

## CRTx®

*Credit Risk Transfer Return Tracking Index*

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

### 10/31/2018 Index Rebalancing Update

Released 11/1/2018

#### Highlights

##### *The CRTx® Aggregate*

- Into a broad-market selloff for bonds, the CRTx® posted a 28bp decline in October, only the 3<sup>rd</sup> down month this year, ending the Index's streak of 6 straight months of positive total returns. The CRT market continued to outperform other spread products both month over month and YTD. For 2018, the CRTx® is up 4.01% through October, while credit sectors such as IG and HY indicate either negative or modestly positive total returns for the year.
- The rebalanced Index market value for October is up incrementally to \$49.74 billion as 10 classes from new STACR and CAS deals enter the CRTx®, bringing the total Index constituency to 194 securities from 65 deals.

The CRTx® Aggregate remained relatively resilient despite down markets overall for October. CRT floating rate coupons helped mitigate the backup in rates, while the steepening in the CRT credit curve wasn't as sharp as was seen in HY. The low-investment grade LMEZZ Sub-Index continued to provide steady returns and only modest market volatility, while the LMEZZ and Subordinate Sub-Indexes bore most of the month's Index declines. Carry was up slightly versus September, while paydowns contributed another -3bps in drag to overall Index returns.

##### *Index Return Attribution for October 2018*

- Net Price Return -73 bps
- Net Paydown Return -3 bps
- CPN Accr/Payment Return +48 bps
- October 2018 Total Return -28 bps

The recent issue 2018 LMEZZ and Subordinate Sub-Indexes particularly lagged, posting -104bps and -130bps, respectively, for October, reversing most or all of the relative gains seen in September as structure and collateral differentiation may have been pronounced in the latest spread widening.

#### **CRTx® REBALANCING STATS: 10/31/18**

##### November 2018 Aggregate Constituency (MoM Δ):

- Beg. UPB: \$46.29 B (+3.3%)
- Beg. Market Value: \$49.74 B (+2.3%)
- Num. of Securities: 194 (+10)
- WAvg Coupon: 5.79% (+5 bps)
- WAvg Security Value: 107.5 (-1.0 pts)

##### Constituent Exits

- None

##### New Constituent Entries\*

- CAS 2018-C06 (6 Classes)
  - 1M1, 1M2, 1B1
  - 2M1, 2M2, 2B1
- STACR 2018-HQA2 (4 Classes)
  - M1, M2, B1, B2

*\*These entries represent 3.83% of November's Aggregate Beginning Constituency market value.*

##### Composition By Beg. Mth Mkt Value for Nov. 2018

Deal Vintage	CRTx® Breakdown			
	Aggregate	UMEZZ	LMEZZ	SUB
<b>All</b>	<b>100.0%</b>	<b>18.7%</b>	<b>68.2%</b>	<b>13.1%</b>
<b>2018</b>	<b>22.1%</b>	<b>5.0%</b>	<b>13.0%</b>	<b>4.1%</b>
<b>2017</b>	<b>27.4%</b>	<b>6.5%</b>	<b>16.3%</b>	<b>4.7%</b>
<b>2016</b>	<b>22.0%</b>	<b>3.9%</b>	<b>15.7%</b>	<b>2.4%</b>
<b>2015</b>	<b>14.3%</b>	<b>2.0%</b>	<b>10.5%</b>	<b>1.9%</b>
<b>&lt;=2014</b>	<b>14.1%</b>	<b>1.4%</b>	<b>12.8%</b>	

## 10/31/2018 Index Rebalancing Update (continued)

**CRTx® RNI™ REBALANCING STATS:10/31/18**

## November 2018 RNI™ Agg Constituency (MoM Δ):

- Beg. UPB: \$12.14 B (+1.1%)
- Beg. Market Value: \$12.16 B (-0.5%)
- Num. of Securities: 44 (+4)
- WAvg Coupon: 4.58% (+14 bps)
- WAvg Security Value: 100.1 (-1.7 pts)

## Constituent Exits

- STACR 2017-DNA3 (3 Classes)
  - M1, M2, B1
- STACR 2017-HQA3 (3 Classes)
  - M1, M2, B1

## New Constituent Entries\*

- CAS 2018-C06 (6 Classes)
  - 1M1, 1M2, 1B1
  - 2M1, 2M2, 2B1
- STACR 2018-HQA2 (4 Classes)
  - M1, M2, B1, B2

\*These entries represent 15.66% of November's Aggregate Beginning Constituency market value.

## Composition By Beg. Mth Mkt Value for Nov. 2018

Deal Vintage	CRTx® RNI™ Breakdown			
	Aggregate	UMEZZ	LMEZZ	SUB
All	100.0%	22.8%	59.1%	18.1%
2018	90.4%	20.6%	53.1%	16.7%
2017	9.6%	2.2%	6.0%	1.4%
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%

**Highlights (continued)****RNI™ (Rolling New Issues – 12mth Lookback)**

- Last month saw the CRTx® RNI™ erase all of its gains from September, and then some, with a negative 75bps total return in October, and went from outperforming the standard CRTx® Aggregate by 5 bps YTD in September, to lagging by 44bps through October.
- 2 deals rolled off, while 2 new deals rolled on for November's RNI™ constituency. The rebalanced rolling market value drops slightly by -0.5% versus the prior month to \$12.16 billion. The latest STACR and CAS deal classes enter the CRTx® Index suite as part of the November constituency, increasing the 2018 deal vintage portion to over 90%.

The CRTx® RNI™ Aggregate (latest 12 months issues) gave back its YTD performance gap to the overall CRTx® Aggregate as the 2018 deal vintage now comprises the vast majority of the RNI™ Index. The paydown advantage remains, but this was only a marginal offset for October's negative returns:

## Index Return Attribution for October 2018

- Net Price Return -115 bps
- Net Paydown Return +0 bps
- CPN Accr/Payment Return +40 bps
- October 2018 Total Return -75 bps

With the most 2018 recent issuance printing generally wider margins for M2s and Subordinate classes, 2017 deal vintage spreads widened in kind, while more seasoned deals were less impacted, giving the standard CRTx® Aggregate its current relative edge. However, despite the backup in October, CRT recent issues still outperformed peripheral fixed income credit sectors on a YTD basis, with 2018 rolling new issue returns currently at 3.57%.

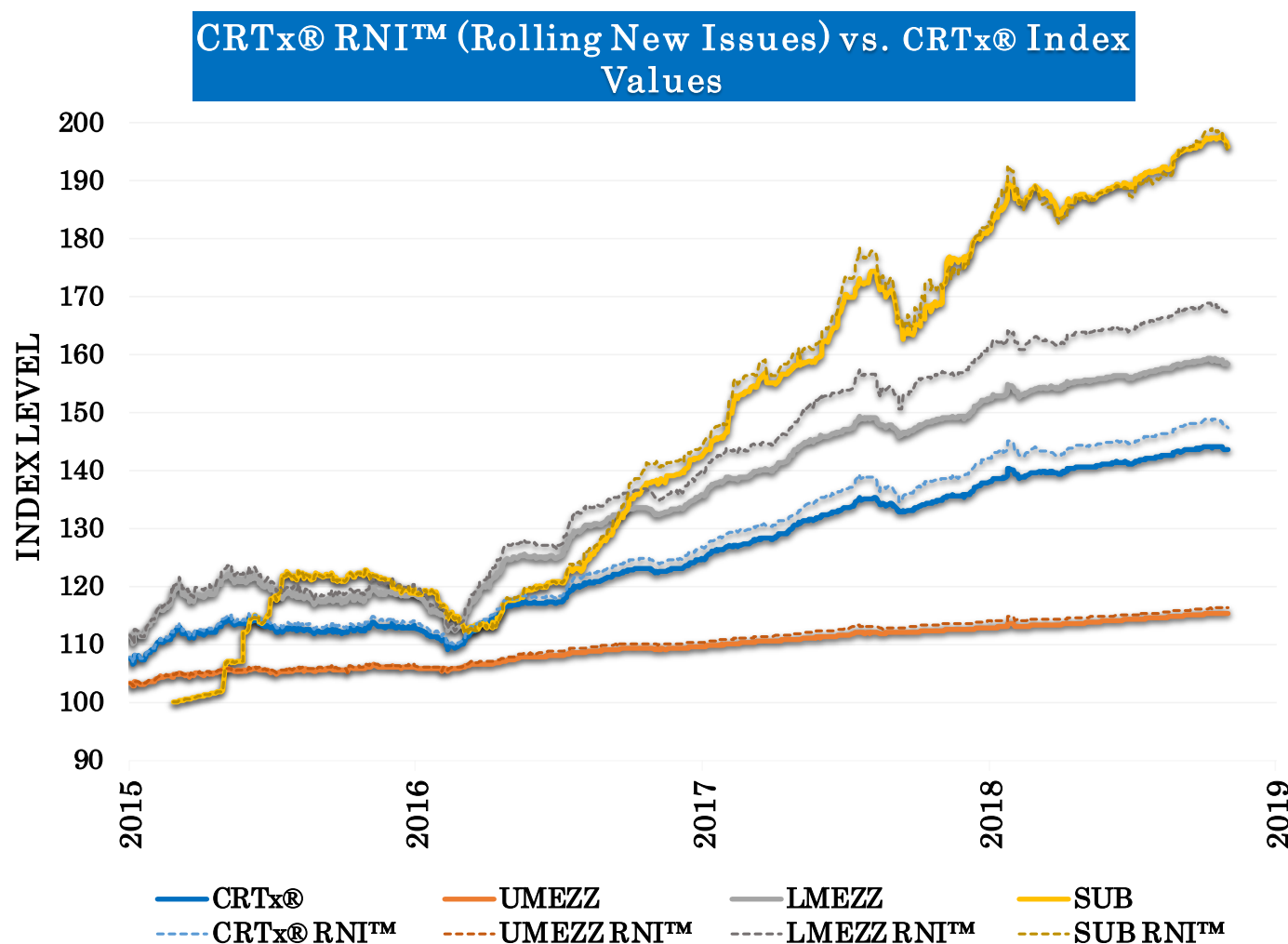
## CRTx® Index Suite Total Return Performance (as of Month End 10/31/2018)

CRTx® (Credit Risk Transfer Return Tracking Index) Return Summary									
RETURNS									
		Period					Annualized		
		Daily	Wkly	Mthly	MTD	QTD	YTD	1-YR	As of Date
Aggregate		-0.08%	-0.42%	-0.28%	-0.28%	-0.28%	4.01%	6.39%	10/31/2018
Upper Mezzanine		-0.03%	-0.03%	0.13%	0.13%	0.13%	2.18%	2.59%	10/31/2018
Lower Mezzanine		-0.08%	-0.42%	-0.40%	-0.40%	-0.40%	3.98%	6.34%	10/31/2018
Subordinate		-0.17%	-1.03%	-0.26%	-0.26%	-0.26%	7.93%	15.86%	10/31/2018
LLTV		-0.08%	-0.43%	-0.30%	-0.30%	-0.30%	3.84%	6.26%	10/31/2018
HLTV		-0.08%	-0.42%	-0.24%	-0.24%	-0.24%	4.29%	6.62%	10/31/2018
Upper Mezzanine	2018	-0.02%	-0.02%	0.09%	0.09%	0.09%	1.63%	-	10/31/2018
	2017	-0.01%	-0.01%	0.14%	0.14%	0.14%	1.98%	2.50%	10/31/2018
	2016	-0.02%	-0.02%	0.18%	0.18%	0.18%	2.28%	2.60%	10/31/2018
	2015	-0.11%	-0.14%	0.07%	0.07%	0.07%	2.50%	2.91%	10/31/2018
	<=2014	-0.02%	-0.01%	0.17%	0.17%	0.17%	2.26%	2.60%	10/31/2018
Lower Mezzanine	2018	-0.25%	-0.64%	-1.04%	-1.04%	-1.04%	1.16%	-	10/31/2018
	2017	-0.03%	-0.47%	-0.46%	-0.46%	-0.46%	4.50%	7.31%	10/31/2018
	2016	0.02%	-0.24%	-0.16%	-0.16%	-0.16%	4.74%	7.34%	10/31/2018
	2015	-0.08%	-0.46%	-0.22%	-0.22%	-0.22%	3.64%	5.73%	10/31/2018
	<=2014	-0.10%	-0.37%	-0.20%	-0.20%	-0.20%	3.32%	5.15%	10/31/2018
Subordinate	2018	-0.42%	-1.76%	-1.30%	-1.30%	-1.30%	1.06%	-	10/31/2018
	2017	-0.19%	-1.51%	-0.70%	-0.70%	-0.70%	7.97%	14.33%	10/31/2018
	2016	0.02%	0.10%	0.65%	0.65%	0.65%	8.96%	17.79%	10/31/2018
	2015	0.02%	0.02%	1.48%	1.48%	1.48%	8.15%	18.47%	10/31/2018
	<=2014							15.90%	10/31/2018

CRTx® RNI™ (Rolling New Issues*) Return Summary									
RETURNS									
		Period					Annualized		
		Daily	Wkly	Mthly	MTD	QTD	YTD	1-YR	As of Date
Aggregate		-0.19%	-0.69%	-0.75%	-0.75%	-0.75%	3.57%	6.26%	10/31/2018
Upper Mezzanine		-0.02%	-0.02%	0.11%	0.11%	0.11%	1.96%	2.46%	10/31/2018
Lower Mezzanine		-0.22%	-0.64%	-0.94%	-0.94%	-0.94%	3.50%	6.31%	10/31/2018
Subordinate		-0.35%	-1.81%	-1.26%	-1.26%	-1.26%	6.59%	13.22%	10/31/2018
LLTV		-0.18%	-0.70%	-0.77%	-0.77%	-0.77%	3.41%	6.11%	10/31/2018
HLTV		-0.21%	-0.68%	-0.69%	-0.69%	-0.69%	3.85%	6.53%	10/31/2018

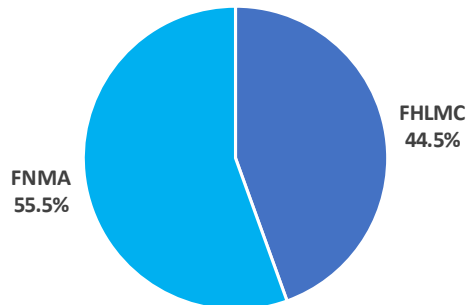
\* Most recently issued securities within a "rolling" 12-month window

CRTx® / CRTx® RNI™ Historical Index Values Comparison (as of Month End 10/31/2018)

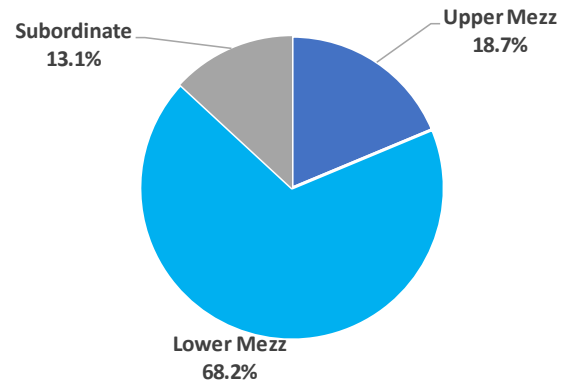


## CRTx® Select Constituent Metrics (as of November 2018 Starting Constituency)

CRTx® % of Mkt Val By Issuer (Nov 2018)



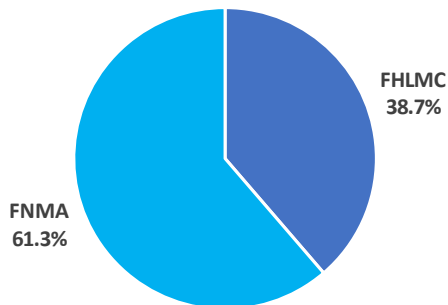
CRTx® % of Mkt Val By Sub Index (Nov 2018)



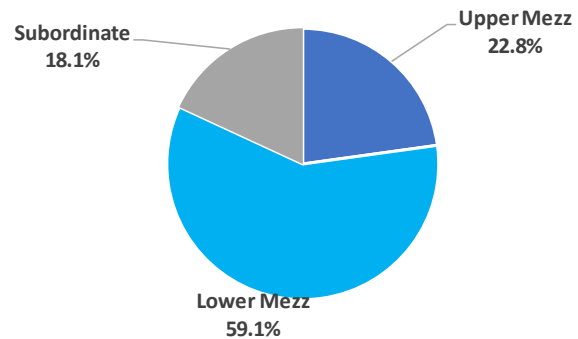
CRTx® Valuation Month	Month End Total	Beginning	Starting UPB	Starting Market Value	Starting Wtd Px +	Starting WAvg	Starting WAvg
	Return	Constituents			Accr	Cpn	Margin
Nov-2015	0.20%	81	21,273,165,670	21,105,424,127	99.21	3.52	333
Dec-2015	-0.32%	85	22,142,495,309	21,962,663,455	99.19	3.59	337
Jan-2016	-1.50%	88	22,540,526,163	22,216,766,047	98.56	3.82	339
Feb-2016	-0.99%	91	23,326,992,361	22,602,915,404	96.90	3.87	344
Mar-2016	3.37%	96	24,064,520,730	23,050,619,899	95.79	3.98	354
Apr-2016	2.48%	103	25,391,312,379	25,087,393,893	98.80	4.08	365
May-2016	0.59%	109	26,279,775,166	26,551,262,325	101.03	4.18	374
Jun-2016	0.09%	112	26,855,491,419	27,187,574,474	101.24	4.21	376
Jul-2016	2.30%	120	27,903,598,643	28,158,680,935	100.91	4.24	379
Aug-2016	1.19%	121	28,794,787,795	29,605,268,884	102.81	4.31	382
Sep-2016	1.16%	124	29,552,152,007	30,628,130,025	103.64	4.38	386
Oct-2016	-0.38%	132	30,287,269,424	31,604,398,674	104.35	4.37	384
Nov-2016	0.50%	134	30,141,365,379	31,231,159,519	103.62	4.41	387
Dec-2016	1.39%	134	30,535,737,665	31,677,555,087	103.74	4.49	390
Jan-2017	1.73%	136	30,635,543,863	32,096,125,632	104.77	4.70	395
Feb-2017	0.44%	136	31,409,187,966	33,308,962,720	106.05	4.72	395
Mar-2017	0.69%	144	32,517,186,276	34,429,213,421	105.88	4.71	393
Apr-2017	1.80%	145	33,534,111,196	35,567,760,320	106.06	4.90	392
May-2017	1.18%	148	34,545,143,500	37,102,973,962	107.40	4.89	390
Jun-2017	1.08%	154	36,559,901,193	39,445,597,050	107.89	4.85	383
Jul-2017	1.13%	154	36,953,048,292	40,117,998,232	108.56	5.03	382
Aug-2017	-0.84%	157	37,861,211,578	41,330,840,373	109.16	5.01	377
Sep-2017	-0.26%	161	38,443,044,875	41,405,260,635	107.71	4.99	376
Oct-2017	0.93%	161	37,965,303,718	40,653,923,899	107.08	5.02	378
Nov-2017	0.33%	164	39,280,202,943	42,203,767,946	107.44	4.97	373
Dec-2017	1.96%	168	39,956,637,967	42,844,604,622	107.23	5.03	370
Jan-2018	1.54%	164	39,460,480,186	43,025,625,788	109.03	5.27	372
Feb-2018	-0.26%	167	39,928,425,286	43,982,384,619	110.15	5.25	369
Mar-2018	-0.21%	169	41,017,066,226	44,799,231,625	109.22	5.26	364
Apr-2018	0.85%	173	42,628,557,312	46,147,934,241	108.26	5.46	359
May-2018	0.34%	171	42,241,567,665	45,959,484,313	108.80	5.49	360
Jun-2018	0.10%	174	42,864,967,271	46,548,011,728	108.59	5.53	357
Jul-2018	0.71%	175	43,499,746,985	47,020,352,767	108.09	5.64	355
Aug-2018	0.67%	178	43,951,183,222	47,607,311,601	108.32	5.60	354
Sep-2018	0.49%	181	44,461,531,990	48,228,311,665	108.47	5.59	353
Oct-2018	-0.28%	184	44,818,307,961	48,627,472,412	108.50	5.74	353
Nov-2018		194	46,292,107,661	49,742,058,694	107.45	5.79	351

## CR Tx® RNI™ Select Constituent Metrics (as of November 2018 Starting Constituency)

CRTx® RNI™ % of Mkt Val By Issuer (Nov 2018)



CRTx® RNI™ % of Mkt Val By Sub Index (Nov 2018)



CRTx® RNI™ Valuation Month	Month End Total	Beginning	Starting UPB	Starting Market Value	Starting Wtd Px +	Starting WAvg	Starting WAvg
	Return	Constituents			Accr	Cpn	Margin
Nov-2015	0.47%	44	11,703,310,993	11,696,931,450	99.95	3.87	367
Dec-2015	-0.49%	44	11,463,095,080	11,469,383,341	100.05	3.87	365
Jan-2016	-1.39%	48	11,985,728,761	11,893,646,769	99.23	4.08	365
Feb-2016	-1.45%	52	12,893,267,492	12,597,052,600	97.70	4.11	369
Mar-2016	3.43%	49	11,927,493,746	11,455,770,097	96.05	4.23	380
Apr-2016	2.88%	52	12,620,144,071	12,526,356,185	99.26	4.44	400
May-2016	0.61%	54	12,728,073,789	12,987,783,827	102.04	4.68	424
Jun-2016	0.02%	54	12,249,693,307	12,530,783,972	102.29	4.76	432
Jul-2016	2.61%	54	12,299,906,392	12,529,906,264	101.87	4.80	435
Aug-2016	1.29%	53	12,066,677,416	12,523,872,105	103.79	4.86	437
Sep-2016	1.27%	56	13,198,577,693	13,786,166,208	104.45	4.89	437
Oct-2016	-0.31%	60	13,594,938,031	14,274,266,773	105.00	4.81	428
Nov-2016	0.33%	60	12,566,169,391	13,072,243,217	104.03	4.74	420
Dec-2016	1.80%	59	12,551,414,958	13,027,812,392	103.80	4.76	418
Jan-2017	1.84%	58	12,640,805,888	13,275,175,101	105.02	4.95	420
Feb-2017	0.54%	57	12,964,446,131	13,718,268,210	105.81	4.89	412
Mar-2017	0.52%	60	13,538,376,545	14,193,918,058	104.84	4.67	389
Apr-2017	1.67%	56	13,408,970,243	13,924,618,857	103.85	4.63	365
May-2017	2.09%	54	13,571,982,822	14,153,849,534	104.29	4.45	346
Jun-2017	1.08%	56	15,068,979,065	15,855,345,378	105.22	4.32	330
Jul-2017	1.36%	51	14,497,092,829	15,277,744,453	105.38	4.43	322
Aug-2017	-1.31%	51	14,491,303,898	15,306,318,014	105.62	4.28	305
Sep-2017	0.17%	54	14,348,388,908	14,810,251,574	103.22	4.14	290
Oct-2017	1.04%	46	13,111,219,325	13,494,197,665	102.92	4.15	291
Nov-2017	0.44%	48	14,393,547,162	14,862,545,297	103.26	4.09	285
Dec-2017	2.15%	51	14,481,730,157	14,878,810,704	102.74	4.09	276
Jan-2018	1.86%	48	13,759,885,957	14,367,377,513	104.41	4.26	271
Feb-2018	-0.52%	48	13,318,377,910	14,033,663,601	105.37	4.17	260
Mar-2018	-0.99%	43	13,241,940,466	13,755,399,800	103.88	4.10	248
Apr-2018	1.17%	46	13,884,239,740	14,126,640,355	101.75	4.23	236
May-2018	0.34%	42	12,545,340,421	12,814,841,641	102.15	4.18	229
Jun-2018	-0.14%	39	11,337,757,334	11,505,111,564	101.48	4.16	220
Jul-2018	0.90%	39	11,577,947,012	11,661,871,155	100.72	4.25	216
Aug-2018	1.08%	39	11,253,518,724	11,383,174,288	101.15	4.26	220
Sep-2018	0.61%	36	11,217,440,268	11,400,528,723	101.63	4.25	219
Oct-2018	-0.75%	40	12,003,066,631	12,221,099,442	101.82	4.44	223
Nov-2018		44	12,140,069,625	12,155,219,472	100.12	4.58	230

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