

**CRTx®***Credit Risk Transfer Return Tracking Index*[www.markfontanilla.com/crtx-index](http://www.markfontanilla.com/crtx-index)**CRTx® Index Analytic/Data Suite:**

**Right-To-Use License Options -**  
*Standard Reports, File Layouts, Glossaries,  
 Sample Sets, and Index Portal Functions*  
 (Effective 6/10/2024)

| CRTx® Index Commercial Analytic/Data Suite |                     |   |  |  |
|--|---------------------|---|--|--|
| Commercial Options                         | Index Portal Access | Research Reports/Distributions  | Enterprise Data Package Files  | Index Portal Screens/Functions   |
| <b>Index Portal</b>                        | <b>Full</b>         | Daily Return Summary (daily/email)<br>Index Rebalancing Report (monthly/email)<br>Miscellaneous Releases (varies/email) | N/A  | Index Baskets Guide<br>Daily Return Summary Monitor<br>Aggregate Index Historical Valuation Lookup<br>Index Rebalancing Update & Monthly Report Archive<br>Deal Structure Guide/Current Performance Metrics<br>Sector Supply Metrics<br>Index Desk Reference™ Advanced Risk/Return Metrics |
| <b>Enterprise Data Package</b>             | Not Included        | Daily Return Summary (daily/email)<br>Index Rebalancing Report (monthly/email)<br>Miscellaneous Releases (varies/email) | Constituent Weightings File<br>Daily Fixings File<br>Daily History File<br>Daily Metrics File<br>Monthly Metrics File-Basic<br>Monthly Metrics File-Expanded | N/A  |
| <b>Benchmark License</b>                   | Not Included        | Daily Return Summary (daily/email)<br>Index Rebalancing Report (monthly/email)<br>Miscellaneous Releases (varies/email) | Constituent Weightings File<br>Daily Fixings File<br>Daily History File<br>Daily Metrics File<br>Monthly Metrics File-Basic<br>Monthly Metrics File-Expanded | N/A  |

# CRTx® Research Reports/Distributions

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

## CRTx® Research Reports/Distributions (continued)

### 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 &amp; Co., LLC

MARKET INDEXES

#### CRTx®

*Credit Risk Transfer Return Tracking Index*

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

#### CRTx® Index Rebalancing Update

07/31/2023

##### Inside

##### Return Roundup Page 3

The CRTx® Aggregate index posted a 2.34% total return in July, the 4th straight winning month in a row. A bull flattening credit curve, on top of substantial floater carry, continued to buoy GSE CRT returns for the month amid rallying equities and mixed performance across the broader fixed income market. YTD, the sector is outperforming rates and IG/HY, with the CRTx® AGG gaining 11.73% so far, as the GSE CRT market reaches its 10-year anniversary...

##### Index Rebalancing Metrics Page 3

The CRTx® basket UPB for August grows +2.0% MoM to \$52.4B, with market value up +3.6% to \$53.9B. Constituents increase to 351 securities from 132 deals as the latest CAS LLTV deals add 8 tranches into the Index, while the 1<sup>st</sup> GSE CRT deal ever issued STACR 2013-DN1 matures...Benchmark GSE CRT float increased \$1B/1.96% MoM in July, the largest net supply gain since September 2022...

##### Latest Deal Performance Page 5

DQs continued to oscillate with STACR July DQs posting mixed MoM changes, following June's declines...Speed changes MoM were also modestly mixed, while losses/int. shortfalls were tame, and C/Es just slightly higher...

##### Relative Value Thoughts Page 5

The fundamentals persist...Again, seasoned paper story continues as scarcity value increases...Recent Issue CRT vs. IG/HY - carry remains king...as CRT coupons in the 7%-11%+ range... while secondary corporate coupons overall are 200-400+bps lower...

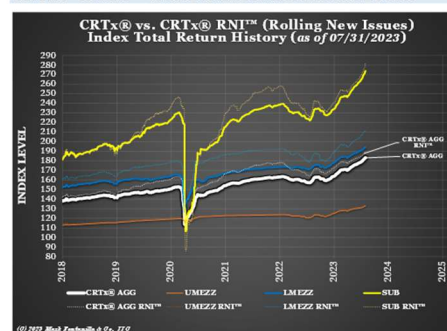
##### CRTx® Index Summary Panels Page 2

- CRTx® AGG Index Rebalancing Stats
- CRTx® RNI™ AGG Index Rebalancing Stats

##### Additional Tables/Metrics Pages 6-13

- CRTx® Index Suite Total Return Performance: Month-End Matrix
- CRTx® Index Basket History: Select Metrics
- CRTx® RNI™ Index Basket History: Select Metrics
- Latest Deal Performance Metrics: CAS
- Latest Deal Performance Metrics: STACR

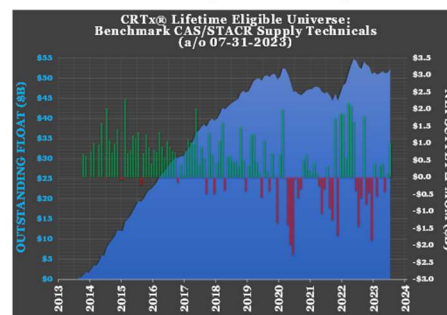
#### CRTx® & RNI™ Index Suites: Historical Levels



#### Sector Musings

##### A Decade Of Benchmark GSE CRT

The first benchmark GSE CRT deal in history, Freddie Mac's STACR 2013-DN1, just matured this month, marking the 10-year anniversary of the GSE CRT market. The 2<sup>nd</sup> sector deal ever issued, Fannie Mae's CAS 2013-C01 is slated to mature in October, and after a decade, the market has evolved into a staple asset in mortgage credit securitization. Since inception in 2013, there have been 136 deals, totaling over \$131B in lifetime issuance, referencing nearly \$4.6T in loans. Based on the CRTx® Aggregate Index, if you had invested in the first 2013 deals, and stayed reinvested in the market to now, your total return would be 83.2%, or a simple annualized rate of 6.24%. Not bad versus rates and credit in the age of lower-to-higher rates.

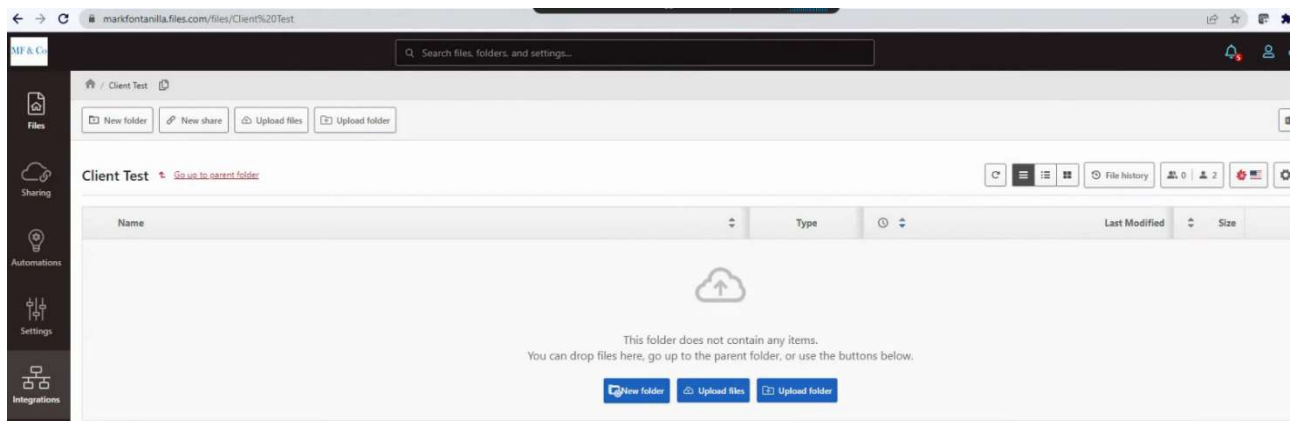


## CRTx® Enterprise Data Files Via MFCo Data Portal

- Specific index enterprise data file accessibility depends upon the Client's right-to-use index license option selected.
- Data Portal access credentials and required usage agreement is separate from Index Portal online access credentials and digital agreement.

Index enterprise data files can be accessed 2 ways via the MFCo Client Data Portal

- 1) Web interface at: <https://markfontanilla.files.com> (sample view below)



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

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

CRTx® Enterprise Data Files Via MFCo Data Portal (continued)

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® Enterprise Data Files Via MFCo Data Portal (continued)

### CRTx® Daily File

**Availability:** Released daily on Index Valuation days (.xls file format)

### Glossary & Layout

| DAILY FILE                     |   |         |               |
|--------------------------------|---|---------|---------------|
| ELEMENT NAME                   | DESCRIPTION   | TYPE    | FORMAT        |
| PART 1: DAILY INDEX VALUES     |   |         |               |
| 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   |   |         |               |
| PART 2: DAILY RETURN VALUES    |   |         |               |
| 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® Enterprise Data Files Via MFCo Data Portal (continued)

### CRTx® Daily Metrics File (\*)

*Availability* - Released end-of-day on each Index calculation date (.xls file format)

#### Glossary & Layout

| DAILY METRICS FILE (1) |  |                |               |
|------------------------|--|----------------|---------------|
| ELEMENT NAME           | DESCRIPTION  | End            | FORMAT        |
| Val_Dt                 | Day of Index calculations.   | DATE           | M/D/YYYY      |
| Index                  | Index/Sub-Index name within CRTx® Index Suite  | ALPHA-NUMERIC  | X(30)         |
| MTDTotRet              | Month-to-date Index total return percentage.   | NUMERIC        | 99.99%        |
| MTDPriceRet            | Month-to-date Index return percentage contributed by constituent price changes.                  | NUMERIC        | 99.99%        |
| MTDAccrRet             | Month-to-date Index return percentage contributed by coupon                                      | NUMERIC        | 99.99%        |
| MTDCPNRet              | Month-to-date Index return percentage contributed by coupon                                      | NUMERIC        | 99.99%        |
| MTDPaydownRet          | Month-to-date Index return percentage contributed by principal                                   | NUMERIC        | 99.99%        |
| MTDWritedownRet        | Month-to-date Index return percentage contributed by principal                                   | NUMERIC        | 99.99%        |
| MTDIntShortRet         | Month-to-date Index return percentage contributed by interest                                    | NUMERIC        | 99.99%        |
| BOMConstituents        | Beginning-of-month Index basket constituent count.   | NUMERIC        | 9999          |
| BOMUPB                 | Beginning-of-month Index aggregate unpaid principal balance.                                     | NUMERIC        | 9(13).99      |
| BOMMktVal              | Beginning-of-month Index aggregate cash market dollar value.                                     | NUMERIC        | 9(13).99      |
| BOMWAvSecMktVal        | Beginning-of-month Index weighted average security cash market value (price + accrued interest). | NUMERIC        | 999.99        |
| BOMWAvCPNMargin        | Beginning-of-month Index weighted average security coupon margin                                 | NUMERIC        | 9999          |
| BOMWAvCPN              | Beginning-of-month Index weighted average security coupon rate.                                  | NUMERIC        | 99.999        |
| EODParWAvPx            | End-of-day Index par-weighted average security cash market price (clean w/o accrued interest).   | NUMERIC        | 99.99         |
| EODWAvDM               | End-of-day Index weighted average security discount margin (in bps, available starting 6/2022).  | NUMERIC        | 9999          |
| <b>EODWAvLife (2)*</b> | <b>End-of-day Index weighted average life (available starting 6/2022).</b>                       | <b>NUMERIC</b> | <b>99.99</b>  |
| <b>EODWAvDur (2)*</b>  | <b>End-of-day Index weighted average modified duration (available starting 6/2022).</b>          | <b>NUMERIC</b> | <b>99.99</b>  |
| <b>EODWAvCvx (2)*</b>  | <b>End-of-day Index weighted average convexity (available starting 6/2022).</b>                  | <b>NUMERIC</b> | <b>99.99</b>  |
| <b>EODWAvYld (2)*</b>  | <b>End-of-day weighted average yield (available starting 6/2022).</b>                            | <b>NUMERIC</b> | <b>99.99</b>  |
| EODIndexVal            | End-of-day Index Value.  | NUMERIC        | 9999.99999999 |

\* Due to a calculation convention change from the Index's security pricing/information source (Refinitiv/LSEG), certain data elements, and all corresponding files, will reflect this change effective 5/31/2022 (history will NOT be back-filled).

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

(2) Calculation convention based on 1) static rates and 2) 10CPR/OCDR to the earlier of a) optional redemption date or b) maturity date, as of 5/31/2022 (Note: Prior to 5/31/2022, values were calculated to maturity date).

#### Sample Data

| Val_Dt     | Index     | MTDTotRet | MTDPriceRet | MTDAccrRet | MTDCPNRet | MTDPaydownRet | MTDWritedownRet | MTDIntShortRet | BOMConstituents | BOMUPB      |
|------------|-----------|-----------|-------------|------------|-----------|---------------|-----------------|----------------|-----------------|-------------|
| 12/8/2022  | CRTx® SUB | 0.64%     | 0.41%       | 0.22%      | 0.00%     | 0.00%         | 0.0000%         | 0.0000%        | 157             | 23534820356 |
| 12/9/2022  | CRTx® SUB | 0.80%     | 0.55%       | 0.25%      | 0.00%     | 0.00%         | 0.0000%         | 0.0000%        | 157             | 23534820356 |
| 12/12/2022 | CRTx® SUB | 0.92%     | 0.59%       | 0.33%      | 0.00%     | 0.00%         | 0.0000%         | 0.0000%        | 157             | 23534820356 |
| 12/13/2022 | CRTx® SUB | 1.19%     | 0.83%       | 0.36%      | 0.00%     | 0.00%         | 0.0000%         | 0.0000%        | 157             | 23534820356 |
| 12/14/2022 | CRTx® SUB | 1.29%     | 0.90%       | 0.39%      | 0.00%     | 0.00%         | 0.0000%         | 0.0000%        | 157             | 23534820356 |
| 12/15/2022 | CRTx® SUB | 1.69%     | 1.27%       | 0.42%      | 0.00%     | 0.00%         | 0.0000%         | 0.0000%        | 157             | 23534820356 |
| 12/16/2022 | CRTx® SUB | 1.74%     | 1.30%       | 0.44%      | 0.00%     | 0.00%         | 0.0000%         | 0.0000%        | 157             | 23534820356 |

CRTx® Enterprise Data Files Via MFCo Data Portal (continued)

CRTx® Daily Metrics File (continued)

Sample Data (continued)

| BOMMktVal   | BOMWAvgSecMkt | BOMWAvgCPNM | BOMWAvgCPN | EODParWAvgPx | EODWAvgDM | EODWAvgLife | EODWAvgDur | EODWAvgCvx | EODWAvgYld | EODIndexVal  |
|-------------|---------------|-------------|------------|--------------|-----------|-------------|------------|------------|------------|--------------|
| 22192497336 | 94.3          | 567         | 9.43       | 94.56        | 657       | 4.66        | 3.46       | 0.36       | 10.84      | 230.18728746 |
| 22192497336 | 94.3          | 567         | 9.43       | 94.69        | 654       | 4.66        | 3.46       | 0.36       | 10.84      | 230.57235524 |
| 22192497336 | 94.3          | 567         | 9.43       | 94.72        | 653       | 4.65        | 3.46       | 0.36       | 10.82      | 230.84848220 |
| 22192497336 | 94.3          | 567         | 9.43       | 94.95        | 648       | 4.65        | 4.85       | 0.36       | 10.78      | 231.45471399 |
| 22192497336 | 94.3          | 567         | 9.43       | 95.01        | 647       | 4.65        | 4.84       | 0.36       | 10.78      | 231.68260680 |
| 22192497336 | 94.3          | 567         | 9.43       | 95.37        | 640       | 4.64        | 4.84       | 0.36       | 10.72      | 232.59764753 |
| 22192497336 | 94.3          | 567         | 9.43       | 95.39        | 639       | 4.64        | 4.84       | 0.36       | 10.72      | 232.72056939 |



## CRTx® Enterprise Data Files Via MFCo Data Portal (continued)

### CRTx® Monthly Metrics File – Basic and Full Versions (\*)

*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                   | 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 collar 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 margin (in bps) starting each respective valuation month.                                    | NUMERIC        | 9999          |
| BegWAvgCPN               | Weighted average security coupon rate 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          |
| <b>EndWAvgLife (2)*</b>  | <b>Constituency weighted average life at end of each respective valuation month (available starting 5/2018).</b>              | <b>NUMERIC</b> | <b>99.99</b>  |
| <b>EndWAvgDur (2)*</b>   | <b>Constituency weighted average modified duration at end of each respective valuation month (available starting 5/2018).</b> | <b>NUMERIC</b> | <b>99.99</b>  |
| <b>EndWAvgCvx (2)*</b>   | <b>Constituency weighted average convexity at end of each respective valuation month (available starting 5/2018).</b>         | <b>NUMERIC</b> | <b>99.99</b>  |
| <b>EndWAvgYld (2)*</b>   | <b>Constituency weighted average yield at end of each respective valuation month (available starting 5/2018).</b>             | <b>NUMERIC</b> | <b>99.99</b>  |
| EndIndexVal              | Month-end index value (last business day of the respective Valuation Month).  | NUMERIC        | 9999.99999999 |

\* Due to a calculation convention change from the Index's security pricing/information source (Refinitiv/LSEG), certain data elements, and all corresponding files, will reflect this change effective 5/31/2022 (history will NOT be back-filled).

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

(2) Calculation convention based on 1) static rates and 2) 10CPR/0CDR to the earlier of a) optional redemption date or b) maturity date, as of 5/31/2022 (Note: Prior to 5/31/2022, values were calculated to maturity date).

## CRTx® Enterprise Data Files Via MFCo Data Portal (continued)

### CRTx® Monthly Metrics File (continued)

#### *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   | BegWAVgSecMktV | BegWAVgCPNMar | BegWAVgCPN | EndWAVgDM | EndWAVgLife | EndWAVgDur | EndWAVgCvx | EndWAVgYld | EndIndexVal                  |
|-------------|----------------|---------------|------------|-----------|-------------|------------|------------|------------|------------------------------|
| 45959484313 | 108.8          | 360           | 5.50       | 165       | 4.87        | 3.91       | 0.26       | 4.26       | <a href="#">141.07763220</a> |

*Note: The Monthly Metrics Basic Version includes the CRTx® Aggregate, Upper Mezzanine, Lower Mezzanine, and Subordinate indexes. The Full Version contains all CRTx® Index Suite standard indexes, including the new M2, B1, B2, & B index variants.*

## CRTx® Index Portal Screens/Functions

- CRTx® Index Portal screens/functions accessibility requires a Subscription and users must agree and comply with the CRTx® Index Portal Terms and Conditions.
- Index Portal access credentials and digital agreement is separate from any Enterprise Data or Benchmark License agreements.

## Daily Return Summary Monitor

CRTx®: Index Portal

Daily Returns

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UPDATES & NOTICES: NEW: M2, B1, B2, & B index variants added to the CRTx® Suite (in the Risk/Return Metrics screen).

Terms of Use

CRTx® Daily Return Summary \*

| CRTx®                | Level  | Daily  | Wkly   | Mthly | MTD   | QTD   | YTD    | 1-YR (Ann.) | 3-YR (Ann.) | As of Date |
|----------------------|--------|--------|--------|-------|-------|-------|--------|-------------|-------------|------------|
| Aaareate             | 184.32 | 0.01%  | 0.24%  | 1.34% | 0.61% | 2.96% | 12.41% | 13.38%      | 8.27%       | 8/22/2023  |
| Upper Mezzanine      | 133.50 | 0.02%  | 0.13%  | 0.92% | 0.40% | 1.94% | 6.85%  | 8.12%       | 3.09%       | 8/22/2023  |
| Lower Mezzanine      | 194.87 | 0.00%  | 0.09%  | 0.91% | 0.48% | 2.12% | 9.50%  | 11.14%      | 6.74%       | 8/22/2023  |
| Subordinate          | 275.85 | 0.01%  | 0.39%  | 1.90% | 0.82% | 4.17% | 17.83% | 18.06%      | 12.96%      | 8/22/2023  |
| Upper/Lower Mezz.    | 170.34 | 0.01%  | 0.11%  | 0.91% | 0.44% | 2.03% | 8.22%  | 9.69%       | 6.04%       | 8/22/2023  |
| Lower Mezz./Sub.     | 212.72 | 0.00%  | 0.27%  | 1.51% | 0.69% | 3.36% | 14.51% | 15.36%      | 9.11%       | 8/22/2023  |
| CAS                  | 180.26 | 0.01%  | 0.16%  | 1.11% | 0.49% | 2.47% | 10.59% | 12.58%      | 8.28%       | 8/22/2023  |
| STACR                | 184.24 | 0.01%  | 0.29%  | 1.50% | 0.68% | 3.26% | 13.55% | 13.84%      | 8.20%       | 8/22/2023  |
| LLTV                 | 182.89 | 0.01%  | 0.27%  | 1.38% | 0.68% | 2.83% | 11.77% | 13.24%      | 8.29%       | 8/22/2023  |
| HLTV                 | 165.27 | 0.01%  | 0.16%  | 1.26% | 0.46% | 3.20% | 13.75% | 13.71%      | 8.28%       | 8/22/2023  |
| Upper Mezzanine 2023 | 105.27 | 0.03%  | 0.10%  | 0.94% | 0.33% | 2.01% | -      | -           | -           | 8/22/2023  |
| 2022                 | 107.57 | 0.02%  | 0.15%  | 0.86% | 0.41% | 1.92% | 6.93%  | 8.33%       | -           | 8/22/2023  |
| 2021                 | 106.84 | 0.02%  | 0.14%  | 1.25% | 0.51% | 1.90% | 6.21%  | 6.59%       | -           | 8/22/2023  |
| 2020                 | -      | -      | -      | -     | -     | -     | -      | -           | -           | 8/22/2023  |
| 2019                 | -      | -      | -      | -     | -     | -     | -      | -           | -           | 8/22/2023  |
| 2018                 | -      | -      | -      | -     | -     | -     | -      | -           | -           | 8/22/2023  |
| 2017                 | -      | -      | -      | -     | -     | -     | -      | -           | -           | 8/22/2023  |
| 2016                 | -      | -      | -      | -     | -     | -     | -      | -           | -           | 8/22/2023  |
| 2015                 | -      | -      | -      | -     | -     | -     | -      | -           | -           | 8/22/2023  |
| <=2014               | -      | -      | -      | -     | -     | -     | -      | -           | -           | 8/22/2023  |
| Lower Mezzanine 2023 | 109.54 | 0.00%  | -0.05% | 0.78% | 0.04% | 2.99% | -      | -           | -           | 8/22/2023  |
| 2022                 | 109.91 | -0.01% | 0.09%  | 1.18% | 0.71% | 2.67% | 11.66% | 12.73%      | -           | 8/22/2023  |
| 2021                 | 110.07 | -0.02% | 0.12%  | 0.93% | 0.45% | 2.24% | 9.82%  | 10.15%      | -           | 8/22/2023  |
| 2020                 | 110.16 | 0.02%  | 0.13%  | 0.75% | 0.40% | 1.27% | 6.06%  | 7.42%       | 5.14%       | 8/22/2023  |
| 2019                 | 122.88 | 0.02%  | 0.14%  | 0.62% | 0.42% | 1.03% | 5.83%  | 6.78%       | 4.53%       | 8/22/2023  |
| 2018                 | 127.44 | 0.02%  | 0.14%  | 0.79% | 0.52% | 1.22% | 7.15%  | 8.23%       | 6.04%       | 8/22/2023  |
| 2017                 | 143.49 | 0.02%  | 0.14%  | 0.60% | 0.43% | 1.14% | 5.81%  | 8.28%       | 5.40%       | 8/22/2023  |
| 2016                 | 168.25 | 0.02%  | 0.13%  | 0.48% | 0.39% | 0.99% | 7.40%  | 10.31%      | 6.38%       | 8/22/2023  |
| 2015                 | 155.81 | 0.02%  | 0.14%  | 0.42% | 0.45% | 0.92% | 6.41%  | 10.07%      | 5.78%       | 8/22/2023  |
| <=2014               | 184.65 | 0.02%  | 0.13%  | 0.56% | 0.42% | 0.95% | 5.71%  | 8.07%       | 10.66%      | 8/22/2023  |
| Subordinate 2023     | 112.20 | 0.02%  | 0.40%  | 2.93% | 0.66% | 5.79% | -      | -           | -           | 8/22/2023  |
| 2022                 | 116.30 | 0.03%  | 0.18%  | 2.06% | 0.57% | 5.35% | 19.77% | 20.43%      | -           | 8/22/2023  |
| 2021                 | 119.21 | 0.00%  | 0.34%  | 2.26% | 0.74% | 5.42% | 23.17% | 20.87%      | -           | 8/22/2023  |
| 2020                 | 111.50 | 0.00%  | 0.68%  | 2.02% | 1.05% | 3.97% | 18.10% | 17.07%      | 15.64%      | 8/22/2023  |
| 2019                 | 153.73 | -0.02% | 0.32%  | 1.27% | 0.96% | 2.32% | 12.26% | 13.80%      | 13.12%      | 8/22/2023  |
| 2018                 | 148.79 | 0.01%  | 0.94%  | 2.21% | 1.33% | 2.80% | 13.54% | 15.95%      | 12.70%      | 8/22/2023  |
| 2017                 | 181.89 | 0.02%  | 0.14%  | 0.78% | 0.56% | 2.18% | 11.55% | 13.15%      | 10.33%      | 8/22/2023  |
| 2016                 | 233.38 | 0.03%  | 0.24%  | 1.02% | 0.76% | 1.92% | 13.21% | 16.03%      | 13.77%      | 8/22/2023  |
| 2015                 | 241.35 | 0.03%  | 0.24%  | 1.03% | 0.74% | 1.79% | 10.86% | 14.19%      | 9.02%       | 8/22/2023  |
| <=2014               | -      | -      | -      | -     | -     | -     | -      | -           | -           | 8/22/2023  |
| RNI™ Aaareate        | 189.64 | 0.02%  | 0.13%  | 1.05% | 0.57% | 2.52% | 9.93%  | 10.52%      | 7.17%       | 8/22/2023  |
| RNI™ Upper Mezzanine | 134.46 | 0.02%  | 0.10%  | 0.84% | 0.36% | 1.87% | 6.91%  | 8.29%       | 3.12%       | 8/22/2023  |
| RNI™ Lower Mezzanine | 211.95 | 0.01%  | 0.09%  | 0.85% | 0.92% | 2.83% | 12.39% | 12.94%      | 5.56%       | 8/22/2023  |
| RNI™ Subordinate     | 283.77 | 0.02%  | 0.37%  | 2.59% | 0.75% | 5.29% | 17.95% | 17.33%      | 14.15%      | 8/22/2023  |
| RNI™ LLTV            | 189.34 | 0.02%  | 0.06%  | 1.20% | 0.56% | 2.57% | 9.76%  | 11.16%      | 7.18%       | 8/22/2023  |
| RNI™ HLTV            | 168.25 | 0.01%  | 0.34%  | 0.73% | 0.58% | 2.42% | 10.48% | 9.19%       | 6.96%       | 8/22/2023  |

CRTx® Index Portal Screens/Functions (continued)

Aggregate Index Historical Valuation Lookup

CRTx®: Index Portal

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100.24  
100.23

UPDATES & NOTICES: NEW: M2, B1, B2, & B Index variants added to the CRTx® Suite (in the Risk/Return Metrics screen).

3.12%  
5.56%  
14.15%  
11.16%  
7.18%  
9.19%  
6.96%

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8/22/2023

CRTx® Aggregate Index Historical Lookback Tool \*

Reset All

Month

Day

Year

Configurator Cub...

| Valuation Date | Index    | Index Level | Daily    | Wkly     | Mthly    | MTD      | QTD      | YTD       | 1-YR      | 3-YR     |
|----------------|----------|-------------|----------|----------|----------|----------|----------|-----------|-----------|----------|
| 2023-08-22     | CRTx AGG | 184.32126   | 0.00900% | 0.23530% | 1.34451% | 0.60576% | 2.95573% | 12.41056% | 13.37909% | 8.26784% |

Index Rebalancing Update & Month Report Archive

CRTx®: Index Portal

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UPDATES & NOTICES: 2024-05-31 rebalancing analytics and 2024-05-28 factors updated on the Portal.

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CRTx® Index Rebalancing Update \*

CRTx® Index Rebalancing Update (6/3/24)

The CRTx® Aggregate Index posted a +1.14% return in May as the CRT credit curve bull-flattened and market value gains were seen almost unanimously across the complex. While GSE CRT carry remained robust and the latest STACR tender premiums marginally boosted sector returns in May, CRT underperformed vs. broader rates and IG/HY as Treasury yields reversed some of April's curve selloff and duration bond better for the month. For 2024 the CRTx® Aggregate is now up 5.94%.

| May 2024 CRTx® AGG Tot Ret          | +114 bps  |
|-------------------------------------|-----------|
| Index Month-End Closing Value       | 204.42    |
| Price Attribution                   | +37 bps   |
| Paydown Attribution                 | +2 bps    |
| Cpn Accr&Pmt Attribution            | +76 bps   |
| Writedown+Int Shortfall Attribution | -0.15 bps |
| Excess Return                       | +69 bps   |
| Volatility (Annualized)             | 0.32%     |
| UPB Paydown %                       | 3.22%     |
| QTD Total Return                    | 2.04%     |
| YTD Total Return                    | 5.94%     |

CRTx® AGG Rebalancing For Jun 2024  
As of 5/31/2024

June 2024 Aggregate Basket (w/MoM Δ):

• Beg. UPB (\$B): \$50.37 +0.2%

• Beg. Market Value (\$B): \$53.38 +0.5%

• Constituents: 355 +3

• WAvG Constituent Value: 105.98 +0.28 pts

• WAvG Constituent Coupon: 9.33% -4 bps

Full Report (PDF)

Mark Fontanilla & Co., LLC

CRTx®  
Credit Risk Transfer Return Tracking Index

[www.markfontanilla.com/crtx/index](#)

CRTx® Index Rebalancing Update  
05/31/2024

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| Report   | Released   |
|--|------------|
| May 2024 Month-End CRTx® Index Rebalancing Update      | 06/03/2024 |
| April 2024 Month-End CRTx® Index Rebalancing Update    | 05/01/2024 |
| March 2024 Month-End CRTx® Index Rebalancing Update    | 04/01/2024 |
| February 2024 Month-End CRTx® Index Rebalancing Update | 03/01/2024 |
| January 2024 Month-End CRTx® Index Rebalancing Update  | 02/01/2024 |
| December 2023 Month-End CRTx® Index Rebalancing Update | 01/02/2024 |
| November 2023 Month-End CRTx® Index Rebalancing Update | 12/01/2023 |
| October 2023 Month-End CRTx® Index Rebalancing Update  | 11/01/2023 |

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## CRTx® Index Portal Screens/Functions (continued)

### Deal Structure Guide/Current Performance Metrics <sup>(1)</sup>

(1) Analytic output elements include key structural features, current delinquency pipeline figures, trigger tests, original and outstanding

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### CRTx® Index Constituent Deal Structural Map (as of 7-25-2023)

**Reset All**

Shelf: ☐ CAS ☐ STACR    Pool Type: ☐ HLTV ☐ LLTV    Loss Type: ☐ ACT ☐ FXD1 ☐ FXD2    Format: ☐ DEBT ☐ REMIC ☐ TRUST

Deal Group:     Class Structure:     Active Classes:

Deal Vintage: ☐ 2013 ☐ 2014 ☐ 2015 ☐ 2016 ☐ 2017 ☐ 2018 ☐ 2019 ☐ 2020 ☐ 2021 ☐ 2022 ☐ 2023

Net Credit Event Test Pass: ☐ NA ☐ YES    Min CE Test Pass: ☐ YES    Net Loss Test Pass: ☐ NA ☐ YES    DQ Test Pass: ☐ NA ☐ NO ☐ YES

[Configurator Cub...](#)

| Deal Group           | Loss Type | Pool Type | Format | Group | Structure  | Inactive Classes | Active Classes | 30dq | 60dq | 90dq | 120dq | 150dq | 180dq+ |
|----------------------|-----------|-----------|--------|-------|------------|------------------|----------------|------|------|------|-------|-------|--------|
| STACR 2013-DN1 LLTV  | FXD1      | LLTV      | DEBT   | G1    | M1-M2      | M1-M2            |                |      |      |      |       |       |        |
| CAS 2013-C01 LLTV    | FXD1      | LLTV      | DEBT   | G1    | M1-M2      | M1               | M2             | 0.45 | 0.06 | 0.00 | 0.01  | 0.01  | 0.00   |
| STACR 2013-DN2 LLTV  | FXD1      | LLTV      | DEBT   | G1    | M1-M2      | M1               | M2             | 0.36 | 0.06 | 0.02 | 0.02  | 0.01  | 0.00   |
| CAS 2014-C01 LLTV    | FXD1      | LLTV      | DEBT   | G1    | M1-M2      | M1               | M2             | 0.40 | 0.07 | 0.01 | 0.02  | 0.01  | 0.00   |
| STACR 2014-DN1 LLTV  | FXD1      | LLTV      | DEBT   | G1    | M1-M2-M3   | M1-M2            | M3             | 0.43 | 0.06 | 0.03 | 0.01  | 0.02  | 0.00   |
| STACR 2014-DN2 LLTV  | FXD1      | LLTV      | DEBT   | G1    | M1-M2-M3   | M1-M2            | M3             | 0.49 | 0.08 | 0.07 | 0.01  | 0.02  | 0.00   |
| CAS 2014-C02 LLTV    | FXD1      | LLTV      | DEBT   | G1    | 1M1-1M2    | 1M1              | 1M2            | 0.39 | 0.08 | 0.02 | 0.02  | 0.01  | 0.00   |
| CAS 2014-C02 HLTV    | FXD1      | HLTV      | DEBT   | G2    | 2M1-2M2    | 2M1              | 2M2            | 0.54 | 0.10 | 0.04 | 0.01  | 0.01  | 0.00   |
| CAS 2014-C03 LLTV    | FXD2      | LLTV      | DEBT   | G1    | 1M1-1M2    | 1M1              | 1M2            | 0.45 | 0.10 | 0.03 | 0.02  | 0.03  | 0.00   |
| CAS 2014-C03 HLTV    | FXD2      | HLTV      | DEBT   | G2    | 2M1-2M2    | 2M1              | 2M2            | 0.58 | 0.10 | 0.08 | 0.01  | 0.01  | 0.00   |
| STACR 2014-HQ1 HLTV  | FXD2      | HLTV      | DEBT   | G1    | M1-M2-M3   | M1-M2-M3         |                |      |      |      |       |       |        |
| STACR 2014-DN3 LLTV  | FXD2      | LLTV      | DEBT   | G1    | M1-M2-M3   | M1-M2            | M3             | 1.13 | 0.24 | 0.08 | 0.02  | 0.05  | 0.13   |
| STACR 2014-HQ2 HLTV  | FXD2      | HLTV      | DEBT   | G1    | M1-M2-M3   | M1-M2            | M3             | 0.63 | 0.15 | 0.04 | 0.04  | 0.02  | 0.08   |
| STACR 2014-HQ3 HLTV  | FXD2      | HLTV      | DEBT   | G1    | M1-M2-M3   | M1-M2-M3         |                |      |      |      |       |       |        |
| STACR 2014-DN4 LLTV  | FXD2      | LLTV      | DEBT   | G1    | M1-M2-M3   | M1-M2            | M3             | 0.96 | 0.22 | 0.10 | 0.10  | 0.05  | 0.13   |
| CAS 2014-C04 LLTV    | FXD2      | LLTV      | DEBT   | G1    | 1M1-1M2    | 1M1              | 1M2            | 0.56 | 0.12 | 0.03 | 0.03  | 0.02  | 0.00   |
| CAS 2014-C04 HLTV    | FXD2      | HLTV      | DEBT   | G2    | 2M1-2M2    | 2M1              | 2M2            | 0.87 | 0.14 | 0.08 | 0.01  | 0.05  | 0.00   |
| STACR 2015-DN1 LLTV  | FXD2      | LLTV      | DEBT   | G1    | M1-M2-M3-B | M1-M2-M3         | B              | 1.03 | 0.26 | 0.11 | 0.06  | 0.02  | 0.11   |
| CAS 2015-C01 LLTV    | FXD2      | LLTV      | DEBT   | G1    | 1M1-1M2    | 1M1              | 1M2            | 0.91 | 0.20 | 0.09 | 0.05  | 0.04  | 0.00   |
| CAS 2015-C01 HLTV    | FXD2      | HLTV      | DEBT   | G2    | 2M1-2M2    | 2M1-2M2          |                |      |      |      |       |       |        |
| STACR 2015-HQ1 HLTV  | FXD2      | HLTV      | DEBT   | G1    | M1-M2-M3-B | M1-M2-M3-B       |                |      |      |      |       |       |        |
| STACR 2015-DN41 LLTV | ACT       | LLTV      | DEBT   | G1    | M1-M2-M3-B | M1-M2            | M3-B           | 0.44 | 0.08 | 0.05 | 0.05  |       | 0.14   |
| CAS 2015-C02 LLTV    | FXD2      | LLTV      | DEBT   | G1    | 1M1-1M2    | 1M1              | 1M2            | 1.13 | 0.21 | 0.07 | 0.06  | 0.03  | 0.00   |

balances, and deal maturity/optional redemption dates.

## CRTx® Index Portal Screens/Functions (continued)

### Sector Supply Metrics

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### CRTx® Index Eligible Sector Supply Metrics\* (\$MM as of 7-31-2023)

| Month End  | Float     | Gross Supply | Pay-downs | Write-downs | Tenders  | Net Supply | % Chg MoM |
|------------|-----------|--------------|-----------|-------------|----------|------------|-----------|
| 2023-07-31 | 52,350.98 | 1,503.76     | 497.52    | -.18        | .00      | +1,006.42  | +1.96%    |
| 2023-06-30 | 51,344.56 | 512.00       | 376.64    | 0.06        | 0.00     | +135.29    | +0.26%    |
| 2023-05-31 | 51,209.27 | 1,703.94     | 351.11    | 0.22        | 1,780.21 | -427.61    | -0.83%    |
| 2023-04-28 | 51,636.88 | 762.00       | 333.24    | 0.16        | 0.00     | 428.6      | 0.84%     |
| 2023-03-31 | 51,208.28 | 611.00       | 269.24    | 0.06        | 0.00     | 341.69     | 0.67%     |
| 2023-02-28 | 50,866.59 | 709.14       | 276.08    | 0.10        | 988.71   | -555.76    | -1.08%    |
| 2023-01-31 | 51,422.35 | 730.75       | 299.95    | 0.03        | 0.00     | 430.77     | 0.84%     |
| 2022-12-30 | 50,991.58 | 0.00         | 315.47    | 0.51        | 1,527.44 | -1,843.42  | -3.49%    |
| 2022-11-30 | 52,835.00 | 0.00         | 447.47    | 0.14        | 0.00     | -447.61    | -0.84%    |
| 2022-10-31 | 53,282.61 | 0.00         | 474.53    | 0.27        | 317.43   | -792.23    | -1.47%    |
| 2022-09-30 | 54,074.84 | 2,273.03     | 465.18    | 0.28        | 0.00     | 1,807.57   | 3.46%     |
| 2022-08-31 | 52,267.27 | 1,166.30     | 509.11    | 0.14        | 1,258.41 | -601.37    | -1.14%    |
| 2022-07-29 | 52,868.64 | 1,493.11     | 598.48    | 0.17        | 2,331.64 | -1,437.18  | -2.65%    |
| 2022-06-30 | 54,305.82 | 2,176.38     | 689.16    | 0.38        | 1,888.03 | -401.19    | -0.73%    |
| 2022-05-31 | 54,707.01 | 2,471.03     | 829.79    | 0.19        | 0.00     | 1,641.05   | 3.09%     |
| 2022-04-29 | 53,065.96 | 2,984.38     | 865.97    | 0.24        | 0.00     | 2,118.18   | 4.16%     |
| 2022-03-31 | 50,947.78 | 3,057.61     | 867.66    | 0.37        | 0.00     | 2,189.58   | 4.49%     |
| 2022-02-28 | 48,758.20 | 3,159.89     | 879.88    | 0.58        | 1,708.47 | 570.95     | 1.18%     |
| 2022-01-31 | 48,187.25 | 2,859.26     | 974.26    | 1.13        | 0.00     | 1,883.88   | 4.07%     |
| 2021-12-31 | 46,303.37 | 2,855.84     | 978.99    | 2.18        | 0.00     | 1,874.67   | 4.22%     |
| 2021-11-30 | 44,428.70 | 1,276.00     | 893.50    | 0.37        | 2,090.24 | -1,708.11  | -3.70%    |
| 2021-10-29 | 46,136.81 | 2,686.01     | 944.99    | 0.04        | 0.00     | 1,740.98   | 3.92%     |
| 2021-09-30 | 44,395.83 | 1,071.00     | 977.13    | 0.08        | 1,342.98 | -1,249.19  | -2.74%    |
| 2021-08-31 | 45,645.02 | 0.00         | 896.92    | 0.32        | 0.00     | -897.24    | -1.93%    |
| 2021-07-30 | 46,542.26 | 1,186.00     | 857.10    | 0.20        | 0.00     | 328.7      | 0.71%     |
| 2021-06-30 | 46,213.56 | 550.00       | 892.87    | 0.23        | 0.00     | -343.11    | -0.74%    |
| 2021-05-28 | 46,556.67 | 0.00         | 1,058.11  | 0.25        | 0.00     | -1,058.37  | -2.22%    |
| 2021-04-30 | 47,615.04 | 950.00       | 1,207.50  | 0.02        | 0.00     | -257.51    | -0.54%    |
| 2021-03-31 | 47,872.55 | 1,188.00     | 1,045.16  | 0.20        | 0.00     | 142.64     | 0.30%     |
| 2021-02-26 | 47,729.91 | 1,386.00     | 933.14    | 0.38        | 0.00     | 452.49     | 0.96%     |
| 2021-01-29 | 47,277.42 | 970.00       | 840.51    | 0.43        | 0.00     | 129.06     | 0.27%     |
| 2020-12-31 | 47,148.36 | 790.00       | 565.97    | 0.30        | 0.00     | 223.74     | 0.48%     |
| 2020-11-30 | 46,924.62 | 1,080.00     | 425.03    | 0.16        | 0.00     | 654.8      | 1.42%     |
| 2020-10-30 | 46,269.82 | 1,086.00     | 551.37    | 0.18        | 0.00     | 534.45     | 1.17%     |
| 2020-09-30 | 45,735.37 | 680.00       | 1,020.66  | 0.31        | 0.00     | -340.98    | -0.74%    |
| 2020-08-31 | 46,076.35 | 1,088.00     | 1,693.03  | 0.39        | 0.00     | -605.42    | -1.30%    |

## CRTx® Index Portal Screens/Functions (continued)



Index Desk Reference™ Advanced Risk/Return Metrics (1)(2)

- (1) NEW: M2, B1, B2, & B index variants added to the CRTx® Index Suite only available via the CRTx® Index Portal Index Desk Reference™ risk/return metrics screen/function.
- (2) Analytic output elements are the same as in the Monthly Metrics File on the Data Portal (see page 9-10).

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UPDATES & NOTICES: 2024-05-31 rebalancing analytics and 2024-05-28 factors updated on the Portal.

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CRTx® Index Desk Reference™ (as of 2024-05-31)

Valuation Month(s)  
1 2 3 4 5 6 7 8 9 10 11 12

Valuation Year(s)  
2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

Single Index Selection  
All

Style  
RNI STD

Primary Indexing  
AGG HLTV LLTV LMEZZ LMEZZ/SUB SUB UMEZZ UMEZZ/LMEZZ

Deal Vintage Indexing  
2014 2015 2016 2016 2017 2017 2018 2019 2020 2021 2022 2023 2024

Shelf  
CAS STACR

Tranche Indexes  
B B1 B2 M1 M2

COVID  
MID/POSTCOVID PRECOVID

Configurator Cube™

| Mth End Val Date | Index    | End IndexVal | Beg. Mkt Val (\$B) | Beg. Ct. | Beg. WA Px+Accr | Beg. WA Cpn | Beg. WA Cpn Margin | M/E PriceRet | M/E AccrRet | M/E CPNRet | M/E PrincRet | M/E Writedown Ret | M/E IntShort Ret | M/E TotRet | QTD    | YTD    | 1-YR   |
|------------------|----------|--------------|--------------------|----------|-----------------|-------------|--------------------|--------------|-------------|------------|--------------|-------------------|------------------|------------|--------|--------|--------|
| 2024-06-28       | CRTx AGG |              | \$53.380           | 355      | 106.00          | 9.33        | 399                |              |             |            |              |                   |                  |            |        |        |        |
| 2024-05-31       | CRTx AGG | 204.42481    | \$53.140           | 352      | 105.70          | 9.37        | 402                | 0.37%        | -0.05%      | 0.81%      | 0.02%        | -0.0009%          | -0.0006%         | 1.14%      | 2.04%  | 5.94%  | 16.06% |
| 2024-04-30       | CRTx AGG | 202.11762    | \$53.667           | 353      | 105.60          | 9.38        | 404                | 0.07%        | 0.05%       | 0.77%      | 0.01%        | -0.0008%          | -0.0005%         | 0.89%      | 0.89%  | 4.74%  | 16.28% |
| 2024-03-28       | CRTx AGG | 200.33017    | \$53.123           | 352      | 105.20          | 9.43        | 409                | 0.49%        | 0.00%       | 0.69%      | 0.02%        | -0.0008%          | -0.0006%         | 1.20%      | 3.81%  | 3.81%  | 17.15% |
| 2024-02-29       | CRTx AGG | 197.95478    | \$53.014           | 352      | 105.60          | 9.47        | 411                | -0.22%       | -0.07%      | 0.80%      | -0.01%       | -0.0011%          | -0.0006%         | 0.50%      | 2.58%  | 2.58%  | 16.08% |
| 2024-01-31       | CRTx AGG | 196.97912    | \$51.914           | 352      | 104.30          | 9.49        | 413                | 1.25%        | 0.08%       | 0.76%      | -0.01%       | -0.0010%          | -0.0006%         | 2.08%      | 2.08%  | 2.08%  | 17.28% |
| 2023-12-29       | CRTx AGG | 192.97162    | \$51.864           | 352      | 103.50          | 9.47        | 412                | 0.71%        | 0.00%       | 0.74%      | -0.01%       | -0.0015%          | -0.0006%         | 1.43%      | 3.45%  | 17.69% | 17.70% |
| 2023-11-30       | CRTx AGG | 190.24705    | \$51.525           | 348      | 102.90          | 9.47        | 413                | 0.71%        | -0.08%      | 0.84%      | 0.03%        | 0.0000%           | -0.0006%         | 1.50%      | 1.99%  | 16.02% | 18.45% |
| 2023-10-31       | CRTx AGG | 187.44101    | \$52.391           | 348      | 103.20          | 9.48        | 414                | -0.34%       | 0.05%       | 0.76%      | 0.02%        | -0.0003%          | -0.0006%         | 0.49%      | 0.49%  | 14.31% | 17.42% |
| 2023-09-29       | CRTx AGG | 186.53505    | \$53.479           | 349      | 102.90          | 9.43        | 412                | 0.35%        | -0.05%      | 0.78%      | 0.02%        | -0.0006%          | 0.0000%          | 1.10%      | 4.19%  | 13.76% | 15.52% |
| 2023-08-31       | CRTx AGG | 184.49943    | \$53.916           | 351      | 103.00          | 9.28        | 410                | -0.06%       | 0.00%       | 0.77%      | -0.01%       | -0.0002%          | -0.0006%         | 0.70%      | 3.06%  | 12.52% | 13.23% |
| 2023-07-31       | CRTx AGG | 183.21145    | \$52.049           | 344      | 101.40          | 9.21        | 412                | 1.56%        | 0.05%       | 0.73%      | -0.01%       | 0.0004%           | -0.0006%         | 2.34%      | 2.34%  | 11.73% | 16.05% |
| 2023-06-30       | CRTx AGG | 179.02962    | \$51.478           | 341      | 100.50          | 9.13        | 412                | 0.89%        | -0.05%      | 0.81%      | 0.00%        | -0.0001%          | -0.0006%         | 1.65%      | 5.16%  | 9.18%  | 13.70% |
| 2023-05-31       | CRTx AGG | 176.13308    | \$51.727           | 333      | 100.20          | 9.01        | 413                | 0.49%        | 0.07%       | 0.73%      | 0.03%        | -0.0005%          | -0.0006%         | 1.33%      | 3.46%  | 7.42%  | 10.77% |
| 2023-04-28       | CRTx AGG | 173.82676    | \$50.591           | 330      | 98.80           | 8.77        | 413                | 1.42%        | -0.03%      | 0.72%      | 0.00%        | -0.0003%          | -0.0006%         | 2.11%      | 2.11%  | 6.01%  | 8.17%  |
| 2023-03-31       | CRTx AGG | 170.24264    | \$50.674           | 327      | 99.60           | 8.64        | 412                | -0.91%       | 0.07%       | 0.67%      | 0.00%        | -0.0001%          | -0.0006%         | -0.17%     | 3.82%  | 3.82%  | 6.42%  |
| 2023-02-28       | CRTx AGG | 170.52698    | \$50.913           | 324      | 99.00           | 8.51        | 414                | 0.82%        | -0.12%      | 0.78%      | 0.05%        | -0.0002%          | -0.0006%         | 1.53%      | 4.00%  | 4.00%  | 5.50%  |
| 2023-01-31       | CRTx AGG | 167.95503    | \$49.608           | 322      | 97.30           | 8.22        | 414                | 1.67%        | 0.08%       | 0.68%      | 0.00%        | -0.0001%          | -0.0006%         | 2.43%      | 2.43%  | 2.43%  | 2.87%  |
| 2022-12-30       | CRTx AGG | 163.97148    | \$50.795           | 323      | 96.10           | 7.80        | 410                | 1.37%        | -0.04%      | 0.71%      | 0.06%        | -0.0011%          | -0.0006%         | 2.09%      | 1.68%  | 0.49%  | 0.50%  |
| 2022-11-30       | CRTx AGG | 160.60767    | \$51.263           | 325      | 96.20           | 7.30        | 410                | -0.03%       | -0.01%      | 0.65%      | 0.00%        | -0.0003%          | -0.0006%         | 0.61%      | -0.41% | -1.57% | -1.28% |
| 2022-10-31       | CRTx AGG | 159.63027    | \$52.881           | 325      | 97.80           | 6.64        | 407                | -1.61%       | 0.05%       | 0.55%      | 0.01%        | -0.0006%          | -0.0005%         | -1.01%     | -1.01% | -2.17% | -1.74% |
| 2022-09-30       | CRTx AGG | 161.26611    | \$51.923           | 316      | 99.30           | 6.34        | 407                | -1.56%       | -0.03%      | 0.57%      | -0.01%       | -0.0006%          | -0.0005%         | -1.03%     | 2.42%  | -1.17% | -0.55% |
| 2022-08-31       | CRTx AGG | 162.94367    | \$51.179           | 311      | 96.80           | 5.87        | 406                | 2.62%        | 0.04%       | 0.52%      | 0.04%        | -0.0003%          | -0.0005%         | 3.21%      | 3.49%  | -0.14% | 1.03%  |

CRTx® Index Portal Screens/Functions (continued)

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Index Baskets Guide

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| CRTx® Aggregate Index and Sub Index Constituent Eligibility Guide  |   |  |  |                                     |   |  |
|--|---|--|--|-------------------------------------|---|--|
| Aggregate (AGG)  | Upper Mezzanine (UMEZZ)   |  | Lower Mezzanine (LMEZZ)                                | Subordinate (SUB)                   | LLTV  | HLTV   |
| All Index-Eligible FNMA CAS shelf and FHLMC STACR shelf At-Issuance Classes  | FNMA CAS Shelf:<br>A1/M1 Classes  | FHLMC STACR Shelf:<br>A1/M1/M1A/M1B Classes<br>(in M1/M2 structures) | FNMA CAS Shelf:<br>M2 Classes                          | FNMA CAS Shelf:<br>All B Classes    | All Index-Eligible FNMA CAS shelf and FHLMC STACR shelf At-Issuance Classes from deals referencing Low Loan to Value (LLTV) loans | All Index-Eligible FNMA CAS shelf and FHLMC STACR shelf At-Issuance Classes from deals referencing High Loan to Value (HLTV) loans |
|  |   | M1/M2 Classes<br>(in M1/M2/M3 structures)                            | FHLMC STACR Shelf:<br>M2 Classes (in M1/M2 structures) | FHLMC STACR Shelf:<br>All B Classes |   |  |
|  | Vintage Sub Index constituency determined by deal/security closing year (except 2013/2014 which are grouped as "2014"). |  | M3 Classes (in M1/M2/M3)                               |                                     |   |  |
| TRANCHE INDEXES: M1 (All A1/M1/M1A/M1B-labeled classes), M2/M3/B1 (All same-labeled classes), B2 (All non-1st loss B2-labeled classes), B 1st Loss (All 1st loss classes).   |   |  |  |                                     |   |  |
| PRECOVID: Issuance prior to April 2020, MIDCOVID: Issuance from April 2020 to March 2023, POSTCOVID: Issuance from April 2023 forward  |   |  |  |                                     |   |  |
| RNI™ (Rolling New Issues) versions of the standard CRTx® Aggregate and Sub-Indexes have dynamic constituent baskets made up exclusively of the most recently issued securities within a "rolling" 12-month look-back window. |   |  |  |                                     |   |  |

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