

CRTx®

Credit Risk Transfer Return Tracking Index

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CRTx® Index Rebalancing Update

01/31/2023

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Return Roundup

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The CRTx® Aggregate starts 2023 in kind with the broad bond/stock market rallies, surging 2.43% in January as the curve bull flattened/inverted MoM, and spreads across most sectors followed tighter. Gains were seen across virtually the entire the CRT complex, with newer 2021/2022 deal vintages leading the way...

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The CRTx® February basket UPB increases 0.8% MoM to \$51.42B, at a total market value of \$50.91B. Constituent count rises to 324 securities from 124 deals as...the first sector deal of the year from Fannie Mae/CAS entered 3 classes...Benchmark GSE CRT float expanded +\$430M in January...+0.84% MoM...

Latest Deal Performance

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January-statement CRT credit performance showed the recent sideways/lower variation trend continuing: Pre-COVID late-stage DQs fell at a moderating pace, early stage DQs were slightly mixed MoM (based on STACR experience). Structurally, writedowns/shortfalls were still modest, CPRs edged down a little more, and C/E's were barely higher...

Relative Value Thoughts

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Even into the recent rally, static cashflow yields/carry across the CRT complex are still generally wide to rating-equivalent IG/HY...Carry advantage...to CRT's bigger coupons for now, with the Fed possibly giving another complex-wide incremental coupon boost soon....Lower negative convexity disadvantage...

CRTx® Index Summary Panels

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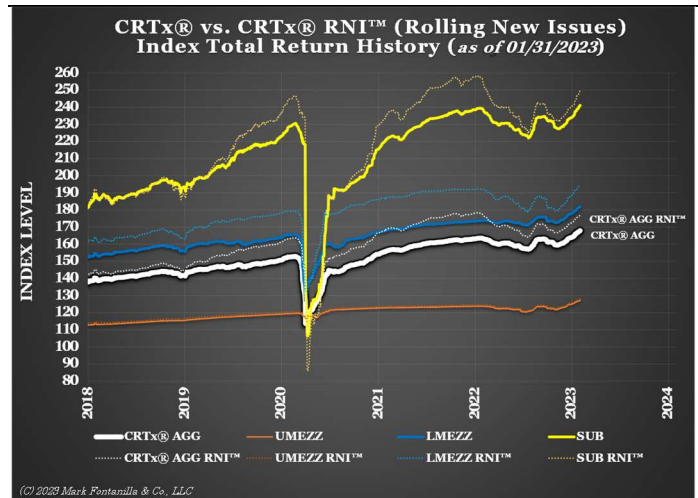
- CRTx® AGG Index Rebalancing Stats
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Additional Tables/Metrics

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



Sector Musings

Headwinds Turn To Tailwinds On Curbed Volatility

Last year was a tough year for most markets, but a new “season” is upon us, and several the challenging aspects for mortgages and mortgage-related securities are starting to settle in to more of a gentle tailwind than strong headwind at this juncture:

- Mortgage rates are still net higher YoY, but have come off their near-term spike, with the 30-year mortgage rate currently hovering in the low 6% area vs. 7% a few months ago.
- CPRs are at historically low levels, but holding relatively steady at this point as much of the outstandings universe is “locked out” and/or out of the money.
- Supply/demand technicals have moved from adversely imbalanced a year ago, to actually a more favorable balance, with gross supply lower, but spread product appetite better.
- Mortgage durations have extended, but look to be relatively steadier at current valuation levels.
- Mortgage credit performance had improved throughout 2022, with some slight bottoming/inflection points recently off the best levels of last year, but generally settling into a sideways channel.

In other words, the sharp and quick changes we have seen in valuation inputs from last quarter have moderated and vol has receded, which is a much better backdrop for the negative convexity of both mortgage rates and mortgage spread products.

01/31/2023 Index Rebalancing Update *(continued)***CRTx® Aggregate Index**

Jan 2023 CRTx® AGG Tot Ret	+243 bps
Index Month-End Closing Value	167.96
Price Attribution	+167 bps
Paydown Attribution	+0 bps
Cpn Accr&Pmt Attribution	+76 bps
Writedown+Int Shortfall Attribution	-0.07 bps
Excess Return	+208 bps
Volatility (Annualized)	1.03%
UPB Paydown %	0.58%
QTD Total Return	2.43%
YTD Total Return	2.43%

CRTx® AGG Rebalancing For Feb 2023*As of 1/31/2023***February 2023 Aggregate Basket (w/MoM Δ):**

• Beg. UPB (\$B):	\$51.42	+0.8%
• Beg. Market Value (\$B):	\$50.91	+2.6%
• Constituents:	324	+2
• WAvg Constituent Value:	99.01	+1.72 pts
• WAvg Constituent Coupon:	8.51%	+29 bps

Index (+) Entries* & (-) Exits**(+) CAS 2023-R01 1M1/1M2/1B1****(-) STACR 2020-HQA4 M2**** 1.44% of Beg. Index Market Value*

CRTx® Mkt Val Breakdown: 2/2023 Basket				
Deal Yr	Aggregate	UMEZZ	LMEZZ	SUB
All	100.0%	25.5%	29.3%	45.2%
2023	1.4%	0.8%	0.5%	0.1%
2022	39.8%	21.1%	10.2%	8.6%
2021	22.4%	3.5%	7.7%	11.2%
2020	10.4%	0.0%	2.6%	7.8%
2019	6.2%	0.0%	0.5%	5.7%
2018	5.8%	0.0%	1.3%	4.5%
2017	5.8%	0.0%	1.4%	4.4%
2016	3.5%	0.0%	1.7%	1.8%
2015	2.2%	0.0%	1.0%	1.2%
<=2014	2.4%	0.0%	2.4%	0.0%

CRTx® RNI™ (Rolling New Issues) Agg. Index

Jan 2023 CRTx® RNI™ AGG Tot Ret	+253 bps
Index Month-End Closing Value	176.88
Price Attribution	+181 bps
Paydown Attribution	+0 bps
Cpn Accr&Pmt Attribution	+71 bps
Writedown+Int Shortfall Attribution	+0 bps
Excess Return	+218 bps
Volatility (Annualized)	1.07%
UPB Paydown %	0.53%
QTD Total Return	2.53%
YTD Total Return	2.53%

CRTx® RNI™ AGG Rebalancing For Feb 2023*As of 1/31/2023***February 2023 Aggregate Basket (w/MoM Δ):**

• Beg. UPB (\$B):	\$18.37	-9.9%
• Beg. Market Value (\$B):	\$18.51	-7.5%
• Constituents:	70	-6
• WAvg Constituent Value:	100.75	+2.57 pts
• WAvg Constituent Coupon:	8.37%	+53 bps

Index (+) Entries* & (-) Exits**(+) CAS 2023-R01 1M1/1M2/1B1****(-) CAS 2022-R01 1M1/1M2/1B1/1B2****(-) STACR 2022-DNA1 M1A/M1B/M2/B1/B2**** 3.96% of Beg. Index Market Value*

CRTx® RNI™ Mkt Val Breakdown: 2/2023 Basket				
Deal Yr	Aggregate	UMEZZ	LMEZZ	SUB
All	100.0%	54.9%	25.8%	19.3%
2023	4.0%	2.3%	1.4%	0.3%
2022	96.0%	52.6%	24.4%	19.0%
2021	0.0%	0.0%	0.0%	0.0%
2020	0.0%	0.0%	0.0%	0.0%
2019	0.0%	0.0%	0.0%	0.0%
2018	0.0%	0.0%	0.0%	0.0%
2017	0.0%	0.0%	0.0%	0.0%
2016	0.0%	0.0%	0.0%	0.0%
2015	0.0%	0.0%	0.0%	0.0%
<=2014	0.0%	0.0%	0.0%	0.0%

01/31/2023 Index Rebalancing Update *(continued)***Return Roundup**

The CRTx® Aggregate starts 2023 in kind with the broad bond/stock market rallies, surging 2.43% in January as the curve bull flattened/inverted MoM even more, and spreads across most sectors followed tighter. Gains were seen across virtually the entire the CRT complex, with newer 2021/2022 deal vintages leading the way.

01/31/2023	M/E RETURN ATTRIBUTION						
CRTx®	Price	CPN Accr.	CPN Pmt	Pay-down	Write-down Retun	Int Shortfall	Index Total Return
AGG	1.67%	0.08%	0.68%	0.00%	-0.0001%	-0.0006%	2.43%
UMEZZ	1.12%	0.06%	0.51%	0.01%	0.0000%	0.0000%	1.70%
LMEZZ	1.52%	0.07%	0.60%	-0.01%	0.0000%	0.0000%	2.18%
SUB	2.08%	0.09%	0.83%	0.00%	-0.0001%	-0.0013%	2.99%

CRTx® RNI™	Price	CPN Accr.	CPN Pmt	Pay-down	Write-down Retun	Int Shortfall	Index Total Return
AGG	1.81%	0.07%	0.64%	0.00%	0.0000%	0.0000%	2.53%
UMEZZ	1.25%	0.06%	0.53%	0.01%	0.0000%	0.0000%	1.85%
LMEZZ	2.07%	0.08%	0.66%	0.00%	0.0000%	0.0000%	2.80%
SUB	2.89%	0.10%	0.92%	0.00%	0.0000%	0.0000%	3.92%

January's gain was the 3rd positive month in a row for the Index, and the highest monthly total return since August of last year. Market value boosts occurred in nearly all vintages and structural positions and, in conjunction with increased monthly carry, helped the Index further recover from negative price-based attributions to total returns last year. YoY returns are still well below carry though.

Favorable end-of-year supply technicals from Q4, which saw a dearth of new issue and a couple of tender retirements, came in at ~\$3B/-5.7% in net negative Q4 supply heading into this year. This, along with contained mortgage credit metrics and a general risk-on sentiment to start the new year, made for more agreeable market conditions vs. Q4 of last year, with newer issues (as per the Rolling New Issues (RNI™) Indexes) faring better vs. seasoned paper:

Component CRTx®/RNI™ Index Returns as of Jan. 2023

- **UMEZZ Index (M1 variants)**
 - + 1.70%/+ 1.85% MoM Jan
 - + 2.67%/+ 2.85% YoY Jan
- **LMEZZ Index (M2s/M3s)**
 - + 2.14%/+ 3.35% MoM Jan
 - + 4.68%/+ 0.98% YoY Jan
- **SUB Index (B1/B2/Bs)**
 - + 2.99%/+ 3.92% MoM Jan
 - + 1.11%/- 1.65% YoY Jan

Index Rebalancing Metrics

The CRTx® February basket UPB increases 0.8% MoM to \$51.42B, at a total market value of \$50.91B. Constituent count rises to 324 securities from 124 deals as just one class paid off, while the first sector deal of the year from Fannie Mae/CAS entered 3 classes into the Feb. 2023 Index basket.

Index Composition

For the Feb. Index basket, the tranche-type composition barely shifted as the class proportions for the 1st benchmark GSE CRT deal of the year, CAS 2023-R01, were not too dissimilar from January's paydown distribution (see "Paydowns"):

CRTx® AGG composition (February 2023 basket):

- 25.5% ↑ (vs 25.3% in Jan) - UMEZZ (M1/old M2s)
- 29.3% ↓ (vs 29.4% in Jan) - LMEZZ (M2/old M3s)
- 45.2% ↓ (vs 45.4% in Jan) - SUBs (B/B1/B2s)

With a broad-based start-of-year rally, the Index WAvg constituent market value improved +1.72 points MoM to \$99.01 (RNI™ AGG +2.57 points to \$100.75). Slightly higher short rates nudged LIBOR/SOFR resets up again, increasing the Index-blended constituent coupon +29bps to 8.51% and effective carry to ~72bps to next reset.

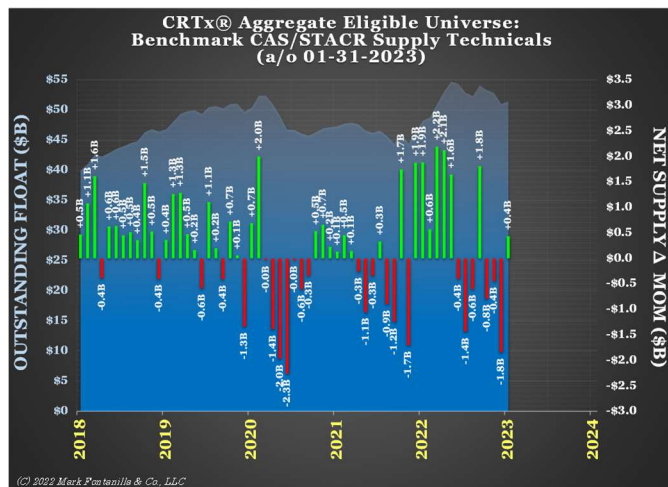
Index cashflow average life- and duration-to-optional-redemption for the February basket is a rebalanced 3.35 and 2.65 years, respectively.

GSE CRT New Deal Pricing Margin & Orig. CE						
Close	Deal	LTV	Pricing Margin (bps) / Original CE (% pts)			
Date			M1 or M1A/M1B	M2	B1	B2
2022						
01/20	CAS 22-R01	L	100/2.30	190/1.45	315/0.85	600/0.25
01/21	STACR 22-DNA1	L	100/3.00 185/2.00	250/1.25	340/0.75	710/0.25
02/09	CAS 22-R02	H	120/2.45	300/1.55	450/0.90	765/0.35
02/11	STACR 22-DNA2	L	130/3.40 240/2.00	375/1.25	475/0.75	850/0.25
03/18	STACR 22-HQA1	H	210/3.75 350/2.60	525/1.25	700/0.75	1100/0.25
03/30	CAS 22-R03	L	210/2.15	350/1.25	625/0.75	985/0.25
04/08	CAS 22-R04	L	200/2.35	310/1.35	525/0.80	950/0.25
04/18	STACR 22-DNA3	L	200/3.60 290/2.00	435/1.25	565/0.75	975/0.25
05/11	CAS 22-R05	H	190/2.45	300/1.85	450/1.45	700/0.65
05/13	STACR 22-DNA4	L	220/3.60 335/2.00	525/1.25	625/0.75	1025/0.25
06/10	CAS 22-R06	L	275/2.50	385/1.45	635/0.85	1060/0.30
06/17	STACR 22-DNA5	L	295/3.60 450/2.05	675/1.25	750/0.75	1290/0.25
07/01	CAS 22-R07	L	295/2.55	465/1.60	680/1.00	1200/0.30
07/29	STACR 22-HQA2	H	265/3.00 400/2.00	600/1.25		
08/05	CAS 22-R08	L	255/2.55	360/1.90	560/1.10	
08/12	STACR 22-HQA3	H	230/3.00 355/2.00	535/1.25		
09/16	STACR 22-DNA6	L	215/3.60 370/2.20	575/1.30		
09/28	CAS 22-R09	H	250/2.80	475/1.90	675/1.25	
09/30	STACR 22-DNA7	L	250/3.50 500/2.55	700/1.50		
2023						
01/17	CAS 23-R01	L	240/2.90	375/1.75	510/1.50	

01/31/2023 Index Rebalancing Update (continued)

Sector Supply

Benchmark GSE CRT float expanded +\$430M in January, or +0.84% MoM, to \$51.42B in UPB. With the 1st CAS deal of the year being issued, amid persistently low paydown percentages, net supply turned positive, ending the 3-month negative streak that closed out 2022. Versus January 12 months prior, float is net higher by +6%/\$3.2B.



Following 2022's record \$21.6B benchmark GSE CRT gross supply, which even included a hiatus in Q4, 2023 starts off modestly at \$731M in new issue, the smallest January tally since 2019. The positive MoM supply growth was seen across the complex:

JAN. 2023 Index-eligible Net Supply & Current Float breakdown:

- **UMEZZ Jan. net supply + \$0.259 B + 2.05% MoM**
 - **Float: \$12.9 B 25.5% of market**
 - Proportionally bigger M1 class issuance remains the order of the day.
- **LMEZZ Jan. net supply + \$0.132 B + 0.89% MoM**
 - **Float: \$15.0 B 29.3% of market**
 - Seasoned M2s are predominantly front-pay, while new issue is moderate.
- **SUB Jan. net supply + \$0.039 B + 0.17% MoM**
 - **Float: \$23.6 B 45.2% of market**
 - Issuance at the bottom of the capital stack remains limited to CAS B1s for now (albeit at relatively higher CEs than previously).

CRTx® AGG (eligible universe as of 1/31/23)

BENCHMARK GSE CRT SUPPLY TECHNICALS (\$MM)									
Month End	Float ₁	Gross Supply ₂	Pay-downs ₁	Write-downs ₁	Tenders ₁	Net Supply ₁	% Δ MoM		
2018-Jan	39,939.51	900.00	434.89	.40	.00	+464.71	+1.18%		
2018-Feb	41,017.07	1,494.06	416.25	.25	.00	+1,077.56	+2.70%		
2018-Mar	42,628.56	1,992.02	380.11	.42	.00	+1,611.49	+3.93%		
2018-Apr	42,241.57	.00	386.48	.51	.00	-386.99	-0.91%		
2018-May	42,864.97	1,050.03	426.17	.45	.00	+623.40	+1.48%		
2018-Jun	43,499.75	1,050.00	414.55	.67	.00	+634.78	+1.48%		
2018-Jul	43,951.18	939.46	487.56	.47	.00	+451.43	+1.04%		
2018-Aug	44,461.53	982.68	471.84	.49	.00	+510.35	+1.16%		
2018-Sep	44,818.31	820.00	463.05	.18	.00	+356.78	+0.80%		
2018-Oct	46,292.11	1,918.19	443.93	.46	.00	+1,473.80	+3.29%		
2018-Nov	46,818.17	921.89	395.46	.36	.00	+526.06	+1.14%		
2018-Dec	46,413.76	.00	404.16	.25	.00	-404.41	-0.86%		
2019-Jan	46,772.85	714.00	354.36	.55	.00	+359.09	+0.77%		
2019-Feb	48,032.92	1,600.30	339.91	.32	.00	+1,260.07	+2.69%		
2019-Mar	49,316.49	1,610.43	326.50	.36	.00	+1,283.57	+2.67%		
2019-Apr	49,790.89	857.33	382.45	.48	.00	+474.40	+0.96%		
2019-May	49,953.47	615.00	451.76	.67	.00	+162.58	+0.33%		
2019-Jun	49,366.80	.00	585.65	1.02	.00	-586.67	-1.17%		
2019-Jul	50,468.73	1,786.82	684.96	-.08	.00	+1,101.93	+2.23%		
2019-Aug	50,665.72	993.16	795.69	.48	.00	+196.99	+0.39%		
2019-Sep	50,254.38	626.00	1,036.70	.64	.00	-411.34	-0.81%		
2019-Oct	50,975.91	1,882.85	1,160.69	.63	.00	+721.53	+1.44%		
2019-Nov	51,029.16	1,430.31	1,376.63	.42	.00	+53.25	+0.10%		
2019-Dec	49,686.84	.00	1,341.71	.61	.00	-1,342.32	-2.63%		
2020-Jan	50,375.85	1,827.24	1,137.97	.27	.00	+689.01	+1.39%		
2020-Feb	52,372.79	3,041.29	1,043.58	.78	.00	+1,996.94	+3.96%		
2020-Mar	52,342.28	1,006.00	1,035.91	.60	.00	-30.51	-0.06%		
2020-Apr	50,951.32	.00	1,390.53	.43	.00	-1,390.96	-2.66%		
2020-May	48,983.31	.00	1,967.51	.50	.00	-1,968.01	-3.86%		
2020-Jun	46,718.91	.00	2,263.91	.49	.00	-2,264.40	-4.62%		
2020-Jul	46,681.77	1,941.00	1,977.70	.44	.00	-37.14	-0.08%		
2020-Aug	46,076.35	1,088.00	1,693.03	.39	.00	-605.42	-1.30%		
2020-Sep	45,735.37	680.00	1,020.66	.31	.00	-340.98	-0.74%		
2020-Oct	46,269.82	1,086.00	551.37	.18	.00	+534.45	+1.17%		
2020-Nov	46,924.62	1,080.00	425.03	.16	.00	+654.80	+1.42%		
2020-Dec	47,148.36	790.00	565.97	.30	.00	+223.74	+0.48%		
2021-Jan	47,277.42	970.00	840.51	.43	.00	+129.06	+0.27%		
2021-Feb	47,729.91	1,386.00	933.14	.38	.00	+452.49	+0.96%		
2021-Mar	47,872.55	1,188.00	1,045.16	.20	.00	+142.64	+0.30%		
2021-Apr	47,615.04	950.00	1,207.50	.02	.00	-257.51	-0.54%		
2021-May	46,556.67	.00	1,058.11	.25	.00	-1,058.37	-2.22%		
2021-Jun	46,213.56	550.00	892.87	.23	.00	-343.11	-0.74%		
2021-Jul	46,542.26	1,186.00	857.10	.20	.00	+328.70	+0.71%		
2021-Aug	45,645.02	.00	896.92	.32	.00	-897.24	-1.93%		
2021-Sep	44,395.83	1,071.00	977.13	.08	1,342.98	-1,249.19	-2.74%		
2021-Oct	46,136.81	2,686.01	944.99	.04	.00	+1,740.98	+3.92%		
2021-Nov	44,428.70	1,276.00	893.50	.37	2,090.24	-1,708.11	-3.70%		
2021-Dec	46,303.37	2,855.84	978.99	2.18	.00	+1,874.67	+4.22%		
2022-Jan	48,187.25	2,859.26	974.26	1.13	.00	+1,883.88	+4.07%		
2022-Feb	48,758.20	3,159.89	879.88	.58	1,708.47	+570.95	+1.18%		
2022-Mar	50,947.78	3,057.61	867.66	.37	.00	+2,189.58	+4.49%		
2022-Apr	53,065.96	2,984.38	865.97	.24	.00	+2,118.18	+4.16%		
2022-May	54,707.01	2,471.03	829.79	.19	.00	+1,641.05	+3.09%		
2022-Jun	54,305.82	2,176.38	689.16	.38	1,888.03	-401.19	-0.73%		
2022-Jul	52,868.64	1,493.11	598.48	.17	2,331.64	-1,437.18	-2.65%		
2022-Aug	52,267.27	1,166.30	509.11	.14	1,258.41	-601.37	-1.14%		
2022-Sep	54,074.84	2,273.03	465.18	.28	.00	+1,807.57	+3.46%		
2022-Oct	53,282.61	.00	474.53	.27	317.43	-792.23	-1.47%		
2022-Nov	52,835.00	.00	447.47	.14	.00	-447.61	-0.84%		
2022-Dec	50,991.58	.00	315.47	.51	1,527.44	-1,843.42	-3.49%		
2023-Jan	51,422.35	730.75	299.95	.03	.00	+430.77	+0.84%		

1-Current Face

2-Original face issued based on CAS/STACR deal closing dates

Sources: FNMA, FHLMC, MF&Co

01/31/2023 Index Rebalancing Update *(continued)*

Latest Deal Performance

January-statement CRT credit performance showed the recent sideways/lower variation trend continuing: Pre-COVID late-stage DQs fell at a moderating pace, early stage DQs were slightly mixed MoM (based on STACR experience). Structurally, writedowns/shortfalls were still modest, CPRs edged down a little more, and C/Es were barely higher.

Credit

- STACR pre- and post-COVID onset total DQ % changes were slightly mixed MoM (CAS reporting lags 1 month), with 30/60d DQs also modestly mixed. 180+ bucket DQ #s/\$s continued to shrink MoM, albeit at slowing pace (single digits MoM).
 - DQ pipelines seemed to have settled in for now.**
- CRTx® 1st Loss Sub-Index (1st loss Bs) writedowns/int. shortfalls for December:
 - 2.0 bps hit to 1st Loss Sub-Index:**
 - 3.5 bps to Fxd. Sev. Sub-Index component** (vs. -3.1 bps in Dec.)

Paydowns

- The CRTx® AGG's 0.58% January UPB paydown percentage was markedly lower vs. December's paydown+tender retirement level of 3.49%:**

- MTD CRTx® AGG return attribution from paydowns: **+0.0 bps**

Jan. Index Princ. Receipts	\$296M	100%
UMEZZ (Mostly M1s):	\$166M	56%
LMEZZ (M2s/old M3s):	\$115M	39%
SUB (Bs/B1s/B2s):	\$ 14M	5%

- UMEZZ (Mostly M1s): **\$166M** 56%
- LMEZZ (M2s/old M3s): **\$115M** 39%
- SUB (Bs/B1s/B2s): **\$ 14M** 5%

- STACR factor speeds declined further, about 1 CPR on average, with seasoned reference pool speeds now in the 4-8 CPR area, while 2022 deals held in the 2-3 CPR range** (CAS is currently tracking similarly on a 1-month lag).

Structure

- Class C/Es only marginally higher on much slower paydowns.
- January LIBOR resets +12bps, SOFR resets +38 bps MoM.

- No change in DQ tests as of January as 9 pre-COVID REMIC deals are still failing their DQ triggers.
- Call Watch (% of original UPB remaining as of the Jan. statements):
 - STACR 2014-DN3 (11.03%)
 - STACR 2014-DN4 (11.13%)
 - STACR 2015-DN1 (11.14%)

Relative Value Thoughts

Current Sector Backdrop:

- Contained mortgage credit fundamentals:**
 - CRT reference pool DQs/losses remain contained, while performance improvements have bottomed out and/or reached inflection points.
 - Housing activity has waned and HPA has tapered, but significantly improved LTV cushions are imbedded in slightly-to well-seasoned CRT reference pools.
 - CPRs have dropped to historically very low levels, and de-levering has slowed to a crawl, but newer issues have historically higher starting CEs, while seasoned classes have upwards of 3x original CEs at this point.

Relative value themes:

- Even into the recent rally, static cashflow yields/carry across the CRT complex are still generally wide to rating-equivalent IG/HY:**
 - Carry advantage** – Except for recent new-issue corporate supply, IG/HY secondary paper is still predominantly at deeper discount prices/lower coupons vs. floating CRT paper, giving a current carry advantage to CRT's bigger coupons for now, with the Fed possibly giving another complex-wide incremental coupon boost soon.
 - Lower negative convexity disadvantage** – With CPRs very low, and much of the reference pool universe out of the money, CRT negative convexity risks, absent a strong rally in rates from here, have moderated, and cashflows may behave closer to CMO PACs or callable corporates, at shorter durations.

CRTx® Index Suite Total Return Performance: Month-End Matrix 01/31/2023

CRTx® (Credit Risk Transfer Return Tracking Index) Return Summary								
RETURNS								
	Index Level	Period			Annualized			
		MTD	QTD	YTD	1-YR	3-YR	As of Date	
Aggregate	167.96	2.43%	2.43%	2.43%	2.87%	3.26%	1-31-23	
Upper Mezzanine	127.07	1.70%	1.70%	1.70%	2.67%	2.09%	1-31-23	
Lower Mezzanine	181.85	2.18%	2.18%	2.18%	4.68%	3.21%	1-31-23	
Subordinate	241.11	2.99%	2.99%	2.99%	1.11%	1.76%	1-31-23	
Upper/Lower Mezz.	160.50	1.96%	1.96%	1.96%	4.06%	3.16%	1-31-23	
Lower Mezz./Sub.	190.74	2.68%	2.68%	2.68%	3.11%	3.11%	1-31-23	
CAS	166.36	2.06%	2.06%	2.06%	4.31%	3.75%	1-31-23	
STACR	166.56	2.65%	2.65%	2.65%	1.86%	2.88%	1-31-23	
LLTV	167.28	2.23%	2.23%	2.23%	3.12%	3.25%	1-31-23	
HLTV	149.42	2.84%	2.84%	2.84%	2.40%	3.22%	1-31-23	
Upper Mezzanine	2022	102.46	1.85%	1.85%	1.85%	2.46%	-	1-31-23
	2021	101.46	0.86%	0.86%	0.86%	0.74%	-	1-31-23
	2020		-	-	-	-	-	1-31-23
	2019		-	-	-	-	-	1-31-23
	2018		-	-	-	-	-	1-31-23
	2017		-	-	-	-	-	1-31-23
	2016		-	-	-	-	-	1-31-23
	2015		-	-	-	-	-	1-31-23
	<=2014		-	-	-	-	-	1-31-23
Lower Mezzanine	2022	101.19	2.80%	2.80%	2.80%	1.19%	-	1-31-23
	2021	103.11	2.87%	2.87%	2.87%	-0.24%	-	1-31-23
	2020	105.03	1.12%	1.12%	1.12%	3.78%	1.65%	1-31-23
	2019	117.68	1.34%	1.34%	1.34%	3.97%	3.24%	1-31-23
	2018	121.69	2.31%	2.31%	2.31%	5.03%	3.71%	1-31-23
	2017	137.16	1.14%	1.14%	1.14%	4.89%	3.28%	1-31-23
	2016	157.32	0.43%	0.43%	0.43%	5.83%	3.36%	1-31-23
	2015	147.71	0.88%	0.88%	0.88%	6.72%	3.29%	1-31-23
	<=2014	176.78	1.20%	1.20%	1.20%	5.02%	3.54%	1-31-23
Subordinate	2022	100.91	3.92%	3.92%	3.92%	0.91%	-	1-31-23
	2021	100.67	4.02%	4.02%	4.02%	-4.70%	-	1-31-23
	2020	96.83	2.56%	2.56%	2.56%	-0.53%	-1.07%	1-31-23
	2019	139.80	2.08%	2.08%	2.08%	5.99%	3.33%	1-31-23
	2018	134.52	2.65%	2.65%	2.65%	5.02%	2.96%	1-31-23
	2017	166.46	2.09%	2.09%	2.09%	4.27%	3.13%	1-31-23
	2016	209.34	1.55%	1.55%	1.55%	5.20%	3.13%	1-31-23
	2015	219.91	1.01%	1.01%	1.01%	4.92%	2.00%	1-31-23
	<=2014							1-31-23

CRTx® Index Suite Total Return Performance: Month-End Matrix 01/31/2023 (continued)

CRTx® RNI™ (Rolling New Issues*) Return Summary							
RETURNS							
	Index Level	Period			Annualized		As of Date
		MTD	QTD	YTD	1-YR	3-YR	
Aggregate	176.88	2.53%	2.53%	2.53%	-0.02%	2.70%	1-31-23
Upper Mezzanine	128.09	1.85%	1.85%	1.85%	2.85%	2.05%	1-31-23
Lower Mezzanine	193.87	2.80%	2.80%	2.80%	0.98%	2.67%	1-31-23
Subordinate	250.02	3.92%	3.92%	3.92%	-1.65%	0.70%	1-31-23
LLTV	176.72	2.44%	2.44%	2.44%	0.27%	2.99%	1-31-23
HLTV	156.51	2.77%	2.77%	2.77%	-0.73%	2.35%	1-31-23

* Most recently issued securities within a "rolling" 12-month window

CRTx® (Credit Risk Transfer Return Tracking Index) Return Summary							
RETURNS							
Special Sub-Indexes:	Index Level	Period			Annualized		As of Date
		MTD	QTD	YTD	1-YR	3-YR	
Fxd Severity - Type I*	Custom Client Access Only	1.24%	1.24%	1.24%	4.72%	4.09%	1-31-23
Fxd Severity - Type II*		1.36%	1.36%	1.36%	6.50%	3.49%	1-31-23
Actual Loss		2.47%	2.47%	2.47%	2.72%	3.30%	1-31-23
CAS Fxd Severity - Type I*		1.24%	1.24%	1.24%	4.74%	3.83%	1-31-23
STACR Fxd Severity - Type I*		1.23%	1.23%	1.23%	4.73%	4.33%	1-31-23
CAS Fxd Severity - Type II*		1.34%	1.34%	1.34%	6.05%	3.41%	1-31-23
STACR Fxd Severity - Type II*		1.39%	1.39%	1.39%	7.74%	3.73%	1-31-23
CAS Act. Loss		2.10%	2.10%	2.10%	4.19%	3.82%	1-31-23
STACR Act. Loss		2.68%	2.68%	2.68%	1.72%	2.90%	1-31-23

* Type I - No Credit Event Relief Provisions For Natural Disaster/Casualty Events

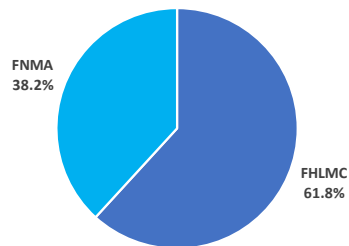
Type II - Some Credit Event Relief Provisions For Natural Disaster/Casualty Events

* CRTx® Aggregate Index and Sub Index Constituency

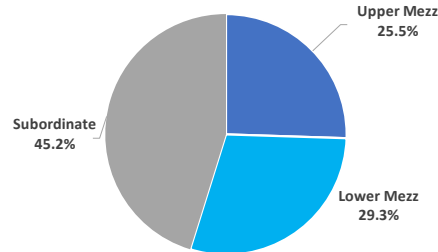
Aggregate	Upper Mezzanine	Lower Mezzanine	Subordinate	LLTV	HLTV
All Index-Eligible FNMA CAS shelf and FHLMC STACR shelf At-Issuance Classes	<u>FNMA CAS Shelf:</u> M1 Classes	<u>FNMA CAS Shelf:</u> M2 Classes	<u>FNMA CAS Shelf:</u> All B Classes	All Index-Eligible FNMA CAS shelf and FHLMC STACR shelf 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
	<u>FHLMC STACR Shelf:</u> M1 Classes (in M1/M2 structures) M1/M2 Classes (in M1/M2/M3 structures)	<u>FHLMC STACR Shelf:</u> M2 Classes (in M1/M2 structures) M3 Classes (in M1/M2/M3 structures)	<u>FHLMC STACR Shelf:</u> All B Classes		
	Vintage Sub Index constituency determined by deal/security closing year (except 2013/2014 which are grouped as "2014").				
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.					

CRTx® Index Basket History: Select Metrics As of 01/31/2023 Rebalancing

Sponsor % of CRTx® Mkt Val For 02/2023



Sub Index % of CRTx® Mkt Val For 02/2023

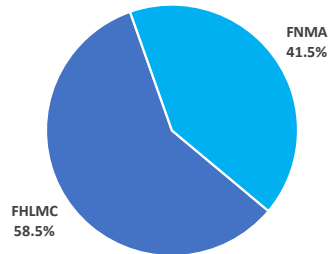


CRTx® AGG

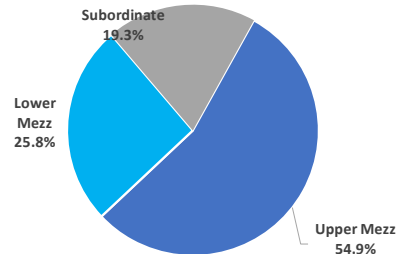
MONTH END CLOSINGS			BEGINNING MONTH BASKET					
Calculation Month	INDEX VALUE	Month to Date Total Return	# of Constituents	Beg Month UPB	Beg Month Total \$ Market Value	W Avg Adj Beg Month Security Mkt Value	WTD Avg Current Coupon	WTD Avg Cpn Margin
Mar-2020	113.64	-25.39%	240	52,372,791,379	55,277,944,042	105.55	5.11	348
Apr-2020	123.83	8.97%	234	52,342,281,038	40,769,683,770	77.89	4.45	351
May-2020	132.53	7.03%	229	50,951,320,646	42,820,320,693	84.04	4.03	355
Jun-2020	144.50	9.04%	218	48,983,309,963	43,695,592,838	89.21	3.77	360
Jul-2020	143.94	-0.39%	214	46,718,914,995	45,227,362,482	96.81	3.83	365
Aug-2020	146.37	1.69%	217	46,681,772,649	44,843,108,762	96.06	3.87	370
Sep-2020	147.99	1.11%	217	46,076,349,850	44,862,684,449	97.37	3.92	374
Oct-2020	148.99	0.68%	220	45,735,370,315	44,865,412,741	98.10	3.90	375
Nov-2020	151.26	1.52%	224	46,269,817,211	45,566,172,083	98.48	3.93	378
Dec-2020	154.14	1.91%	228	46,924,624,650	46,772,793,230	99.68	3.93	378
Jan-2021	155.99	1.20%	230	47,148,362,895	47,722,154,982	101.22	3.92	377
Feb-2021	156.91	0.59%	232	47,277,423,099	48,281,726,799	102.12	3.90	377
Mar-2021	156.58	-0.21%	235	47,729,907,668	48,857,887,219	102.36	3.87	376
Apr-2021	158.53	1.25%	236	47,872,554,649	48,747,702,476	101.83	3.87	378
May-2021	159.34	0.51%	238	47,615,037,767	48,936,401,435	102.78	3.89	380
Jun-2021	160.42	0.68%	235	46,556,670,751	47,976,744,707	103.05	3.90	382
Jul-2021	160.88	0.29%	239	46,213,562,998	47,807,083,563	103.45	3.91	383
Aug-2021	161.28	0.25%	242	46,542,264,071	48,139,580,923	103.43	3.91	383
Sep-2021	162.16	0.55%	240	45,645,024,894	47,210,049,253	103.43	3.93	385
Oct-2021	162.45	0.18%	243	44,395,832,151	46,008,939,674	103.63	3.93	385
Nov-2021	162.69	0.15%	250	46,136,808,535	47,705,750,833	103.40	3.92	384
Dec-2021	163.17	0.30%	253	44,428,702,439	45,850,865,730	103.20	3.97	389
Jan-2022	163.27	0.06%	264	46,303,372,955	47,721,518,712	103.06	3.92	383
Feb-2022	161.64	-1.00%	272	48,187,246,457	49,476,212,584	102.68	3.86	378
Mar-2022	159.97	-1.04%	280	48,758,202,585	49,320,610,808	101.15	3.93	380
Apr-2022	160.67	0.44%	285	50,947,780,611	50,882,869,681	99.87	4.14	386
May-2022	159.01	-1.03%	291	53,065,956,573	53,054,131,960	99.98	4.34	386
Jun-2022	157.45	-0.98%	297	54,707,014,476	53,912,547,204	98.55	4.66	388
Jul-2022	157.87	0.27%	305	54,305,816,176	52,723,290,518	97.09	5.21	399
Aug-2022	162.94	3.21%	311	52,868,638,801	51,179,435,509	96.81	5.87	406
Sep-2022	161.27	-1.03%	316	52,267,272,868	51,923,167,525	99.34	6.34	407
Oct-2022	159.63	-1.01%	325	54,074,843,112	52,881,044,458	97.79	6.64	407
Nov-2022	160.61	0.61%	325	53,282,606,013	51,262,793,323	96.21	7.30	410
Dec-2022	163.97	2.09%	323	52,834,998,700	50,794,605,389	96.14	7.80	410
Jan-2023	167.96	2.43%	322	50,991,575,501	49,607,620,170	97.29	8.22	414
Feb-2023			324	51,422,346,150	50,913,054,870	99.01	8.51	414

CRTx® RNI™ Index Basket History: Select Metrics As of 01/31/2023 Rebalancing

Sponsor % of CRTx® RNI™ Mkt Val For 02/2023



Sub Index % of CRTx® RNI™ Mkt Val For 02/2023



CRTx® RNI™ AGG

MONTH END CLOSINGS			BEGINNING MONTH BASKET						
Calculation Month	INDEX VALUE	Month to Date Total Return	# of Constituents	Beg Month UPB	Beg Month Total \$ Market Value	W Avg Adj Beg Month Security Mkt Value	WTD Avg Current Coupon	WTD Avg Cpn Margin	
Mar-2020	123.73	-24.11%	57	13,219,029,124	13,479,658,957	101.97	4.09	246	
Apr-2020	120.70	-2.45%	55	12,793,770,386	9,865,262,294	77.11	3.43	249	
May-2020	134.53	11.46%	51	11,841,276,956	8,721,408,098	73.65	3.01	252	
Jun-2020	151.62	12.71%	46	10,917,819,539	8,842,509,887	80.99	2.69	253	
Jul-2020	153.41	1.17%	45	10,409,152,540	9,432,905,082	90.62	2.78	259	
Aug-2020	154.49	0.71%	46	10,724,189,826	9,890,825,093	92.23	2.99	282	
Sep-2020	157.58	2.00%	47	10,980,427,286	10,237,992,004	93.24	3.19	301	
Oct-2020	158.61	0.66%	48	11,105,630,257	10,559,393,889	95.08	3.25	310	
Nov-2020	161.83	2.03%	47	10,696,965,880	10,283,123,737	96.13	3.47	333	
Dec-2020	166.71	3.02%	46	10,736,337,604	10,542,306,038	98.19	3.53	339	
Jan-2021	168.67	1.18%	50	11,324,184,451	11,415,597,441	100.81	3.50	337	
Feb-2021	169.49	0.48%	47	10,504,416,039	10,712,665,142	101.98	3.61	350	
Mar-2021	167.93	-0.92%	39	9,048,558,462	9,296,466,342	102.74	3.84	377	
Apr-2021	170.69	1.64%	38	8,978,749,172	9,107,517,591	101.43	3.81	376	
May-2021	172.19	0.88%	41	9,588,703,205	9,840,125,130	102.62	3.79	375	
Jun-2021	174.63	1.42%	40	9,373,273,707	9,681,506,748	103.29	3.81	378	
Jul-2021	175.45	0.47%	44	9,738,420,034	10,156,250,987	104.29	3.78	374	
Aug-2021	175.78	0.19%	42	9,659,687,165	10,041,577,171	103.95	3.55	349	
Sep-2021	177.19	0.80%	39	8,836,801,107	9,156,649,664	103.62	3.40	335	
Oct-2021	177.37	0.10%	39	9,275,157,362	9,611,457,885	103.63	3.25	320	
Nov-2021	177.29	-0.05%	44	11,029,258,671	11,264,989,273	102.14	3.12	307	
Dec-2021	178.13	0.47%	44	11,364,521,191	11,523,394,460	101.40	3.14	309	
Jan-2022	176.91	-0.69%	52	13,499,939,498	13,679,507,404	101.33	3.06	301	
Feb-2022	173.35	-2.01%	57	15,396,876,140	15,433,974,963	100.24	3.01	296	
Mar-2022	170.35	-1.73%	62	17,234,456,472	16,913,526,465	98.14	3.12	307	
Apr-2022	170.82	0.28%	67	19,128,995,434	18,549,644,816	96.97	3.38	329	
May-2022	168.30	-1.48%	72	21,068,208,560	20,517,088,834	97.38	3.64	336	
Jun-2022	165.20	-1.84%	80	23,394,497,238	22,433,577,349	95.89	4.00	343	
Jul-2022	165.70	0.30%	85	24,884,587,943	23,480,348,016	94.36	4.49	358	
Aug-2022	171.79	3.68%	89	25,180,986,750	23,907,838,996	94.94	5.17	365	
Sep-2022	168.34	-2.01%	95	26,170,925,042	25,675,201,828	98.11	5.82	365	
Oct-2022	166.79	-0.92%	100	27,235,965,638	26,187,236,662	96.15	6.00	372	
Nov-2022	168.61	1.09%	92	24,523,836,681	23,324,904,484	95.11	6.75	376	
Dec-2022	172.51	2.32%	88	23,106,299,521	22,134,708,648	95.80	7.30	378	
Jan-2023	176.88	2.53%	76	20,380,723,155	20,010,012,306	98.18	7.84	392	
Feb-2023			70	18,368,982,917	18,505,981,530	100.75	8.37	406	

Latest Deal Performance Metrics: January 2023 Monthly Statements – STACR *(continued)*

CRTx® AGG Index Constituent Performance Data (Jan-2023 Monthly Statements)																							
Deal	Loss	Pool	Form	Structure (paid-off)	Early Redemption Option (Yrs)	Maturity (Yrs)	Rem. Early Redemp. Option (Yrs)	Rem. Maturity (Yrs)	Delinquency Pipeline								CPR	Net Credit Event		Cum Net Loss		DQ	
									30d	60d	90d	120d	150d	180d+	Total DQ%	MoM % Chg		1mth	Pass Test	Pass Min CE Test	Pass Test		Pass Test
STACR 2021-HQA4	ACT	HLTV	REMIC	M1-M2-B1-B2	5.0	20.1	3.9	18.9	0.56	0.12	0.09	0.12	0.19	1.08	0%	3%	NA	YES	YES	YES	YES		
STACR 2022-DNA1	ACT	LLTV	REMIC	M1A-M1B-M2-B1-B2	5.0	20.0	4.0	19.0	0.59	0.12	0.08	0.10	0.12	1.01	5%	3%	NA	YES	YES	YES	YES		
STACR 2022-DNA2	ACT	LLTV	REMIC	M1A-M1B-M2-B1-B2	5.0	20.1	4.1	19.1	0.65	0.14	0.08	0.10	0.14	1.11	8%	3%	NA	YES	YES	YES	YES		
STACR 2022-DNA3	ACT	LLTV	REMIC	M1A-M1B-M2-B1-B2	5.0	20.0	4.2	19.3	0.67	0.14	0.09	0.12	0.11	1.13	2%	3%	NA	YES	YES	YES	YES		
STACR 2022-DNA4	ACT	LLTV	REMIC	M1A-M1B-M2-B1-B2	5.0	20.0	4.3	19.3	0.78	0.12	0.08	0.09	0.09	1.16	16%	3%	NA	YES	YES	YES	YES		
STACR 2022-DNA5	ACT	LLTV	REMIC	M1A-M1B-M2-B1-B2	5.0	20.0	4.4	19.4	0.63	0.13	0.09	0.12	0.07	1.04	8%	3%	NA	YES	YES	YES	YES		
STACR 2022-DNA6	ACT	LLTV	REMIC	M1A-M1B-M2	5.0	20.0	4.7	19.7	0.59	0.13	0.10	0.06	-	0.88	14%	3%	NA	YES	YES	YES	YES		
STACR 2022-DNA7	ACT	LLTV	REMIC	M1A-M1B-M2	5.0	20.0	4.7	19.7	0.68	0.14	0.08	0.03	-	0.93	19%	3%	NA	NO	YES	YES	YES		
STACR 2022-HQA1	ACT	HLTV	REMIC	M1A-M1B-M2-B1-B2	5.0	20.0	4.2	19.2	0.65	0.18	0.11	0.14	0.14	1.22	3%	3%	NA	YES	YES	YES	YES		
STACR 2022-HQA2	ACT	HLTV	REMIC	M1A-M1B-M2	5.0	20.0	4.5	19.5	0.60	0.19	0.11	0.13	0.07	1.10	8%	2%	NA	YES	YES	YES	YES		
STACR 2022-HQA3	ACT	HLTV	REMIC	M1A-M1B-M2	5.0	20.0	4.6	19.6	0.56	0.14	0.11	0.11	0.01	0.93	12%	2%	NA	YES	YES	YES	YES		

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

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