

# **Market Transparency Report**

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

**June 2015** 

As of June 30, 2015

#### 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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## Monthly Change in Market Data: June vs. May

Security	Median Yield	Daily Trade Volume	Buy-to-Sell Ratio
Agency	+18 bps	+2.0%	0
CD	0 bps	+2.0%	+0.1
Corporate	+1 bps	-3.8%	+0.1
Municipal	0 bps	-1.0%	+0.1
Treasury	0 bps	0.2%	0

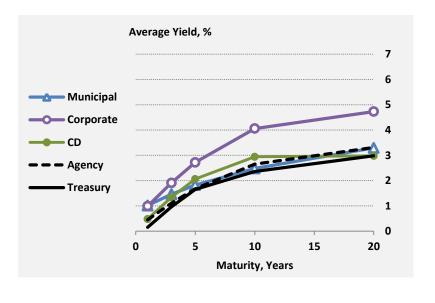
For monthly security trend data, see slides 5, 6 and 7



### **Yield Matrix**

Average Yield, %	Asset		Mat	Median			
Jun-15	Class	1	3	5	10	20	Maturity, Years
	Treasury	0.2	1.0	1.7	2.4	3.0	1.9
	Agency	0.5	1.1	1.7	2.7	3.3	3
	CD	0.5	1.3	2.1	2.9	3.0	1.5
	Corporate	1.0	1.9	2.7	4.1	4.7	5
	Municipal	1.0	1.5	1.8	2.5	3.3	14

				Mat	urity, Y	ears		Median
<b>Asset Class</b>		Rating	1	3	5	10	20	Maturity, Years
		AAA	-	-	-	-	-	-
	•	AA	0.7	1.5	2.2	3.4	-	3
	Financial	Α	0.9	1.8	2.4	3.6	4.6	4
		BBB	1.2	2.1	3.0	4.2	5.4	9
Councusts		High Yield	1.9	3.2	4.3	4.9	7.3	3
Corporate		AAA	0.4	1.7	2.2	2.9	4.1	5
		AA	0.6	1.3	2.3	3.2	4.4	5
	Non- Financial	Α	0.8	1.6	2.6	3.6	4.5	6
	Filldlicial	BBB	1.0	2.0	2.7	4.5	6.0	8
		High Yield	1.0	4.3	6.0	7.0	8.5	10
		AAA	0.7	1.1	1.5	2.0	3.0	11
	Camanal	AA	0.7	1.2	1.6	2.3	3.4	12
	General Obligation	Α	1.1	1.6	2.0	2.9	3.5	10
	Obligation	BBB	1.1	1.9	2.1	2.8	4.0	15
Municipal		High Yield	16.6	12.7	10.7	9.6	9.3	12
Municipal		AAA	0.7	1.1	1.5	2.1	2.9	11
		AA	0.7	1.2	1.7	2.3	3.1	15
	Revenue	Α	0.9	1.6	2.0	2.8	3.5	19
		BBB	1.2	2.1	2.4	3.2	3.5	19
		High Yield	11.7	15.2	13.5	8.9	8.3	15



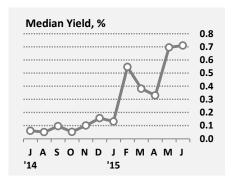
Source: TRACE, RTRS (MSRB's Real-time Transaction Reporting System) and Tradeweb Direct as of 6/30/2015.

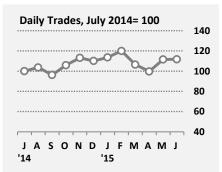
- The yields in each cell for Corporate/Agency/Municipal are the weighted average yield based on odd-lot customer buy transactions reported in TRACE/MSRB.
- The yields in each cell for Treasury/CD are the weighted average yield based on buy transactions on the Tradeweb Direct Platform.
- The weights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

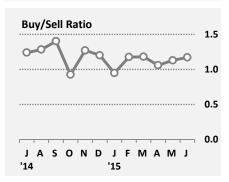


## Treasury, Agency, CD Transaction Trend Summary

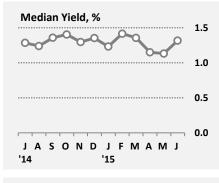
#### **Treasury**



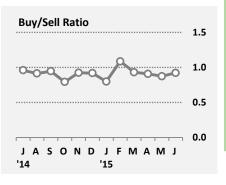




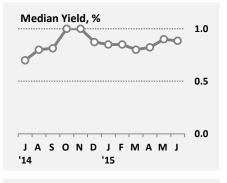
#### **Agency**

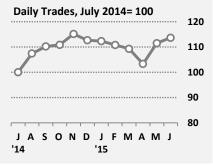


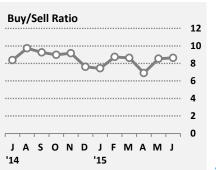




#### CD







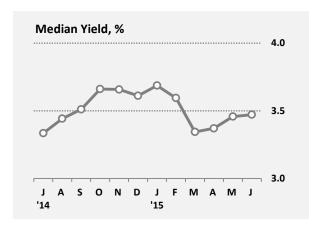
Source: TRACE and Tradeweb Direct as of 6/30/2015.

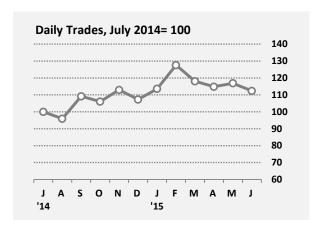
Treasury and CD are based on transactions on the Tradeweb Direct Platform. Median yields are based on all customer buy transactions.

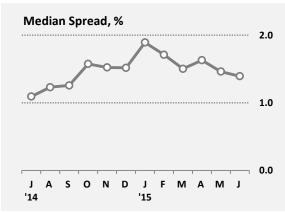
Agency is based on odd-lot customer transactions (<100M) reported in TRACE. Median yields are based on all odd-lot customer buy transactions.

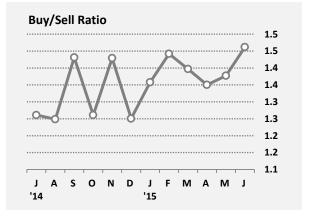


## Corporate Bonds: Odd-Lot Customer Transaction Trend Summary





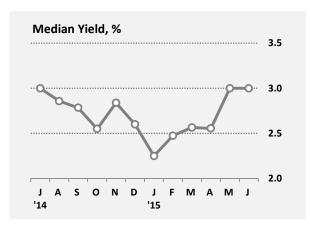


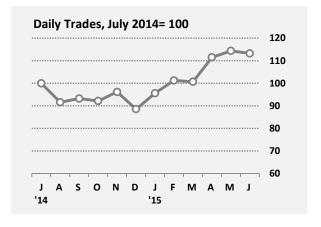


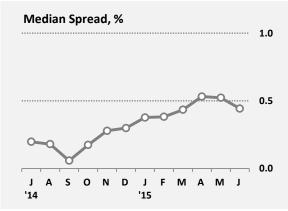
- Based on odd-lot customer transactions (<100M) reported in TRACE.
- Median yields and spreads are based on all odd-lot customer buy transactions.
- Spread for each transaction is calculated against the Treasury yield for the same maturity.

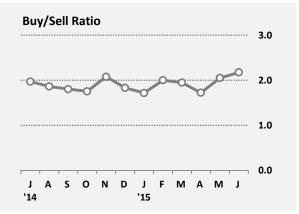


## Municipal Bonds: Odd-Lot Customer Transaction Trend Summary









Source: RTRS (MSRB's Real-time Transaction Reporting System) and Tradeweb Direct as of 6/30/2015.

- 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

June 2015

Issuer				Issues	% of	Num of	Buy/Sell	Dollar Vol.	Median Yield (%), Investor Buys						
		Issuer Name	Rating	Traded	% or	Trades	Ratio	Traded (in Millions)	1Y	3Y	5Y	10Y	20Y		
1	BAC	BANK OF AMERICA	ВВВ	546	3.4	11,998	1.4	246	1.2	2.0	2.8	4.1	4.0		
2	GS	GOLDMAN SACHS	Α	674	3.3	11,664	1.2	257	0.9	1.9	2.6	3.7	4.7		
3	JPM	JP MORGAN CHASE	Α	443	3.2	11,025	1.5	242	0.8	1.8	2.6	3.9	5.8		
4	GE	GENERAL ELECTRIC	AA	440	2.7	9,521	0.8	204	0.8	1.5	2.3	3.3	4.0		
5	С	CITIGROUP	ВВВ	268	2.4	8,319	2.4	189	1.1	1.9	2.5	4.1	4.8		
6	MS	MORGAN STANLEY	Α	658	2.2	7,736	1.2	191	1.0	1.9	2.6	4.2	0.6		
7	T	AT&T	ВВВ	62	2.0	7,125	2.1	135	0.9	2.3	2.8	3.8	4.9		
8	WFC	WELLS FARGO	Α	167	1.9	6,756	1.4	145	1.0	1.5	2.6	3.5	4.3		
9	VZ	VERIZON	BBB	69	1.6	5,542	1.6	112	1.1	2.0	2.8	3.8	5.0		
10	AAPL	APPLE INC	AA	24	1.1	4,004	2.7	75	0.4	1.4	2.4	3.1	-		
11	PBR	PETROBRAS	ВВ	24	1.1	3,716	2.0	113	3.0	5.3	5.9	6.4	7.6		
12	FTR	FRONTIER COMMUNICATIONS CORP	ВВ	19	1.1	3,714	4.5	71	-	5.2	6.9	8.2	9.3		
13	RIG	TRANSOCEAN INC	ВВ	13	1.0	3,358	2.5	73	2.7	5.1	7.7	8.9	9.1		
14	CTL	CENTURYLINK	ВВ	32	0.9	3,081	1.5	61	-	2.1	4.5	6.9	7.8		
15	AXP	AMERICAN EXPRESS	Α	37	0.8	2,781	1.5	59	0.9	1.7	2.4	3.9	5.0		
16	BRK	BERKSHIRE HATHAWAY	AA	125	0.7	2,555	1.0	62	0.6	1.4	2.2	3.3	4.6		
17	нвс	HSBC	Α	408	0.7	2,453	0.9	62	0.8	1.8	3.3	3.7	4.7		
18	BCS	BARCLAYS	Α	476	0.7	2,352	0.8	47	1.2	1.9	2.8	3.7	4.0		
19	СНК	CHESAPEAKE ENERGY	ВВ	15	0.6	2,264	2.6	43	3.1	4.3	6.2	6.4	-		
20	HPQ	HEWLETT PACKARD	BBB	19	0.6	2,164	1.8	50	1.3	1.7	3.1	5.2	-		



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

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

<sup>\*</sup> Actual issue symbol will vary.

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

#### June 2015

	Issuer			Issues	% of	Nu	m of Tra	des	- Buy/Sell	Dollar Vol.	Median Yield (%), Investor Buys					
		Sissuer Name	Rating	Traded	Trades	All	Buys	Sells	Ratio	Traded (in Millions)	1Y	3Y	5Y	10Y	20Y	
1	SBH	Sally Holdings LLC	ВВ	3	0.4	1,468	1,443	25	58	10	-	-	2.5	4.5	-	
2	CHRC	REVIVAL PENTE TABERNACLE	N/R	163	0.4	1,536	1,410	126	11	12	-	-	4.2	-	-	
3	осом		Α	6	0.2	821	732	89	8	20	-	1.5	2.3	3.6	4.8	
4	WAG	WALGREEN CO	ВВВ	11	0.4	1,245	1,029	216	5	26	-	1.8	2.5	3.9	4.8	
5	MUR	MURPHY OIL CORP	ВВВ	6	0.2	816	669	147	5	17	-	2.2	-	4.7	-	
6	CELG	CELGENE CORP	ВВВ	11	0.2	808	662	146	5	11	-	1.4	2.6	3.5	-	
7	FTR	FRONTIER COMMUNICATIONS CORP	ВВ	19	1.1	3,714	3,041	673	5	71	-	5.2	6.9	8.2	9.3	
8	WIN	WINDSTREAM CORP	В	8	0.4	1,300	1,043	257	4	22	-	4.3	7.8	9.3	-	
9	AMZN	AMAZON COM INC	Α	8	0.3	1,197	956	241	4	27	-	1.3	2.4	3.7	4.7	
10	WFT	WEATHERFORD INTL LTD BERMUDA	BBB	12	0.3	1,123	894	229	4	23	1.3	4.4	4.6	-	7.0	
11	PSEC	PROSPECT CAPITAL CORPORATION	BBB	155	0.3	1,209	957	252	4	24	2.6	4.2	5.0	5.4	5.1	
12	MSI	MOTOROLA SOLUTIONS INC	BBB	10	0.2	768	603	165	4	16	-	-	-	4.2	-	
13	IEP	ICAHN ENTERPRISES	ВВ	5	0.3	1,058	822	236	3	25	-	3.7	4.4	-	-	
14	тск	TECK RESOURCES LIMITED	BBB	13	0.2	797	616	181	3	17	2.1	3.1	5.0	5.4	7.1	
15	EBAY	EBAY INC	Α	11	0.4	1,391	1,060	331	3	31	-	1.4	2.4	3.8	-	
16	VIA	VIACOM INC NEW	ВВВ	35	0.4	1,312	988	324	3	28	1.1	2.1	2.6	4.0	5.4	
17	FCX	FREEPORT-MCMORAN COPPER & GOLD INC	ВВВ	18	0.6	2,026	1,492	534	3	41	-	2.3	3.4	5.1	6.3	
18	NE	NOBLE HLDG INTL LTD	BBB	13	0.3	983	720	263	3	20	1.3	3.0	4.2	5.9	-	
19	ALLY	ALLY FINANCIAL	ВВ	88	0.3	1,104	807	297	3	26	1.9	3.4	3.7	4.8	5.8	
20	AAPL	APPLE INC	AA	24	1.1	4,004	2,921	1,083	3	75	0.4	1.4	2.4	3.1	-	

- 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 issuer. Bond ratings are from Moody's and S&P.
- \* Actual issue symbol will vary.



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

#### June 2015

	Issuer			Issues	% of	Nu	m of Tra	des	– Buy/Sell	Dollar Vol.	Med	lian Yiel	d (%), I	nvestor	Sells
		e* Issuer Name	Rating	Traded	% or	All	Buys	Sells	Ratio	Traded (in Millions)	1Y	3Y	5Y	10Y	20Y
1	CLF	CLIFFS NATURAL RESOURCES	С	6	0.3	909	118	791	0.1	8.3	-	18.0	21.9	-	-
2	DISH	DISH DBS CORP	ВВ	10	0.4	1,320	334	986	0.3	18.4	1.9	3.0	4.4	6.0	-
3	CRBM	DYNCORP INTL INC	В	21	0.3	1,001	298	703	0.4	18.8	3.5	29.8	5.4	7.6	7.5
4	ANR	ALPHA NAT RES INC	С	5	0.2	836	252	584	0.4	7.2	-	110.9	80.5	-	-
5	DB	DEUTSCHE BANK	ВВВ	157	0.3	1,219	521	698	0.7	25.3	1.0	2.0	4.0	3.8	-
6	AIG	AIG	ВВВ	39	0.4	1,288	554	734	0.8	31.0	1.9	1.9	2.8	5.0	4.6
7	BCS	BARCLAYS	Α	476	0.7	2,355	1,045	1,310	0.8	47.5	1.9	2.5	3.1	4.0	4.4
8	AA	ALCOA	ВВВ	11	0.4	1,360	604	756	0.8	30.7	2.8	3.1	4.1	5.0	5.9
9	USB	US BANCORP	Α	21	0.2	797	357	440	0.8	16.1	1.2	1.7	2.2	3.6	-
10	GE	GENERAL ELECTRIC	AA	440	2.7	9,522	4,285	5,237	0.8	203.6	1.0	1.6	2.6	3.6	4.3
11	RY	ROYAL BANK OF CANADA	AA	250	0.4	1,444	657	787	0.8	29.5	0.9	1.6	2.3	3.5	3.9
12	CS	CREDIT SUISSE	Α	256	0.5	1,613	736	877	0.8	34.1	-	2.2	3.0	4.0	3.8
13	cvs	CVS CAREMARK CORP	BBB	15	0.2	797	368	429	0.9	15.9	1.0	1.9	2.7	3.5	-
14	BTU	PEABODY ENERGY	В	6	0.6	2,025	937	1,088	0.9	15.8	-	26.1	28.3	22.2	-
15	нвс	HSBC	Α	408	0.7	2,453	1,146	1,307	0.9	61.5	1.5	2.0	3.3	4.0	5.1
16	csco	CISCO	AA	17	0.3	1,147	542	605	0.9	24.3	0.7	2.0	2.2	3.3	4.6
17	WMT	WAL-MART	AA	29	0.4	1,426	674	752	0.9	34.9	0.6	1.4	2.3	3.2	4.4
18	RRD	DONNELLEY R R & SONS	ВВ	13	0.2	764	365	399	0.9	13.8	2.2	4.2	4.6	5.7	8.1
19	DE	DEERE JOHN CAP CORP MEDIUM TERM NTS-BOOK	Α	48	0.3	1,061	510	551	0.9	24.4	0.9	1.5	2.5	3.1	-
20	F	FORD	BBB	137	0.6	1,989	958	1,031	0.9	45.8	1.8	2.3	3.2	4.1	5.0

- 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 issuer. Bond ratings are from Moody's and S&P.
- \* Actual issue symbol will vary.



## Corporate Bonds: Top 20 Most Bought Issues

#### June 2015

		Issuer		Maturity	Rating	Numb	er of 1	rades	Dollar Vol.	Median Yield, %		Median Price	
	Issue	Reference*	Coupon			Buys	Sells	Total	Traded (in Million)	Buys	Sells	Buys	Sells
1	SALLY HLDGS LLC	SBH	6.875	Nov-19	ВВ	1,441	12	1,453	9.9	2.5	3.2	105.3	104.9
2	METLIFE INC	MET	5.250	Dec-49	BBB	979	20	999	25.9	-	-	101.0	99.3
3	APPLE INC	AAPL	0.529	May-18	AA	910	103	1,013	4.1	-	-	100.4	100.2
4	CITIZENS COMMUNICATIONS CO	FTR	9.000	Aug-31	ВВ	871	151	1,022	20.2	9.3	9.7	97.3	94.2
5	TRANSOCEAN INC	RIG	6.500	Nov-20	ВВ	859	247	1,106	24.9	7.7	8.1	94.8	93.0
6	AT&T INC	Т	2.300	Mar-19	BBB	563	28	591	9.2	2.3	2.3	99.9	99.9
7	CITIGROUP INC	С	5.950	Dec-49	ВВ	531	11	542	14.7	-	-	99.5	97.0
8	FRONTIER COMMUNICATIONS CORP	FTR	6.250	Sep-21	ВВ	519	56	575	9.2	7.2	7.6	95.5	93.1
9	CITIGROUP INC	С	5.375	Aug-20	BBB	499	91	590	8.1	-	-	112.2	111.8
10	APPLE INC	AAPL	2.400	May-23	AA	495	380	875	19.0	3.0	3.1	95.7	95.5
11	CELGENE CORP	CELG	3.250	Aug-22	BBB	493	27	520	4.1	3.3	3.4	99.6	99.1
12	TRANSOCEAN INC	RIG	6.375	Dec-21	ВВ	492	136	628	14.8	8.2	8.5	92.8	90.8
13	PEABODY ENERGY CORP	BTU	6.000	Nov-18	В	471	223	694	6.2	26.2	26.1	56.5	56.3
14	AMERICAN EXPRESS CREDIT CORP	AXP	1.300	Jul-16	Α	442	30	472	5.9	0.9	1.0	100.4	100.3
15	WELLS FARGO & COMPANY	WFC	5.875	Jan-49	BBB	440	19	459	11.6	-	-	104.7	102.9
16	WACHOVIA CAP TR III	WFC	5.570	Mar-49	BBB	433	305	738	12.9	-	-	99.2	98.5
17	PETROBRAS GLBL FIN B V	PBR	6.850	Jun-15	ВВ	428	83	511	16.3	8.3	8.3	83.0	82.4
18	BANK AMER CORP	BAC	4.000	Jan-25	BBB	422	70	492	11.0	4.1	4.3	99.1	97.5
19	AMTRUST FINL SVCS INC	AFSI	7.250	-	N/R	412	74	486	2.8	-	-	25.0	24.8
20	TRONOX WORLDWIDE LLC	TROX	6.375	Aug-20	В	411	48	459	4.2	7.3	7.5	95.9	95.1

Source: TRACE and Tradeweb Direct as of 6/30/2015.



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

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

<sup>\*</sup> Actual issue symbol will vary.

## Corporate Bonds: Top 20 Most Sold Issues

#### June 2015

		Issuer	<sup>*</sup> Coupon	Maturity		Numl	er of T	rades	Dollar Vol.	Median Yield, %		Median Price	
	Issue	Reference*			Rating	Buys	Sells	Total	Traded (in Million)	Buys	Sells	Buys	Sells
1	DISH DBS CORP	DISH	7.875	Sep-19	ВВ	23	864	887	7.1	4.4	4.4	113.4	113.3
2	AT&T INC	Т	3.400	May-25	BBB	337	503	840	13.6	3.9	4.0	96.2	94.7
3	MASSEY ENERGY CO	ANR	3.250	Aug-15	С	35	400	435	6.3	405.9	734.0	82.0	60.0
4	APPLE INC	AAPL	2.400	May-23	AA	495	380	875	19.0	3.0	3.1	95.7	95.5
5	CLIFFS NATURAL RESOURCES	CLF	4.800	Oct-20	С	11	352	363	2.0	21.3	21.9	49.1	48.0
6	GENERAL ELEC CAP CORP	GE	5.625	May-18	AA	114	333	447	7.4	1.6	1.6	111.1	111.3
7	PEABODY ENERGY CORP	BTU	6.250	Nov-21	В	90	325	415	2.8	25.3	27.1	41.1	38.1
8	WACHOVIA CAP TR III	WFC	5.570	Mar-49	BBB	433	305	738	12.9	-	-	99.2	98.5
9	PEABODY ENERGY CORP	BTU	6.500	Sep-20	В	235	304	539	4.1	28.7	28.3	41.7	42.3
10	GENERAL ELEC CAP CORP MTN BE	GE	5.875	Jan-38	AA	85	288	373	6.6	4.4	4.4	121.0	120.3
11	WELLS FARGO & COMPANY	WFC	3.500	Mar-22	Α	162	276	438	6.5	3.0	3.0	103.0	102.8
12	GENERAL ELECTRIC CO	GE	5.250	Dec-17	AA	158	273	431	8.6	1.4	1.5	109.4	109.1
13	SANDRIDGE ENERGY INC	SD	7.500	Mar-21	С	15	268	283	2.2	22.4	27.6	52.9	43.8
14	TRANSOCEAN INC	RIG	6.500	Nov-20	ВВ	859	247	1,106	24.9	7.7	8.1	94.8	93.0
15	VERIZON COMMUNICATIONS INC	VZ	5.150	Sep-23	BBB	324	243	567	12.9	3.7	3.8	109.9	109.5
16	LINCOLN NATL CORP IND	LNC	7.000	May-66	BBB	23	239	262	3.4	-	-	92.0	90.3
17	GENERAL ELEC CAP CORP MTN	GE	5.625	Sep-17	AA	102	238	340	7.1	1.4	1.4	109.4	109.1
18	JPMORGAN CHASE & CO	JPM	4.400	Jul-20	Α	200	235	435	8.4	2.7	2.8	107.9	107.7
19	GOLDMAN SACHS GROUP INC	GS	5.750	Jan-22	Α	159	233	392	5.6	3.4	3.4	114.1	113.7
20	CISCO SYS INC	csco	5.500	Feb-16	AA	82	227	309	5.2	0.5	0.7	103.3	103.2

- 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).



<sup>\*</sup> Actual issue symbol will vary.

### **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
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### 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.
- Corp 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 BBB 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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