

**CRTx®**

*Credit Risk Transfer Return Tracking Index*

[www.markfontanilla.com/crtx-index](http://www.markfontanilla.com/crtx-index)

## CRTx® Index Data Suite:

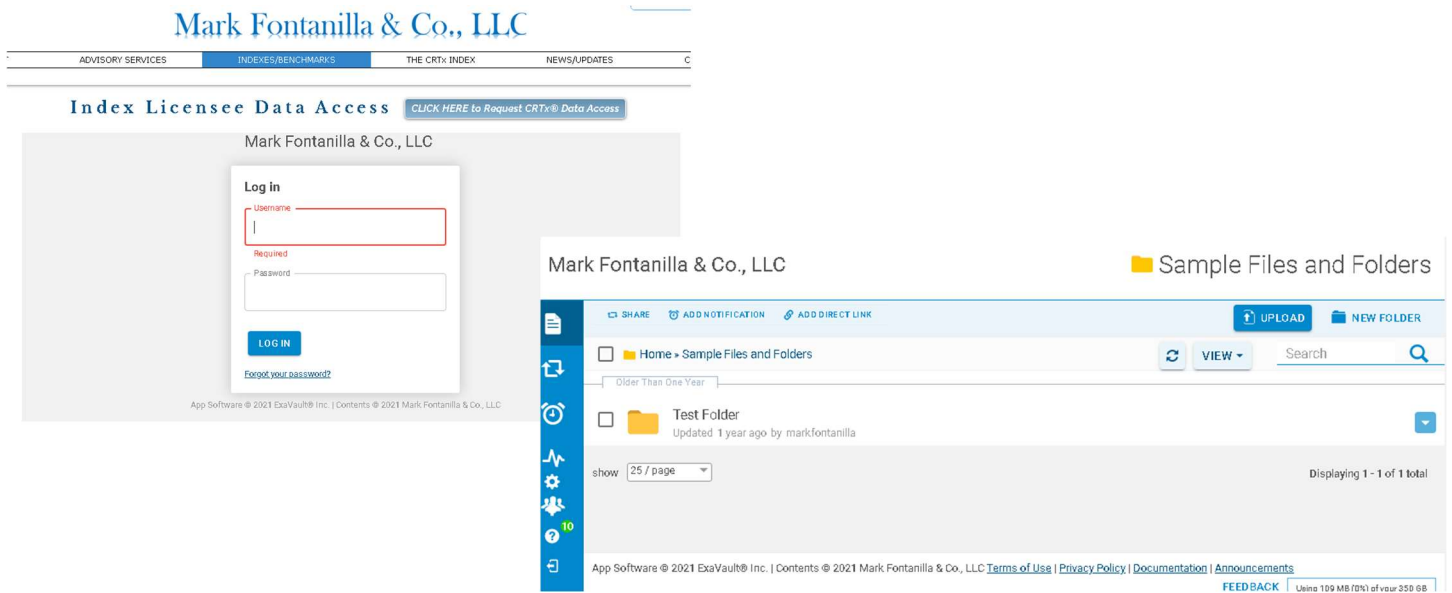
Right-To-Use License Options -  
*Standard Reports, File Layouts, Glossaries,  
& Sample Sets*

*(Updated: Effective 4/29/2022\*)*

## CRTx® Data Suite: Client Access

Client Data Files can be accessed 2 ways:

### 1. MFCo Client Data Portal



### 2. Secure File Transfer Transfer Protocol (SFTP) or FTP File Server Location

- a. Clients will have their own secure password-authenticated SFTP/FTP location for “pull” file access of CRTx® Index data files.

**CRTx® Daily Return Summary (Email Distribution)**

*Availability* - Daily on each Index calculation day.

*Sample Release*

CRTx® (Credit Risk Transfer Return Tracking Index) Return Summary										
RETURNS										
	Index Level	Period						Annualized		As of Date
		Daily	Wkly	Mthly	MTD	QTD	YTD	1-YR	3-YR	
	vs. Date	12-30-21	12-23-21	11-30-21	11-30-21	9-30-21	12-31-20	12-31-20	12-31-18	
<b>CRTx® Aggregate</b>	<b>163.17</b>	<b>0.02%</b>	<b>0.00%</b>	<b>0.30%</b>	<b>0.30%</b>	<b>0.63%</b>	<b>5.86%</b>	<b>5.86%</b>	<b>4.79%</b>	<b>12-31-21</b>
<b>Upper Mezzanine</b>	<b>123.73</b>	<b>0.00%</b>	<b>0.01%</b>	<b>0.03%</b>	<b>0.03%</b>	<b>0.21%</b>	<b>0.82%</b>	<b>0.82%</b>	<b>2.35%</b>	<b>12-31-21</b>
<b>Lower Mezzanine</b>	<b>173.44</b>	<b>0.01%</b>	<b>-0.02%</b>	<b>0.16%</b>	<b>0.16%</b>	<b>0.49%</b>	<b>3.88%</b>	<b>3.88%</b>	<b>3.60%</b>	<b>12-31-21</b>
<b>Subordinate</b>	<b>238.61</b>	<b>0.03%</b>	<b>0.03%</b>	<b>0.51%</b>	<b>0.51%</b>	<b>0.86%</b>	<b>10.73%</b>	<b>10.73%</b>	<b>7.25%</b>	<b>12-31-21</b>
<b>Upper Mezzanine</b>	<b>2022</b>	-	-	-	-	-	-	-	-	<b>12-31-21</b>
	<b>2021</b>	<b>100.69</b>	<b>0.00%</b>	<b>0.01%</b>	<b>0.03%</b>	<b>0.03%</b>	<b>0.21%</b>	<b>0.69%</b>	-	<b>12-31-21</b>
	<b>2020</b>	<b>102.51</b>	<b>0.00%</b>	<b>0.01%</b>	<b>0.08%</b>	<b>0.08%</b>	<b>0.19%</b>	<b>0.77%</b>	-	<b>12-31-21</b>
	<b>2019</b>		-	-	-	-	-	-	-	<b>12-31-21</b>
	<b>2018</b>	<b>108.58</b>	<b>0.00%</b>	<b>-0.02%</b>	<b>0.09%</b>	<b>0.09%</b>	<b>0.30%</b>	<b>1.02%</b>	<b>2.14%</b>	<b>12-31-21</b>
	<b>2017</b>	<b>112.38</b>	<b>0.00%</b>	<b>-0.03%</b>	<b>-0.01%</b>	<b>-0.01%</b>	<b>0.21%</b>	<b>0.95%</b>	<b>2.09%</b>	<b>12-31-21</b>
	<b>2016</b>		-	-	-	-	-	-	-	<b>12-31-21</b>
	<b>2015</b>		-	-	-	-	-	-	-	<b>12-31-21</b>
	<b>&lt;=2014</b>		-	-	-	-	-	-	-	<b>12-31-21</b>
<b>Lower Mezzanine</b>	<b>2022</b>	-	-	-	-	-	-	-	-	<b>12-31-21</b>
	<b>2021</b>	<b>103.41</b>	<b>0.01%</b>	<b>0.04%</b>	<b>0.11%</b>	<b>0.11%</b>	<b>0.18%</b>	<b>3.41%</b>	-	<b>12-31-21</b>
	<b>2020</b>	<b>101.00</b>	<b>0.01%</b>	<b>-0.04%</b>	<b>0.17%</b>	<b>0.17%</b>	<b>0.23%</b>	<b>2.62%</b>	-	<b>12-31-21</b>
	<b>2019</b>	<b>112.95</b>	<b>0.01%</b>	<b>0.02%</b>	<b>0.14%</b>	<b>0.14%</b>	<b>0.32%</b>	<b>2.88%</b>	-	<b>12-31-21</b>
	<b>2018</b>	<b>115.54</b>	<b>0.00%</b>	<b>0.04%</b>	<b>0.34%</b>	<b>0.34%</b>	<b>0.63%</b>	<b>4.60%</b>	<b>5.24%</b>	<b>12-31-21</b>
	<b>2017</b>	<b>130.66</b>	<b>0.01%</b>	<b>-0.02%</b>	<b>0.08%</b>	<b>0.08%</b>	<b>0.63%</b>	<b>4.23%</b>	<b>3.98%</b>	<b>12-31-21</b>
	<b>2016</b>	<b>148.30</b>	<b>0.01%</b>	<b>-0.16%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.35%</b>	<b>3.52%</b>	<b>2.42%</b>	<b>12-31-21</b>
	<b>2015</b>	<b>138.04</b>	<b>0.01%</b>	<b>-0.04%</b>	<b>0.22%</b>	<b>0.22%</b>	<b>0.53%</b>	<b>2.91%</b>	<b>2.30%</b>	<b>12-31-21</b>
	<b>&lt;=2014</b>	<b>167.90</b>	<b>0.01%</b>	<b>-0.04%</b>	<b>0.30%</b>	<b>0.30%</b>	<b>0.98%</b>	<b>6.10%</b>	<b>3.38%</b>	<b>12-31-21</b>
<b>Subordinate</b>	<b>2022</b>	-	-	-	-	-	-	-	-	<b>12-31-21</b>
	<b>2021</b>	<b>107.14</b>	<b>0.01%</b>	<b>0.07%</b>	<b>0.97%</b>	<b>0.97%</b>	<b>0.49%</b>	<b>7.14%</b>	-	<b>12-31-21</b>
	<b>2020</b>	<b>96.73</b>	<b>0.04%</b>	<b>-0.07%</b>	<b>0.12%</b>	<b>0.12%</b>	<b>0.79%</b>	<b>10.81%</b>	-	<b>12-31-21</b>
	<b>2019</b>	<b>131.64</b>	<b>0.07%</b>	<b>0.14%</b>	<b>0.46%</b>	<b>0.46%</b>	<b>0.42%</b>	<b>11.41%</b>	-	<b>12-31-21</b>
	<b>2018</b>	<b>127.47</b>	<b>0.00%</b>	<b>0.05%</b>	<b>0.38%</b>	<b>0.38%</b>	<b>0.38%</b>	<b>8.33%</b>	<b>9.19%</b>	<b>12-31-21</b>
	<b>2017</b>	<b>157.90</b>	<b>0.01%</b>	<b>0.06%</b>	<b>0.31%</b>	<b>0.31%</b>	<b>1.93%</b>	<b>11.21%</b>	<b>5.93%</b>	<b>12-31-21</b>
	<b>2016</b>	<b>197.54</b>	<b>0.03%</b>	<b>0.10%</b>	<b>0.78%</b>	<b>0.78%</b>	<b>1.85%</b>	<b>11.96%</b>	<b>4.41%</b>	<b>12-31-21</b>
	<b>2015</b>	<b>208.87</b>	<b>0.02%</b>	<b>-0.35%</b>	<b>0.24%</b>	<b>0.24%</b>	<b>0.72%</b>	<b>4.79%</b>	<b>2.60%</b>	<b>12-31-21</b>
	<b>&lt;=2014</b>									<b>12-31-21</b>

# CRTx® Index Rebalancing Report (PDF/Email Distribution)

*Availability* - Monthly on the business day after the last business day of each month.

*Sample Release (Page 1/Cover)*

Mark Fontanilla & Co., LLC

**CRTx®**  
*Credit Risk Transfer Return Tracking Index*

[www.markfontanilla.com/crtx-index](http://www.markfontanilla.com/crtx-index)

**12/31/2020 Index Rebalancing Update**

**CRTx® Aggregate Index: December/2020 Highlights**

The CRTx® Aggregate finished 2020 strong, ending December up 1.91% MoM, and Q4 positive by 4.16%, while closing out the year with a relatively modest, but meaningful 2.26% YTD total return. The COVID-19 pandemic's extraordinary stress on the CRT market in Q1, where the CRTx® Aggregate lost nearly 25%, and the sector's subsequent recovery, lagged other rates and credit sectors substantially, but the rebound in market values, credit performance, issuance, and market technicals all helped benchmark GSE CRT end 2020 on a number of positive notes. The CRTx® Aggregate Index starts 2021 at \$47.7 billion in market value (vs \$49.7 billion at the beginning of January) across 230 constituents.

- In a continuing reversal of Q1's fallout across the CRT complex, Index gains were led through Q4 and YTD by solid market value improvements and relatively low credit loss realizations in SUBs (B-classes), which in aggregate finished +9.70% Q4, but -3.44% YTD. Intrinsic risk is certainly much higher at the bottom of the capital structure right now, specifically for pre-COVID vs. COVID era deals, but losses have been contained and DQs are improving.
- Elsewhere in the complex, UMEZZ (i.e. M1s), showed the least amount of volatility through the COVID crisis, and have returned slightly better than carry at 3.01% YTD in aggregate as newer, higher-margin COVID M1s replaced older M1s in the float.
- Aggregate LMEZZ (M2s) closed 2020 up a modest 1.91% overall as seasoned 2013-2017 issues, especially early fixed severity "Type I" deals, commensurately lagged newer issues. With all pre-COVID actual loss deals unanimously failing DQ tests, pre-COVID M2 principal windows have lengthened, and the associated reference pools are carrying higher DQs/forbearances vs. cleaner COVID-era new issues, but CEs have stabilized/improved.

Dec 2020 CRTx® Agg Tot Ret	+191 bps
Price Attribution	+157 bps
Paydown Attribution	+0 bps
Cpn Accr&Pmt Attribution	+34 bps
Excess Return	+190 bps
Volatility (Annualized)	1.28%
UPB Paydown %	1.21%
QTD Total Return	4.16%
YTD Total Return	2.26%

**CRTx® Rebalancing For Jan 2021**  
*As of 12/31/2020*

January 2021 Aggregate Constituency (w/MoM Δ):

- Beg. UPB (\$B): \$47.15 +0.5%
- Beg. Market Value (\$B): \$47.72 +2.0%
- Constituents: 230 +2
- WAvg Constituent Value: 101.22 +1.54 pb
- WAvg Constituent Coupon: 3.92% -1 bps

Index (+) Entries\* & (-) Exits

(+) STACR 2020-DNA6 M1/M2/B1/B2

(-) STACR 2014-HQ2 M2

(-) STACR 2015-HQ2 M2

\* 1.66% of Beg. Aggregate Index Market Value

Deal Vintage	CRTx® Mkt Val Breakdown 1/2021			
	Aggregate	UMEZZ	LMEZZ	SUB
All	100%	5.2%	67.2%	27.6%
2020	23.9%	4.8%	10.4%	8.8%
2019	15.1%	0.0%	9.1%	6.0%
2018	16.1%	0.1%	11.3%	4.7%
2017	18.0%	0.3%	13.2%	4.5%
2016	11.9%	0.0%	9.9%	2.0%
2015	7.1%	0.0%	5.4%	1.7%
<=2014	7.8%	0.0%	7.8%	0.0%

## CRTx® Constituent File

### Availability

- Released on the last business day of the month (.xls file format)

### Glossary & Layout

CONSTITUENT FILE			
ELEMENT NAME	DESCRIPTION	TYPE	FORMAT
Sequence	Index entry sequence number.	ALPHA-NUMERIC	X(4)
Class	Individual security class name.	ALPHA-NUMERIC	X(30)
CUSIP	Unique 9-Digit alphanumeric security identifier.	ALPHA-NUMERIC	X(9)
Shelf	Issuer shelf name acronym.	ALPHA-NUMERIC	X(20)
Pool_Type	Reference pool collateral type: LLTV (Low Loan to Value), HLTV (High Loan to Value).	ALPHA-NUMERIC	X(10)
Tranche_Type	First-level Sub-Index categorization: UMEZZ (Upper Mezzanine), LMEZZ (Lower Mezzanine), SUB (Subordinate).	ALPHA-NUMERIC	X(10)
Deal_Vintage	Year of deal issuance.	NUMERIC	9999
Valuation Month Weighting	Monthly constituent market value weighting in index.	NUMERIC	9999.99999999

### Sample Data

Sequence	1	2	3	4	5	6	7	8	9	10
Class	STACR 2013-DN1 M1	STACR 2013-DN1 M2	CAS 2013-C01 M1	CAS 2013-C01 M2	STACR 2013-DN2 M1	STACR 2013-DN2 M2	CAS 2014-C01 M1	CAS 2014-C01 M2	STACR 2014-DN1 M1	STACR 2014-DN1 M2
CUSIP	3137G0AA7	3137G0AB5	30711XAA2	30711XAB0	3137G0AC3	3137G0AD1	30711XAC8	30711XAD6	3137G0AK5	3137G0AL3
Shelf	STACR	STACR	CAS	CAS	STACR	STACR	CAS	CAS	STACR	STACR
Pool Type	LLTV	LLTV	LLTV	LLTV	LLTV	LLTV	LLTV	LLTV	LLTV	LLTV
Tranche Type	UMEZZ	LMEZZ	UMEZZ	LMEZZ	UMEZZ	LMEZZ	UMEZZ	LMEZZ	UMEZZ	UMEZZ
Deal Vintage	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014
1/1/2015	0.01689380	0.02531842	0.02334800	0.03060363	0.01644940	0.03258053	0.02752222	0.03191281	0.01872132	0.02993733
2/1/2015	0.01653839	0.02510174	0.02268256	0.03078485	0.01598361	0.03271725	0.02684673	0.03260844	0.01854249	0.03035645
3/1/2015	0.01333736	0.02095269	0.01845555	0.02577721	0.01287751	0.02780969	0.02181217	0.02726594	0.01517331	0.02531948
4/1/2015	0.01243317	0.01978273	0.01737978	0.02434383	0.01205826	0.02612723	0.02066603	0.02570366	0.01442764	0.02416604
5/1/2015	0.01141040	0.01871482	0.01603238	0.02296315	0.01104458	0.02503224	0.01912706	0.02452003	0.01346956	0.02278927
6/1/2015	0.01030440	0.01741653	0.01450873	0.02154548	0.00998221	0.02315969	0.01738940	0.02283723	0.01246289	0.02111618

## CRTx® Daily File

### Availability

- Released daily on Index Valuation days (.xls file format)

### Glossary & Layout

DAILY FILE			
ELEMENT NAME	DESCRIPTION	TYPE	FORMAT
<b>PART 1: DAILY INDEX VALUES</b>			
Valuation Date	Day of Index calculations.	DATE	M/D/YYYY
AGG	CRTx® Aggregate Index level (daily).	NUMERIC	9999.99999999
UMEZZ	Upper Mezzanine Sub-Index level (daily).	NUMERIC	9999.99999999
LMEZZ	Lower Mezzanine Sub-Index level (daily).	NUMERIC	9999.99999999
SUB	Subordinate Sub-Index level (daily).	NUMERIC	9999.99999999
UMEZZ/LMEZZ	Upper/Lower Mezzanine Sub-Index level (daily).	NUMERIC	9999.99999999
LMEZZ/SUB	Lower Mezzanine/Subordinate Sub-Index level (daily).	NUMERIC	9999.99999999
CAS	CAS Sub-Index level (daily).	NUMERIC	9999.99999999
STACR	STACR Sub-Index level (daily).	NUMERIC	9999.99999999
LLTV	Low LTV Sub-Index level (daily).	NUMERIC	9999.99999999
HLTV	High LTV Sub-Index level (daily).	NUMERIC	9999.99999999
UMEZZ DEAL VINTAGE SUB-INDEXES			
LMEZZ DEAL VINTAGE SUB-INDEXES			
SUB DEAL VINTAGE SUB-INDEXES			
<b>PART 2: DAILY RETURN VALUES</b>			
Valuation Date	Day of Index calculations.	DATE	M/D/YYYY
AGG	CRTx® Aggregate Index daily return (daily).	NUMERIC	99.99%
UMEZZ	Upper Mezzanine Sub-Index daily return (daily).	NUMERIC	99.99%
LMEZZ	Lower Mezzanine Sub-Index daily return (daily).	NUMERIC	99.99%
SUB	Subordinate Sub-Index daily return (daily).	NUMERIC	99.99%
UMEZZ/LMEZZ	Upper/Lower Mezzanine Sub-Index daily return (daily).	NUMERIC	99.99%
LMEZZ/SUB	Lower Mezzanine/Subordinate Sub-Index daily return (daily).	NUMERIC	99.99%
CAS	CAS Sub-Index daily return (daily).	NUMERIC	99.99%
STACR	STACR Sub-Index daily return (daily).	NUMERIC	99.99%
LLTV	Low LTV Sub-Index daily return (daily).	NUMERIC	99.99%
HLTV	High LTV Sub-Index daily return (daily).	NUMERIC	99.99%
UMEZZ DEAL VINTAGE SUB-INDEXES			
LMEZZ DEAL VINTAGE SUB-INDEXES			
SUB DEAL VINTAGE SUB-INDEXES			

### Sample Data

Valuation Date	AGG	UMEZZ	LMEZZ	SUB	UMEZZ_LMEZZ	LMEZZ_SUB	CAS	STACR	LLTV
1/2/2015	107.63951462	103.19798837	111.59998065		107.63951462	111.59998065	104.06600363	108.99694476	107.62317686
1/5/2015	107.13515288	102.97959150	110.80562311		107.13515288	110.80562311	103.61870278	108.44289909	107.08026096
1/6/2015	106.67390988	102.77519305	110.08396001		106.67390988	110.08396001	103.20506113	107.94114270	106.58320216
Valuation Date	AGG	UMEZZ	LMEZZ	SUB	UMEZZ_LMEZZ	LMEZZ_SUB	CAS	STACR	LLTV
1/2/2015									
1/5/2015	-0.47%	-0.21%	-0.71%		-0.47%	-0.71%	-0.43%	-0.51%	-0.50%
1/6/2015	-0.43%	-0.20%	-0.65%		-0.43%	-0.65%	-0.40%	-0.46%	-0.46%

## CRTx® Monthly Metrics File (\*)

### Availability

- Released on the last business day of the month (.xls file format)

### Glossary & Layout

MONTHLY METRICS FILE (1)			
ELEMENT NAME	DESCRIPTION	TYPE	FORMAT
Val_Dt	Applicable month-end of index constituency valuation (last business day of the respective Valuation Month).	DATE	M/D/YYYY
Index	Index/Sub-Index name within CRTx® Index Suite	ALPHA-NUMERIC	X(30)
MTDTotRet	Period total return percentage.	NUMERIC	99.99%
PriceRet	Period return percentage contributed by month-to-date constituent price changes.	NUMERIC	99.99%
AccrRet	Period return percentage contributed by month-to-date coupon accruals.	NUMERIC	99.99%
CPNRet	Period return percentage contributed by month-to-date coupon payments.	NUMERIC	99.99%
PaydownRet	Period return percentage contributed by month-to-date principal payments.	NUMERIC	99.99%
WritedownRet	Period return percentage contributed by month-to-date principal writedowns.	NUMERIC	99.99%
IntShortRet	Period return percentage contributed by month-to-date interest shortfalls.	NUMERIC	99.99%
BegConstituents	Number of index constituents for each respective valuation month.	NUMERIC	9999
BegUPB	Unpaid principal balance of all index constituent securities starting each respective valuation month.	NUMERIC	9(13).99
BegMktVal	Total cash market value of all index constituent securities starting each respective valuation month.	NUMERIC	9(13).99
BegWAvgSecMktVal	Weighted average security cash market value (price + accrued interest) starting each respective valuation month.	NUMERIC	999.99
BegWAvgCPNMargin	Weighted average security coupon rate starting each respective valuation month.	NUMERIC	9999
BegWAvgCPN	Weighted average security coupon margin (in bps) starting each respective valuation month.	NUMERIC	99.999
EndWAvgDM	Weighted average security discount margin (in bps) at end of each respective valuation month.	NUMERIC	9999
EndWAvgLife (2)	Constituency weighted average life at end of each respective valuation month (available starting 5/2018).	NUMERIC	99.99
EndWAvgDur (2)	Constituency weighted average modified duration at end of each respective valuation month (available starting 5/2018).	NUMERIC	99.99
EndWAvgCvx (2)	Constituency weighted average convexity at end of each respective valuation month (available starting 5/2018).	NUMERIC	99.99
EndWAvgYld (2)	Constituency weighted average yield at end of each respective valuation month (available starting 5/2018).	NUMERIC	99.99
<b>EndIndexVal*</b>	<b>Month-end index value (last business day of the respective Valuation Month).</b>	<b>NUMERIC</b>	<b>9999.99999999</b>

\* New appended field for effective date 4/29/2022 (history will be back-filled)

(1) A separate Monthly Metrics File is provided for the CRTx® Aggregate and each 1st-Level Sub-Index

(2) Static casflow calculation based on 10CPR/0CDR pricing assumption convention.

### Sample Data

Val_Dt	Index	MTDTotRet	PriceRet	AccrRet	CPNRet	PaydownRet	WritedownRet	IntShortRet	BegConstituents	BegUPB
5/31/2018	CRTx® AGG	0.34%	-0.07%	0.01%	0.42%	-0.03%	-0.0013%	-0.0001%	171	42241567665
BegMktVal	BegWAvgSecMktVal	BegWAvgCPNMar	BegWAvgCPN	EndWAvgDM	EndWAvgLife	EndWAvgDur	EndWAvgCvx	EndWAvgYld	EndIndexVal	
45959484313	108.8	360	5.50	165	4.87	3.91	0.26	4.26	141.07763220	

CRTx® Index Desk Reference (PDF/Email/Portal Distribution)

Availability - Monthly on the business day after the last business day of each month.

Sample Index/Sub-Index Outputs (Standard Outputs)

CRTx® AGG (as of 10/6/20)

Month End/ Rebalancing Date	STARTING VALUES					M/E BASKET METRICS			M/E RETURN ATTRIBUTION					M/E RETURN METRICS			PERIODIC RETURNS			ANNUALIZED RETURN			
	Index Mkt Val (\$B)	WA Mkt Cx	WA Mkt P+Accr	WA Cpn Margin	WA Cpn Margin	WA Disc Margin	WA Life	WA Yield	Price Return	Cpn Accrual Return	Cpn Pmt Return	Payout Pmt Return	Write-down Return	Int Shortfall Return	Index Total Return	Excess Return	Volatility	Sharpe Ratio	MTD	QTD	YTD	1-YR	3-YR
1/31/2019	48.814	194	105.2	6.02	351	192	4.53	4.41	1.35%	0.02%	0.48%	-0.02%	-0.0015%	-0.0001%	1.82%	1.61%	2.65%	7.25	1.82%	1.82%	1.82%	3.07%	9.12%
2/28/2019	49.835	197	106.6	6.03	352	187	4.49	4.35	0.25%	-0.05%	0.49%	-0.02%	-0.0008%	-0.0001%	0.67%	0.48%	1.14%	5.58	0.67%	2.50%	2.50%	4.03%	9.79%
3/29/2019	51.194	203	106.6	6.00	351	200	4.49	4.35	-0.41%	0.02%	0.44%	-0.02%	-0.0010%	-0.0001%	0.03%	-0.17%	1.10%	-1.84	0.02%	2.52%	2.52%	4.27%	8.51%
4/30/2019	52.277	207	106.0	5.98	349	190	4.48	4.20	0.53%	0.02%	0.49%	-0.02%	-0.0012%	-0.0001%	1.01%	0.80%	0.77%	12.30	1.01%	1.01%	3.56%	4.44%	8.01%
5/31/2019	53.037	209	106.5	5.96	348	207	4.43	4.14	-0.65%	-0.03%	0.51%	-0.03%	-0.0016%	-0.0001%	-0.19%	-0.40%	1.49%	-3.06	-0.19%	0.81%	3.36%	3.89%	7.73%
6/28/2019	52.833	213	105.8	5.92	349	218	4.40	4.03	-0.13%	0.00%	0.44%	-0.03%	-0.0025%	-0.0001%	0.27%	0.09%	1.96%	0.59	0.27%	1.09%	3.64%	4.12%	7.87%
7/31/2019	52.160	209	105.7	5.91	350	215	4.38	3.99	0.16%	0.04%	0.47%	-0.03%	0.0003%	-0.0001%	0.64%	0.44%	2.01%	2.52	0.64%	0.64%	4.30%	4.00%	7.21%
8/30/2019	53.382	216	105.8	5.76	349	239	4.41	3.78	-0.64%	-0.03%	0.48%	-0.03%	-0.0012%	-0.0001%	-0.22%	-0.38%	2.51%	-1.75	-0.22%	0.42%	4.07%	2.93%	6.78%
9/30/2019	53.219	219	105.0	5.63	349	233	4.42	3.86	0.22%	0.01%	0.45%	-0.03%	-0.0016%	-0.0001%	0.65%	0.47%	1.40%	4.25	0.65%	1.07%	4.75%	3.23%	6.53%
10/31/2019	52.920	222	105.3	5.53	351	234	4.41	3.89	-0.07%	0.01%	0.44%	-0.03%	-0.0016%	-0.0001%	0.34%	0.18%	1.32%	1.57	0.34%	0.34%	5.11%	3.88%	6.78%
11/29/2019	53.606	228	105.2	5.33	351	232	4.52	3.79	0.11%	-0.03%	0.44%	-0.03%	-0.0010%	-0.0001%	0.48%	0.36%	0.96%	4.92	0.48%	0.83%	5.61%	4.82%	6.75%
12/31/2019	53.690	233	105.2	5.23	352	226	4.48	3.89	0.25%	0.01%	0.43%	-0.04%	-0.0015%	-0.0001%	0.65%	0.51%	0.55%	10.93	0.65%	1.48%	6.30%	6.30%	6.52%
1/31/2020	52.467	228	105.6	5.35	356	209	4.37	3.42	0.81%	-0.02%	0.45%	-0.04%	-0.0007%	-0.0001%	1.21%	1.08%	1.17%	11.01	1.21%	1.21%	5.66%	5.66%	6.34%
2/28/2020	53.579	232	106.4	5.20	354	224	4.47	3.32	-0.49%	-0.02%	0.39%	-0.04%	-0.0019%	-0.0001%	-0.16%	-0.28%	0.95%	-3.84	-0.16%	1.05%	1.05%	4.79%	6.12%
3/31/2020	55.278	240	105.6	5.11	348	1,088	4.55	10.97	-25.78%	0.03%	0.39%	-0.03%	-0.0014%	-0.0001%	-25.39%	-25.52%	39.15%	-8.35	-25.39%	-24.61%	-24.61%	-21.84%	-3.97%
4/30/2020	40.768	234	77.9	4.45	351	795	4.23	7.78	8.14%	-0.06%	0.53%	0.36%	-0.0007%	-0.0002%	8.97%	8.96%	13.06%	7.97	8.97%	8.97%	-17.85%	-15.68%	-1.77%
5/29/2020	42.820	229	84.0	4.03	355	622	4.07	6.28	6.39%	0.00%	0.39%	0.26%	-0.0008%	-0.0001%	7.03%	7.02%	4.16%	20.61	7.03%	16.62%	-12.08%	-9.72%	0.17%
6/30/2020	43.696	218	89.2	3.77	360	421	4.04	4.32	8.53%	0.02%	0.35%	0.13%	-0.0008%	-0.0001%	9.04%	9.03%	6.01%	16.53	9.04%	27.16%	-4.13%	-1.67%	2.65%
7/31/2020	45.227	214	96.8	3.83	365	492	4.25	4.89	-0.75%	-0.01%	0.35%	0.02%	-0.0009%	-0.0001%	-0.39%	-0.40%	2.29%	-2.01	-0.39%	-0.39%	-4.51%	-2.68%	2.13%
8/31/2020	44.843	217	96.1	3.87	370	415	4.56	4.49	1.28%	0.02%	0.32%	0.07%	-0.0009%	-0.0001%	1.69%	1.68%	1.31%	15.30	1.69%	1.29%	-2.89%	-0.81%	2.99%
9/30/2020	44.863	217	97.4	3.92	374	410	4.74	4.40	0.77%	-0.01%	0.35%	0.01%	-0.0007%	-0.0001%	1.11%	1.10%	0.73%	18.01	1.11%	2.41%	-1.82%	-0.37%	3.46%
10/30/2020	44.865	220	98.1	3.90	375														0.11%	0.11%	-1.71%	-0.32%	3.40%
11/30/2020																							
12/31/2020																							

CRTx® FXD1 (as of 10/6/20)

Month End/ Rebalancing Date	INDEX CONSTITUENT BASKET: MONTHLY STARTING VALUES					M/E BASKET METRICS			M/E RETURN ATTRIBUTION					M/E RETURN METRICS			PERIODIC RETURNS			ANNUALIZED RETURN			
	Index Mkt Val (\$B)	WA Mkt Cx	WA Mkt P+Accr	WA Cpn Margin	WA Cpn Margin	WA Disc Margin	WA Life	WA Yield	Price Return	Cpn Accrual Return	Cpn Pmt Return	Payout Pmt Return	Write-down Return	Int Shortfall Return	Index Total Return	Excess Return	Volatility	Sharpe Ratio	MTD	QTD	YTD	1-YR	3-YR
1/31/2019	3,629,606,975	12	108.1	6.33	382	129	3.44	3.72	0.48%	0.02%	0.49%	-0.03%	0.0000%	0.0000%	0.95%	0.75%	2.63%	3.40	0.95%	0.95%	0.95%	1.91%	7.85%
2/28/2019	3,615,965,382	12	108.7	6.34	383	118	3.41	3.59	0.26%	-0.05%	0.50%	-0.03%	0.0000%	0.0000%	0.69%	0.50%	1.80%	3.67	0.68%	1.64%	1.64%	3.20%	8.22%
3/29/2019	3,595,573,959	12	109.0	6.33	384	121	3.37	3.50	-0.21%	0.02%	0.45%	-0.03%	0.0000%	0.0000%	0.23%	0.03%	2.07%	0.20	0.23%	1.87%	1.87%	3.29%	7.25%
4/30/2019	3,560,159,679	12	108.8	6.34	385	117	3.33	3.39	0.02%	0.02%	0.50%	-0.04%	0.0000%	0.0000%	0.50%	0.28%	1.03%	3.29	0.50%	0.50%	2.38%	3.22%	6.69%
5/31/2019	3,530,292,322	12	108.9	6.34	386	127	3.28	3.29	-0.37%	-0.03%	0.53%	-0.04%	0.0000%	0.0000%	0.09%	-0.12%	1.42%	-0.95	0.09%	0.58%	2.47%	3.12%	6.55%
6/28/2019	3,479,967,929	12	108.5	6.31	388	154	3.25	3.32	-0.93%	0.00%	0.45%	-0.05%	0.0000%	0.0000%	-0.53%	-0.71%	3.76%	-2.37	-0.53%	0.05%	1.92%	2.60%	6.99%
7/31/2019	3,404,694,032	11	107.5	6.30	389	144	3.20	3.22	0.17%	0.05%	0.49%	-0.05%	0.0000%	0.0000%	0.65%	0.45%	5.13%	1.03	0.65%	0.65%	2.59%	2.40%	5.75%
8/30/2019	3,369,777,070	11	107.8	6.17	390	181	3.15	3.16	-1.07%	-0.03%	0.51%	-0.06%	0.0000%	0.0000%	0.61%	-0.82%	4.82%	-1.92	-0.65%	-0.01%	1.92%	1.29%	5.28%
9/30/2019	3,288,010,831	11	106.6	6.06	391	175	3.12	3.23	0.18%	0.01%	0.47%	-0.06%	0.0000%	0.0000%	0.69%	0.43%	3.02%	1.79	0.61%	0.60%	2.53%	1.49%	4.90%
10/31/2019	3,247,128,562	10	106.9	5.94	392	158	3.07	3.07	0.28%	0.01%	0.46%	-0.07%	0.0000%	0.0000%	0.43%	0.53%	2.24%	2.69	0.69%	0.69%	3.24%	2.23%	5.30%
11/29/2019	3,209,987,089	10	107.2	5.75	393	153	3.03	2.93	0.08%	-0.03%	0.46%	-0.08%	0.0000%	0.0000%	0.43%	0.31%	2.01%	2.04	0.43%	1.13%	3.69%	3.18%	5.40%
12/31/2019	3,162,555,107	10	107.3	5.65	394	154	2.99	3.08	-0.18%	0.02%	0.45%	-0.08%	0.0000%	0.0000%	0.21%	0.07%	1.60%	0.54	0.21%	1.34%	3.91%	3.91%	5.14%
1/31/2020	3,109,539,098	10	107.2	5.74	395	133	2.94	2.60	0.50%	-0.02%	0.48%	-0.07%	0.0000%	0.0000%	0.89%	0.76%	2.92%	3.13	0.89%	0.89%	0.89%	3.84%	4.83%
2/28/2020	3,079,428,592	10	107.7	5.62	396	132	2.90	2.36	-0.05%	-0.02%	0.42%	-0.07%	0.0000%	0.0000%	0.28%	0.17%	1.17%	1.87	0.28%	1.17%	1.17%	3.43%	4.76%
3/31/2020	3,036,373,902	10	107.7	5.59	396	978	2.85	10.41	-19.17%	0.03%	0.42%	-0.07%	0.0000%	0.0000%	-18.79%	-18.92%	31.70%	-7.37	-18.79%	-17.84%	-17.84%	-16.19%	-2.51%
4/30/2020	2,416,150,859	10	86.8	4.92	397	1,223	2.77	12.36	-7.36%	-0.05%	0.52%	0.16%	0.0000%	0.0000%	-6.73%	-6.73%	30.83%	-2.56	-6.72%	-6.72%	-23.36%	-22.22%	-5.40%
5/29/2020	2,204,242,238	10	80.3	4.46	397	1,413	2.68	14.77	-3.13%	0.00%	0.45%	0.25%	0.0000%	0.0000%	-2.44%	-2.45%	27.36%	-1.01	-2.44%	-9.00%	-25.23%	-24.19%	-6.50%
6/30/2020	2,080,230,206	10	77.5	4.16	399	976	2.65	10.12	12.20%	0.03%	0.45%	0.49%	0.0000%	0.0000%	13.17%	13.16%	32.68%	4.49	13.17%	2.98%	-15.38%	-13.74%	-2.79%
7/31/2020	2,277,583,710	10	87.0	4.19	400	1,292	2.63	13.39	-7.25%	-0.02%	0.43%	0.35%	0.0000%	0.0000%	-6.49%	-6.50%	11.47%	-6.64	-6.49%	-6.49%	-20.87%	-19.85%	-5.31%
8/31/2020	2,037,526,227	9	80.4	4.19	402	839	2.58	8.75	11.11%	0.03%	0.42%	0.76%	0.0000%	0.0000%	12.31%	12.30%	15.73%	8.95	12.31%	5.02%	-11.13%	-9.40%	-1.32%
9/30/2020	2,185,866,775	9	89.5	4.20	403	780</																	





For information on CRTx® Rules and Guidelines, commercial licensing, data usage, and redistribution of the CRTx® suite of indexes, please contact:

**Mark Fontanilla**

Mark Fontanilla & Co., LLC

255 W MLK Blvd

Suite 2402

Charlotte, NC 28202

C: (201) 213-7168

O: (704) 405-0575

[mark@markfontanilla.com](mailto:mark@markfontanilla.com)

**Security pricing and information powered by Refinitiv, an LSEG (London Stock Exchange Group) business.**

Copyright © 2017-2022, Mark Fontanilla & Co., LLC (“MFCo”). All rights reserved. The information presented herein is protected by United States intellectual property and copyright laws and may not be reproduced, rewritten, distributed, published, broadcast, disseminated, transmitted, displayed, either directly or indirectly, in any medium or incorporated in other electronic or printed works without the prior consent of MFCo. CRTx® is a registered trademark, and RNI™ is a trademark, of MFCo. MFCo and any third-party licensors of its commercial indexes make no representation or warranty, express or implied, as to the capability of any index to accurately represent the security asset class or financial market sector that any respective MFCo index intends to represent. MFCo and any third-party licensors of its commercial indexes shall not be liable for any errors, omissions, or interruptions in the calculation or presentation of any MFCo index and its related data. Past performance of an index is neither an indication, nor a guarantee, of future results for either the index, the future results of the securities, or markets the index represents. The material herein does not constitute an offer for the sale of securities or services. Except for MFCo Custom Index Design Services, all information provided by MFCo is for general public dissemination and not specifically tailored for the purposes of any single individual, group, or legal entity. MFCo receives fees associated with the licensing of its indexes to third parties, development and administration of custom indexes, and the provision of index data products and services. An index itself cannot be invested in. Investment exposure to the securities or financial markets that an index represents may be made available via third-party financial instrument or investment vehicle that references the respective index. MFCo does not sell, endorse, promote, or directly manage any financial instrument or investment vehicle that seeks to offer an economic return based on the performance of any of MFCo’s indexes. MFCo is not an investment advisor and does not provide legal or tax advice. For more information on any of MFCo’s index products or other professional services, please visit [www.markfontanilla.com](http://www.markfontanilla.com).