC	Apr-26	BBB	2.500	1,521	326	1,847	11	5.1	5.1	91.7	91.8
11	DUK	DUKE ENERGY	Aug-27	BBB	3.150	1,479	135	1,614	13	5.4	5.5	90.6	90.1
12	BA	BOEING CO	May-25	BBB	4.875	1,429	131	1,560	30	5.9	5.9	97.6	97.6
13	UTX	UNITED TECHNOLOGIES CORP	Aug-25	BBB	3.950	1,386	469	1,855	11	5.0	5.0	97.2	97.2
14	GS	GOLDMAN SACHS	Feb-26	A	3.750	1,363	715	2,078	22	5.7	5.8	94.1	93.8
15	GS	GOLDMAN SACHS	Mar-24	A	4.000	1,353	391	1,744	27	5.2	5.3	98.4	98.3
16	SO	GEORGIA POWER CO	Jul-23	BBB	2.950	1,331	755	2,086	11	4.8	4.9	98.7	98.7
17	CVS	CVS CAREMARK CORP	Mar-28	BBB	4.300	1,325	2,014	3,339	26	5.6	5.7	94.0	93.6
18	MS	MORGAN STANLEY	Nov-25	BBB	5.000	1,325	102	1,427	35	5.3	5.6	99.2	98.4
19	PNC	PNC FDG CORP	Dec-49	BBB	6.200	1,266	162	1,428	30			95.7	94.7
20	С	CITIGROUP	Sep-25	BBB	5.500	1,234	96	1,330	26	5.6	5.7	99.8	99.5

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).



# Corporate Bonds: Top 20 Most Sold Issues

### October 2022

1   CVS   CVS CAREMARK CORP   Mar-28   B88   4.300   1,325   2,014   3,339   26   5.6   5.7   94.0   93.6     2   CMCS   COMCAST   Oct-28   A   4.150   1,008   1,560   2,568   20   5.3   5.3   94.0   93.9     3   VZ   VERIZON   Mar-27   B88   4.125   5.22   1,339   1,661   17   5.4   5.4   5.9   95.0	Inde	x Ticker	Company	Maturity	Rating Key (Med)	Coupon	Trades (Buy)	Trades (Sell)	Trades	Dollar Vol. Traded (MM)	Yield (Buy)	Yield (Sell)	Price (Buy)	Price (Sell)
3VZVERIZONMar-27BBB4.1255.221,3391,861175.45.495.395.04BRKBERKSHIRE HATHAWAYMar-26AA3.1253841,3191,703134.74.995.094.65GSGOLDMAN SACHSMar-30A3.8007351,2221,957166.16.186.386.46WFCWELLS FARGOMar-28A3.5841281,2211,349790.090.17PYPLNullJun-25A1.6501181,2041,32294.95.192.091.88AMZON COM INCJun-30AA1.5002451,1461,39164.95.078.578.578.59CCITIGROUPJan-28BB83.8872081,1371,345791.191.591.910JPMJPMORGAN CHASEDec-29A4.4522351,1091,344791.191.390.911TAT&TJun-31BB82.7501151,0811,196105.75.880.379.612RDSSHELLSep-26AA2.5001911,0761,26765.05.191.990.913MSMORGAN STANLEYJul-28A3.5911751,0351,210588.773.674.1<	1	CVS	CVS CAREMARK CORP	Mar-28	BBB	4.300	1,325	2,014	3,339	26	5.6	5.7	94.0	93.6
4     BRK     BERKSHIRE HATHAWAY     Mar-26     AA     3.125     384     1,319     1,703     13     4.7     4.9     95.0     94.6       5     GS     GOLDMAN SACHS     Mar-30     A     3.800     735     1,222     1,957     16     6.1     6.1     86.3     86.4       6     WFC     WELLS FARGO     May-28     A     3.584     128     1,221     1,349     7     90.0     90.1       7     PYPL     Null     Jun-25     A     1.650     118     1,204     1,322     9     4.9     5.1     92.0     91.8       8     AMZN     AMAZON COM INC     Jun-30     AA     1.500     245     1,146     1,391     6     4.9     5.0     78.5     78.3       9     C     CTTGROUP     Jan-28     B8B     3.887     208     1,137     1,344     7     -     91.5     91.5     91.9       10     JPM MORGAN CHASE     Dec-29     A     4.452<	2	CMCS	COMCAST	Oct-28	A	4.150	1,008	1,560	2,568	20	5.3	5.3	94.0	93.9
5GSGOLDMAN SACHSMar-30A3.8007351,2221,957166.16.186.386.46WFCWELLS FARGOMay-28A3.5841281,2211,349790.090.17PYPLNullJunJun-25A1.6501181,2041,32294.95.192.091.88AMZNAMAZON COM INCJun-30AA1.5002451,1461,39164.95.078.578.39CCTIGROUPJan-28BBB3.8872081,1371,3457791.591.910JPMJP MORGAN CHASEDec-29A4.4522351,091,3447791.791.391.911TAT&TDec-30BBB2.7501151,0811,195105.75.880.379.612RDSSHELLSep-26AA2.5001911,0761,26765.05.191.990.913MSMORGAN STANLEYJul-28A3.5911751,0351,2105589.789.814TAT&TDec-33BBB2.5503381,0331,37175.66.993.993.615CCTIGROUPMar-32A2.9504969161,412165.25.083.384.9	3	VZ	VERIZON	Mar-27	BBB	4.125	522	1,339	1,861	17	5.4	5.4	95.3	95.0
6     WFC     WELLS FARGO     May-28     A     3.584     128     1,221     1,349     7     90.0     90.1       7     PYPL     Null     Jun-25     A     1.650     118     1,224     1,349     7     90.0     91.8       8     AMZN     AMAZON COM INC     Jun-30     AA     1.500     245     1,146     1,391     6     4.9     5.0     78.5     78.3       9     C     CITIGROUP     Jan-28     BBB     3.887     208     1,137     1,345     7     91.5     91.5     91.5       10     JPM     JP MORGAN CHASE     Dec-29     A     4.452     235     1,109     1,344     7     91.1     91.5     91.5       11     T     AT&T     AT&T     BBB     2.750     115     1,081     1,196     10     5.7     5.8     80.3     79.6       12     RDS     SHELL     AT&T     Dec-33     BBB     2.550     338     1,033 <t< td=""><td>4</td><td>BRK</td><td>BERKSHIRE HATHAWAY</td><td>Mar-26</td><td>AA</td><td>3.125</td><td>384</td><td>1,319</td><td>1,703</td><td>13</td><td>4.7</td><td>4.9</td><td>95.0</td><td>94.6</td></t<>	4	BRK	BERKSHIRE HATHAWAY	Mar-26	AA	3.125	384	1,319	1,703	13	4.7	4.9	95.0	94.6
7     PYPL     Null     Jun-30     A     1.650     118     1.204     1.322     9     4.9     5.1     92.0     91.8       8     AMZN     AMAZON COM INC     Jun-30     AA     1.500     245     1.146     1.391     6     4.9     5.0     78.5     78.3       9     C     CITIGROUP     Jan-28     BBB     3.887     208     1.137     1.345     7     -     91.5     91.5     91.5       10     JPM     JP MORGAN CHASE     Dec-29     A     4.452     235     1.109     1.344     7     -     91.1     91.5     91.5       11     T     AT&T     Jun-31     BBB     2.750     115     1.081     1.196     10     5.7     5.8     80.3     79.6       12     RDS     SHELL     Sep-26     AA     2.500     191     1.076     1.267     6     5.0     5.1     9.3     9.3       13     MS     MORGAN STANLEY     Jul-28	5	GS	GOLDMAN SACHS	Mar-30	A	3.800	735	1,222	1,957	16	6.1	6.1	86.3	86.4
8     AMZN     AMAZON COM INC     Jun-30     AA     1.500     245     1.146     1.391     6     4.9     5.0     78.5     78.3       9     C     CITIGROUP     Jan-28     BBB     3.887     208     1.137     1.345     7     91.5     91.5     91.9       10     JPM     JP MORGAN CHASE     Dec-29     A     4.452     235     1.109     1.344     7     91.1     91.5     91.5       11     T     AT&T     Jun-31     BBB     2.750     115     1.081     1.166     10     5.7     5.8     80.3     79.6       12     RDS     SHELL     Sep-26     AA     2.500     191     1.076     1.267     6     5.0     5.1     91.3     90.9       13     MS     MORGAN STANLEY     Jul-28     A     3.591     175     1.035     1.210     5     89.7     73.6     74.1       14     T     AT&T     Dec-33     BBB     2.550	6	WFC	WELLS FARGO	May-28	A	3.584	128	1,221	1,349	7			90.0	90.1
9CCITIGROUPJan-28BBB3.8872081,1371,345791.591.910JPMJP MORGAN CHASEDec-29A4.4522351,1091,344791.191.591.511TAT&TJun-31BBB2.7501151,0811,196105.75.880.379.612RDSSHELLSep-26AA2.5001911,0761,26765.05.191.390.913MSMORGAN STANLEYJul-28A3.5911751,0351,210589.789.889.814TAT&TDec-33BBB2.5503381,0331,37175.85.773.674.115CCITIGROUPOct-23BBB3.8751,2329712,203164.64.999.399.016BMYBRISTOL MYERS SQUIBB COMar-32A2,9504969161,412165.25.083.384.917USBU S BANCORP MEDIUM TERM NTS-BOOK ENTRYSep-24A3.6007509061,656144.95.097.797.518BACBANK OF AMERICAJul-29A4.2712938921,185115.05.195.990.819TFCNullOct-24A2.8509238371,760165.05.1 <td>7</td> <td>PYPL</td> <td>Null</td> <td>Jun-25</td> <td>A</td> <td>1.650</td> <td>118</td> <td>1,204</td> <td>1,322</td> <td>9</td> <td>4.9</td> <td>5.1</td> <td>92.0</td> <td>91.8</td>	7	PYPL	Null	Jun-25	A	1.650	118	1,204	1,322	9	4.9	5.1	92.0	91.8
10     JP MORGAN CHASE     Dec-29     A     4.452     235     1,109     1,344     7     91.1     91.5       11     T     AT&T     Jun-31     BBB     2.750     115     1,081     1,196     10     5.7     5.8     80.3     79.6       12     RDS     SHELL     Sep-26     AA     2.500     191     1,076     1,267     6     5.0     5.1     91.3     90.9       13     MS     MORGAN STANLEY     Jul-28     A     3.591     175     1,035     1,210     5     89.7     73.6     74.1       14     T     AT&T     Dec-33     BBB     2.550     338     1,033     1,371     7     5.8     5.7     73.6     74.1       15     C     CTIGROUP     Oct-23     BBB     3.875     1,232     971     2,203     16     4.6     4.9     99.3     99.0       16     BMY     BRISTOL MYERS SQUIBB CO     Mar-32     A     2.950     496	8	AMZN	AMAZON COM INC	Jun-30	AA	1.500	245	1,146	1,391	6	4.9	5.0	78.5	78.3
11     T     AT&T     Jun-31     BBB     2.750     115     1,081     1,196     10     5.7     5.8     80.3     79.6       12     RDS     SHELL     Sep-26     AA     2.500     191     1,076     1,267     6     5.0     5.1     91.3     90.9       13     MS     MORGAN STANLEY     Jul-28     A     3.591     175     1,035     1,210     5     89.7     73.6     74.1       14     T     AT&T     Dec-33     BBB     2.550     338     1,033     1,371     7     5.8     5.7     73.6     74.1       15     C     CTIGROUP     Oct-23     BBB     3.875     1,232     971     2,203     16     4.6     4.9     99.3     99.0       16     BMY     BRISTOL MYERS SQUIBB CO     Mar-32     A     2,950     496     916     1,412     16     5.2     5.0     83.3     84.9       17     US B     U S BANCORP MEDIUM TERM NTS- BOOK ENTRY	9	С	CITIGROUP	Jan-28	BBB	3.887	208	1,137	1,345	7			91.5	91.9
12     RDS     SHELL     Sep-26     AA     2.500     191     1,076     1,267     6     5.0     5.1     91.3     90.9       13     MS     MORGAN STANLEY     Jul-28     A     3.591     175     1,035     1,210     5     89.7     89.8       14     T     AT&T     Dec-33     BBB     2.550     338     1,033     1,371     7     5.8     5.7     73.6     74.1       15     C     CITIGROUP     Oct-23     BBB     3.875     1,232     971     2,203     16     4.6     4.9     99.3     99.0       16     BMY     BRISTOL MYERS SQUIBB CO     Mar-32     A     2,950     496     916     1,412     16     5.2     5.0     83.3     84.9       17     USB     U S BANCORP MEDIUM TERM MTS-BOOK ENTRY     Sep-24     A     3.600     750     906     1,656     14     4.9     5.0     97.7     97.5       18     BAC     BANK OF AMERICA     Jul	10	JPM	JP MORGAN CHASE	Dec-29	А	4.452	235	1,109	1,344	7			91.1	91.5
13     MS     MORGAN STANLEY     Jul-28     A     3.591     175     1,035     1,210     5     89.7     89.8       14     T     AT&T     Dec-33     BBB     2.550     338     1,033     1,371     7     5.8     5.7     73.6     74.1       15     C     CTIIGROUP     Oct-23     BBB     3.875     1,232     971     2,203     16     4.6     4.9     99.3     99.0       16     BMY     BRISTOL MYERS SQUIBB CO     Mar-32     A     2.950     496     916     1,412     16     5.2     5.0     83.3     84.9       17     USB     U S BANCORP MEDIUM TERM NTS- BOOK ENTRY     Sep-24     A     3.600     750     906     1,656     14     4.9     5.0     97.7     97.5       18     BAC     BANK OF AMERICA     Jul-29     A     4.271     293     892     1,185     11	11	т	AT&T	Jun-31	BBB	2.750	115	1,081	1,196	10	5.7	5.8	80.3	79.6
14     T     AT&T     Dec-33     BBB     2.550     338     1,033     1,371     7     5.8     5.7     73.6     74.1       15     C     CTIGROUP     Oct-23     BBB     3.875     1,232     971     2,203     16     4.6     4.9     99.3     99.0       16     BMY     BRISTOL MYERS SQUIBB CO     Mar-32     A     2.950     496     916     1,412     16     5.2     5.0     83.3     84.9       17     US B     U S BANCORP MEDIUM TERM NTS- BOOK ENTRY     Sep-24     A     3.600     750     906     1,656     14     4.9     5.0     97.7     97.5       18     BAC     BANK OF AMERICA     Jul-29     A     4.271     293     892     1,185     11	12	RDS	SHELL	Sep-26	AA	2.500	191	1,076	1,267	6	5.0	5.1	91.3	90.9
15   C   CITIGROUP   Oct-23   BBB   3.875   1,232   971   2,203   16   4.6   4.9   99.3   99.0     16   BMY   BRISTOL MYERS SQUIBB CO   Mar-32   A   2.950   496   916   1,412   16   5.2   5.0   83.3   84.9     17   USB   U S BANCORP MEDIUM TERM NTS- BOOK ENTRY   Sep-24   A   3.600   750   906   1,656   14   4.9   5.0   97.7   97.5     18   BAC   BANK OF AMERICA   Jul-29   A   4.271   293   892   1,185   11   89.7   89.7   90.8     19   TFC   Null   Oct-24   A   2.850   923   837   1,760   16   5.0   5.1   95.9   95.6	13	MS	MORGAN STANLEY	Jul-28	A	3.591	175	1,035	1,210	5			89.7	89.8
16     BMY     BRISTOL MYERS SQUIBB CO     Mar-32     A     2.950     496     916     1,412     16     5.2     5.0     83.3     84.9       17     USB     U S BANCORP MEDIUM TERM NTS- BOOK ENTRY     Sep-24     A     3.600     750     906     1,656     14     4.9     5.0     97.7     97.5       18     BAC     BANK OF AMERICA     Jul-29     A     4.271     293     892     1,185     11     89.7     90.8       19     TFC     Null     Oct-24     A     2.850     923     837     1,760     16     5.0     5.1     95.9     95.6	14	т	AT&T	Dec-33	BBB	2.550	338	1,033	1,371	7	5.8	5.7	73.6	74.1
17   USB   U S BANCORP MEDIUM TERM NTS- BOOK ENTRY   Sep-24   A   3.600   750   906   1,656   14   4.9   5.0   97.7   97.5     18   BAC   BANK OF AMERICA   Jul-29   A   4.271   293   892   1,185   11   89.7   90.8     19   TFC   Null   Oct-24   A   2.850   923   837   1,760   16   5.0   5.1   95.9   95.6	15	С	CITIGROUP	Oct-23	BBB	3.875	1,232	971	2,203	16	4.6	4.9	99.3	99.0
18     BAC     BANK OF AMERICA     Jul-29     A     4.271     293     892     1,185     11     89.7     90.8       19     TFC     Null     Oct-24     A     2.850     923     837     1,760     16     5.0     5.1     95.9     95.6	16	BMY	BRISTOL MYERS SQUIBB CO	Mar-32	A	2.950	496	916	1,412	16	5.2	5.0	83.3	84.9
19 TFC Null Oct-24 A 2.850 923 837 1,760 16 5.0 5.1 95.9 95.6	17	USB	U S BANCORP MEDIUM TERM NTS- BOOK ENTRY	Sep-24	A	3.600	750	906	1,656	14	4.9	5.0	97.7	97.5
	18	BAC	BANK OF AMERICA	Jul-29	А	4.271	293	892	1,185	11			89.7	90.8
20 V VIVENDI Dec-22 AA 2.800 207 817 1,024 9 3.6 4.4 99.9 99.7	19	TFC	Null	Oct-24	A	2.850	923	837	1,760	16	5.0	5.1	95.9	95.6
	20	V	VIVENDI	Dec-22	AA	2.800	207	817	1,024	9	3.6	4.4	99.9	99.7

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).

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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 <= TTM <= 1.5 3Y: 2 <= TTM <= 4 5Y: 4 < TTM <= 6 10Y: 7.5 <= TTM <= 12.5 20Y: 15 <= TTM <=25

### Rating

Rating buckets (AAA, AA, A, BBB, HY) in yield matrix are based on agggregate 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 rates 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 AS: Bonds rated High Yield by both rating agencies, or AB 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 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.
-Municipal High Yield: Bonds rated High Yield by both rating agencies, or High Yield by one agency and not rated by another agency.
-Municipal I high Yield 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.)

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