

Findings :

Momentum raw factor distribution after normalization vs BARRA factor distribution (are same)

There is a higher kurtosis in growth factor distribution

When the Moving Average Kurtosis is greater than 24 months, the kurtosis decreases

March 1 2023

Report active returns for portfolios for a factor with multiple transformations. The transformations should be winsorized based on the approach listed in Feb week3.

The results are copied here:

[Quantile portfolio:](#)

[Cutoff portfolios:](#)

Tag	co<-1.5	co<-1.2	co>-1.2	co>-.7	co>0	co>.7	co>1.2	co>1.5	q1	q2	q3	q4	q5	q6	q7	q8	q9	q10
BTOP_ma_12m	-0.39	0.02	0.38	0.43	0.06	-0.23	-0.04	-0.14	-0.27	-0.39	-0.31	-0.19	0.23	0.02	0.17	0.3	0.15	0.25
BTOP_ma_1m	0.06	0.18	0.33	0.24	-0.11	-0.24	-0.48	-0.29	-0.33	-0.56	-0.15	-0.17	-0.06	-0.04	0.05	0.24	0.47	0.27
BTOP_ma_24m	-0.58	0.28	0.5	0.75	0.02	0.26	-0.32	-0.12	-0.32	-0.26	-0.64	-0.21	0.36	-0.07	0.41	0.41	0.42	0.05
BTOP_ma_3m	-0.08	-0.34	0.48	0.44	0.06	0.05	-0.37	-0.2										
BTOP_ma_60m	-0.23	0.26	0.43	0.31	-0.47	0.13	-0.19	-0.36	-0.43	-0.06	-0.28	-0.55	0.21	-0.26	0.21	0.41	0.6	0.13
EARNYILD_ma_12m	-0.27	-0.37	-0.05	0.74	0.56	0.35	0.11	-0.44	-0.54	0.07	0.41	0.06	0.62	0.37	0.83	0.35	-0.35	-0.5
EARNYILD_ma_1m	-0.45	-0.11	0.23	0.47	0.37	-0.02	-0.03	-0.19	-0.29	-0.21	-0.16	0.35	0.5	0.7	0.25	0.16	0.03	-0.39
EARNYILD_ma_24m	-0.49	-0.35	-0.07	0.82	0.92	0.33	0.24	-0.42	-0.46	-0.05	0.36	0.42	0.65	0.55	0.65	0.27	-0.36	-0.62
EARNYILD_ma_3m	-0.45	0.02	0.07	0.6	0.29	0.19	-0.16	-0.26										
EARNYILD_ma_60m	-0.2	-0.63	0.03	0.86	0.81	0.39	0.15	-0.64	-0.65	0.23	-0.19	0.71	0.47	0.23	1.03	0.22	-0.41	-0.59
GROWTH_ma_12m	-0.72	0.22	0.13	0.25	0.27	-0.16	0.13	-0.07	-0.22	-0.56	0.12	1.14	-0.28	-0.14	0.72	0.66	0.32	-0.94
GROWTH_ma_1m	-0.62	-0.1	0.08	0.13	0.59	0.32	-0.2	0.1	-0.39	0.36	1.83	1.08	1.05	-0.84	-0.42	-0.12	0.51	-1.71
GROWTH_ma_24m	-0.83	0.37	0.06	0.41	0.45	-0.13	-0.4	0.26	0.12	-0.86	0.18	0.18	1.26	0.36	0.32	0.22	0.14	-1.18
GROWTH_ma_3m	-0.74	0.39	0.23	0.14	0.5	0.09	-0.26	0.04										
GROWTH_ma_60m	-0.49	-0.43	-0.01	0.13	0.15	0.2	0.6	0.1	0.21	0.17	-0.33	0.18	0.48	0.45	-0.08	-0.31	0.01	-0.51
MOMENTUM_ma_12m	-0.4	-0.2	0.27	0.31	-0.02	0.01	0.13	0.06	0.04	-0.6	-0.56	-1.32	1.04	1.24	1.12	0.88	0.84	-1.36
MOMENTUM_ma_1m	-0.66	-0.36	-0.37	-0.06	0.28	0.37	0.45	0.38	2.4	0.84	1.24	1	1.08	-0.68	0.32	-1.28	-1.64	-2.44
MOMENTUM_ma_24m	-0.13	0.19	0.11	0.17	0.13	-0.08	-0.54	0.03	-0.66	-0.63	0	-0.66	0.51	1.86	-1.29	1.44	0.45	-0.3
MOMENTUM_ma_3m	-0.53	-0.78	0.01	-0.01	0.3	0.25	0.37	0.42										
MOMENTUM_ma_60m	-0.33	-0.2	0.09	0.42	0.11	0.17	-0.02	-0.03	-0.57	0.15	0.36	0.3	0	1.29	0.21	0.63	0.24	-1.2
PROFIT_ma_12m	-0.49	-0.8	-0.56	0.01	0.24	0.74	0.9	0.46	0.44	0.96	0.9	-0.17	0.43	0.3	-0.47	-0.42	-0.6	-0.57
PROFIT_ma_1m	-0.81	-0.36	-0.42	0.08	0.49	0.78	0.5	0.63	0.54	0.63	0.85	0.19	-0.04	0.8	-0.78	-0.36	-0.54	-0.56
PROFIT_ma_24m	-0.4	-0.6	-0.64	0.04	0.43	0.76	0.29	0.7	0.71	0.61	0.63	0.04	0.19	0.72	-0.54	-0.46	-0.83	-0.52
PROFIT_ma_3m	-0.83	-0.38	-0.51	0.1	0.48	0.89	0.52	0.7										
PROFIT_ma_60m	-0.27	-0.14	-0.83	-0.31	0.68	0.46	0.24	0.24	0.33	0.43	1.07	0.41	0.19	0.23	-0.37	-0.74	-0.88	-0.2

Feb Week 3. 2023 : Updated Winsorization method

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# 1. Regular cross-sectional normalization
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#2. Bounding results from step #1 to +-3.5
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#3. Re-normalize stocks that not bounded in step #2
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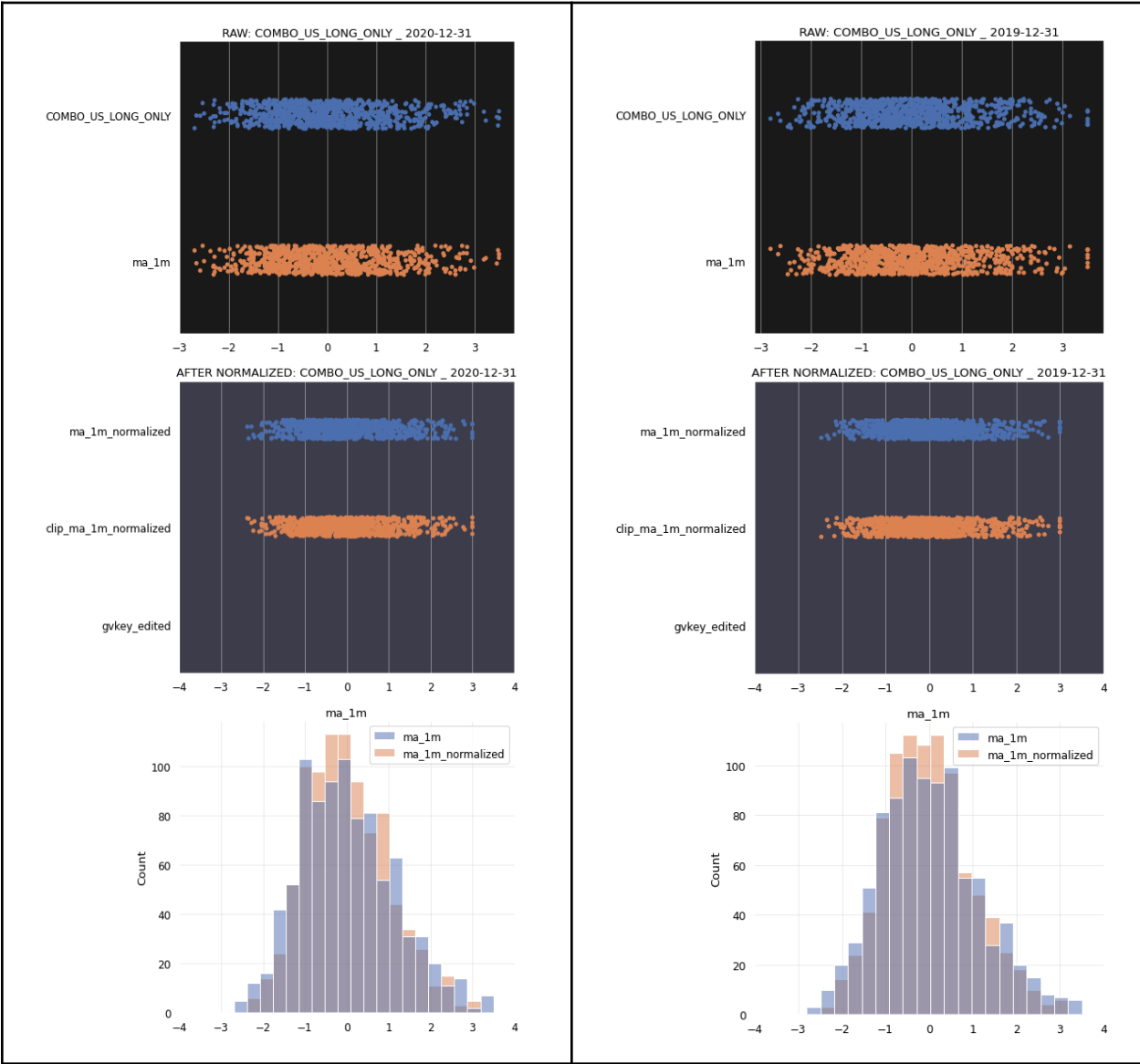
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#4. Bound stocks from #3 to +-3
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#5. Add back in bounded stocks from #2
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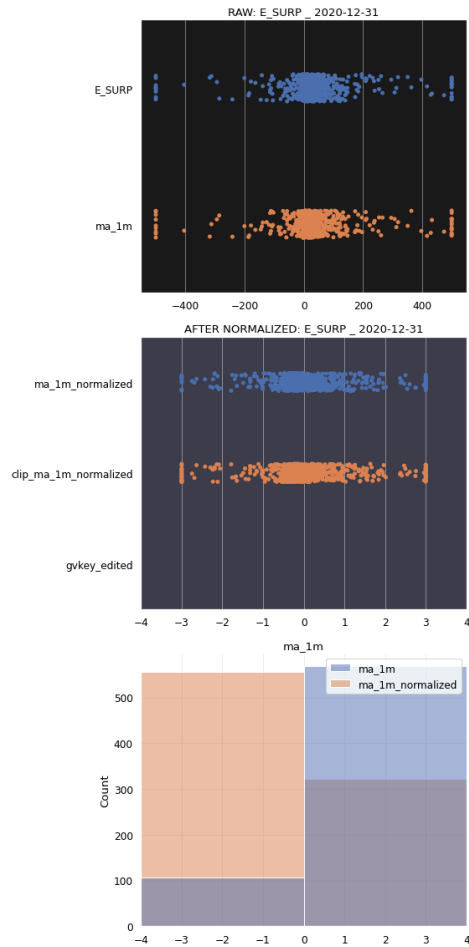
Use population standard deviation to normalize data

March 6h

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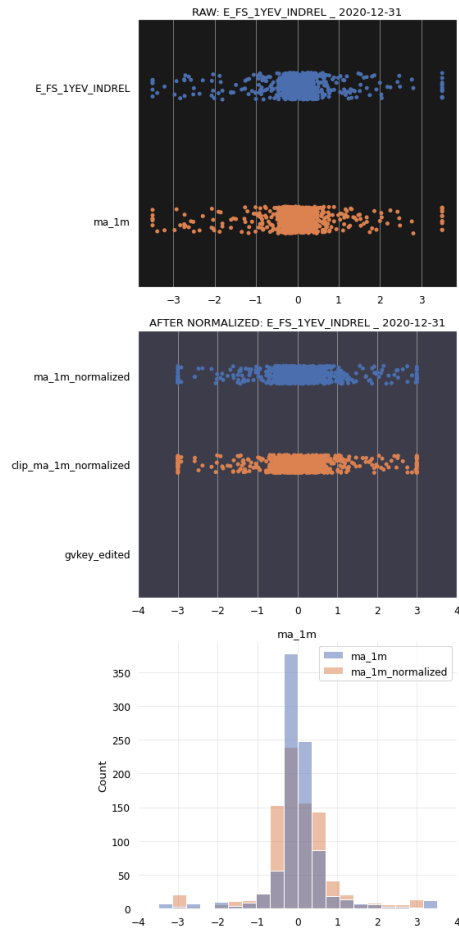


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653	14146001	SEAGEN INC 3.192756
561	6158101	BOSTON BEER INC -CL A 2.994610
704	16303601	BUILDERS FIRSTSOURCE 2.927826
430	2636701	SQUARE INC 2.852044
567	6226301	ALEXION PHARMACEUTICALS INC 2.846856
525	3500501	ZOOM VIDEO COMMUNICATIONS INC 2.816201
10	144701	AMERICAN EXPRESS CO -2.529268
158	706301	HOST HOTELS & RESORTS INC -2.305435
58	333601	DXC TECHNOLOGY CO -2.286822
255	1098301	RAYTHEON TECHNOLOGIES CORP -2.284754
29	228501	BOEING CO -2.263416
231	988201	SOUTHWEST AIRLINES -2.182944
109	512501	GENUINE PARTS CO -2.166451
401	2446801	BIAGEN INC -2.083249
248	1079301	TYSON FOODS INC -CL A -2.036554
258	1122001	VORNADO REALTY TRUST -1.977118



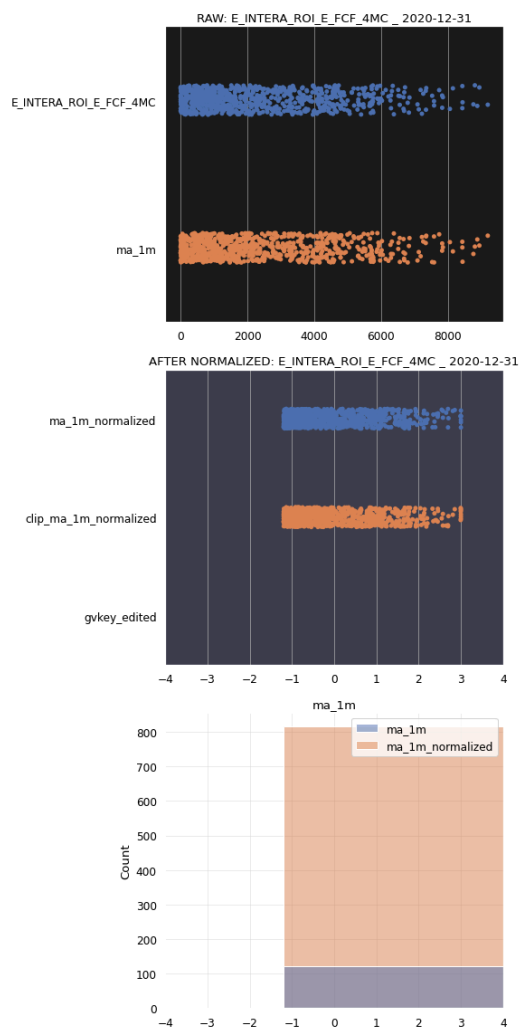
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546	3669101 IAC/INTERACTIVECORP	500.000000
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653	14146001 SEAGEN INC	500.000000
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292	1312501 HEALTHPEAK PROPERTIES INC	-500.000000
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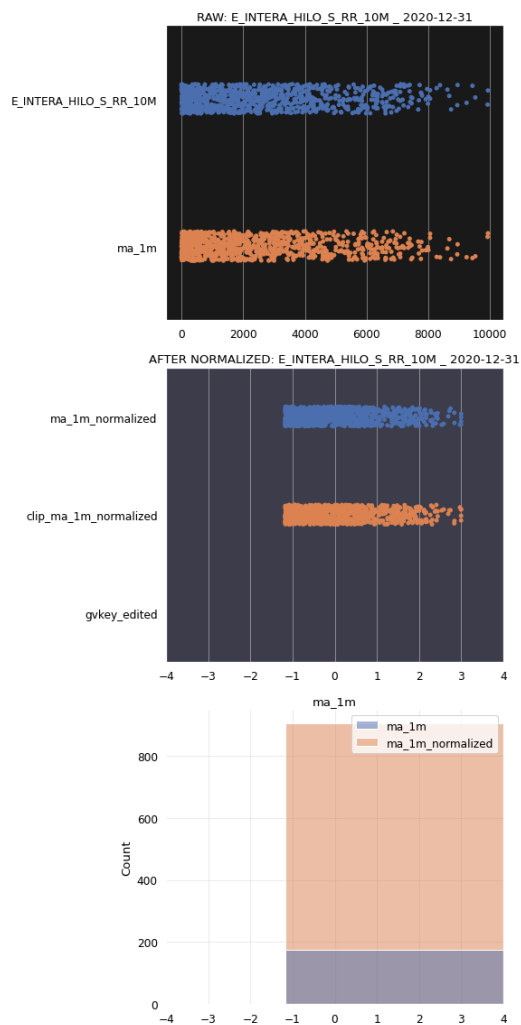
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302	1398801 SCHWAB (CHARLES) CORP	3.500000
318	1610101 ABBVIE INC	3.500000
423	2534001 D R HORTON INC	3.500000
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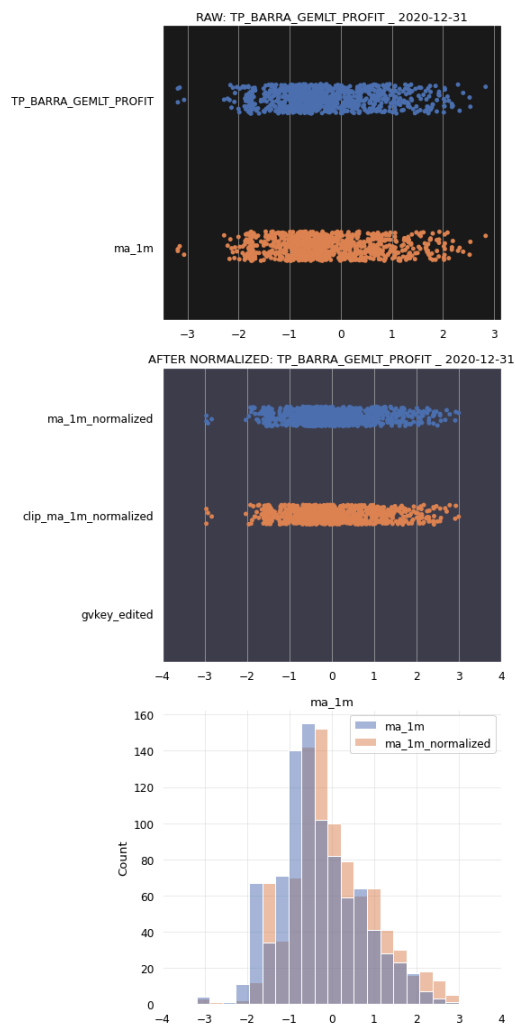
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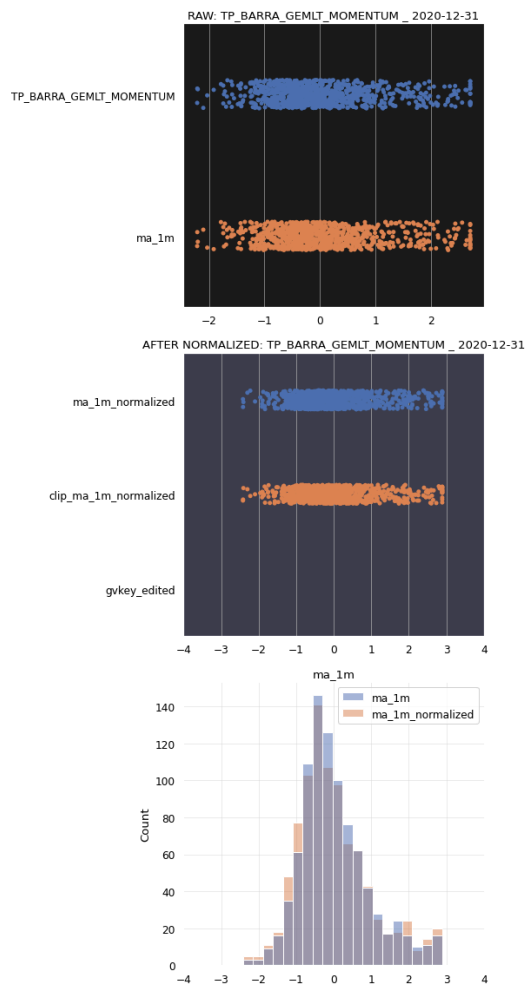


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604	11017901 VENTAS INC	3.888206
189	800701 WELLS FARGO & CO	7.644867
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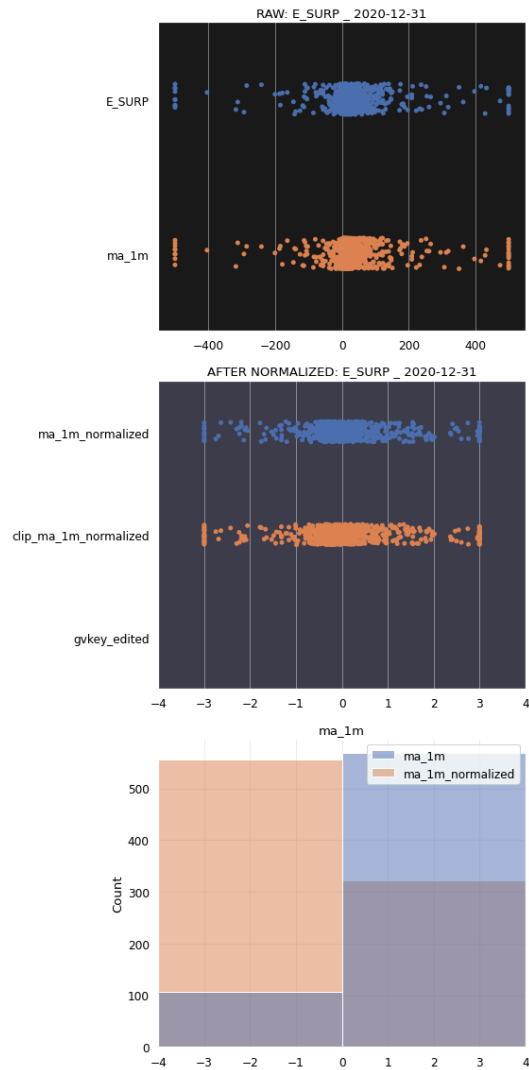
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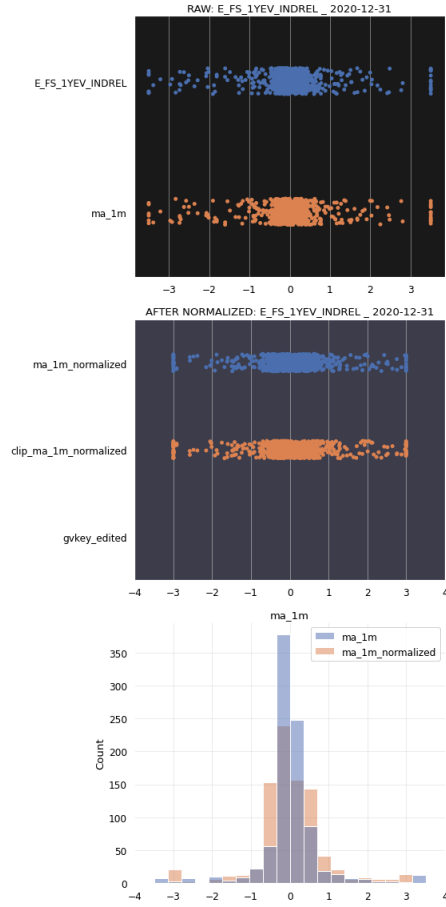
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652	14138401 ALIGN TECHNOLOGY INC	2.175
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520	3424101 TWIST BIOSCIENCE CORP	-2.284
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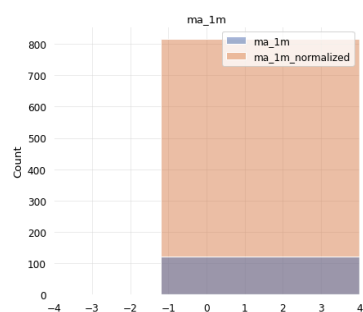
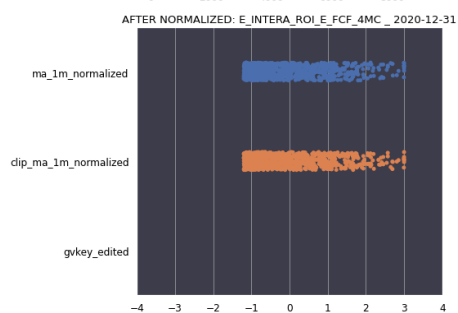
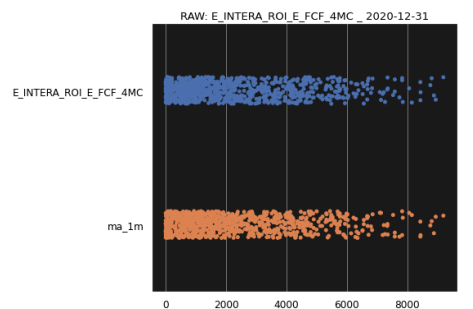
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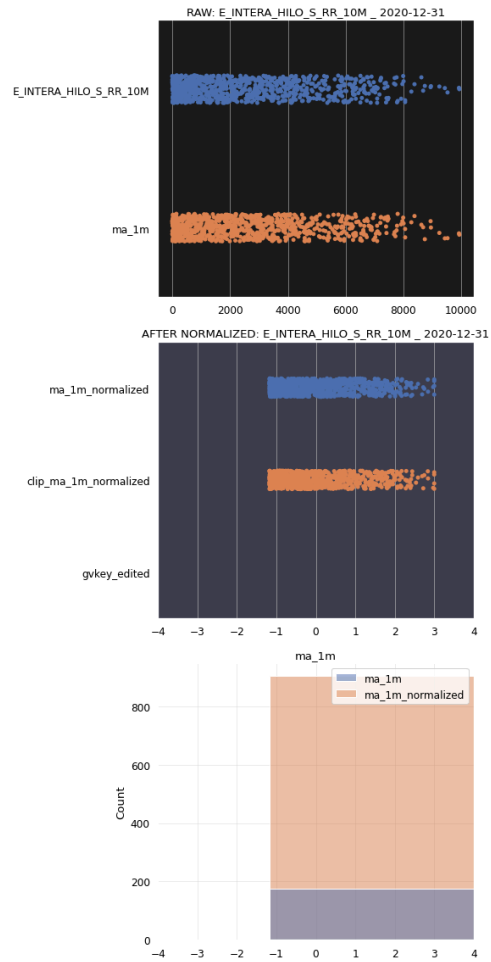
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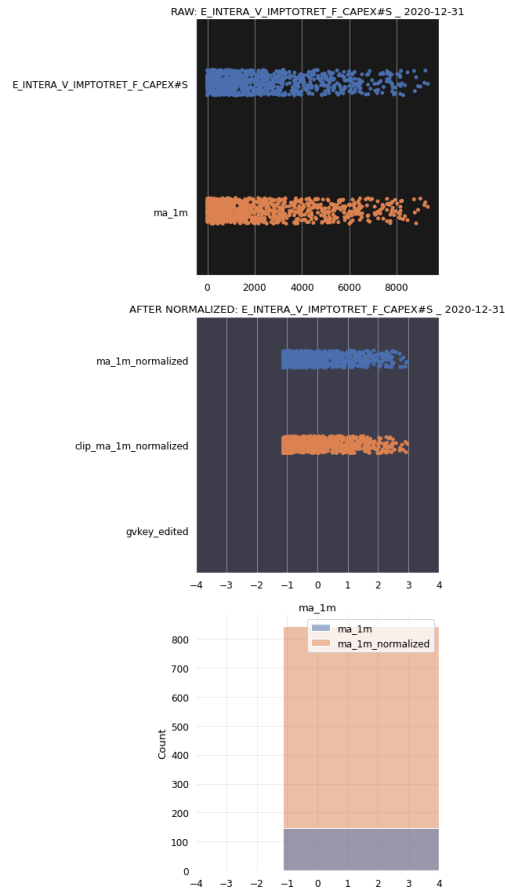
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318 1610101	ABBVIE INC	3.500000
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58 333601	DXC TECHNOLOGY CO	-3.386985
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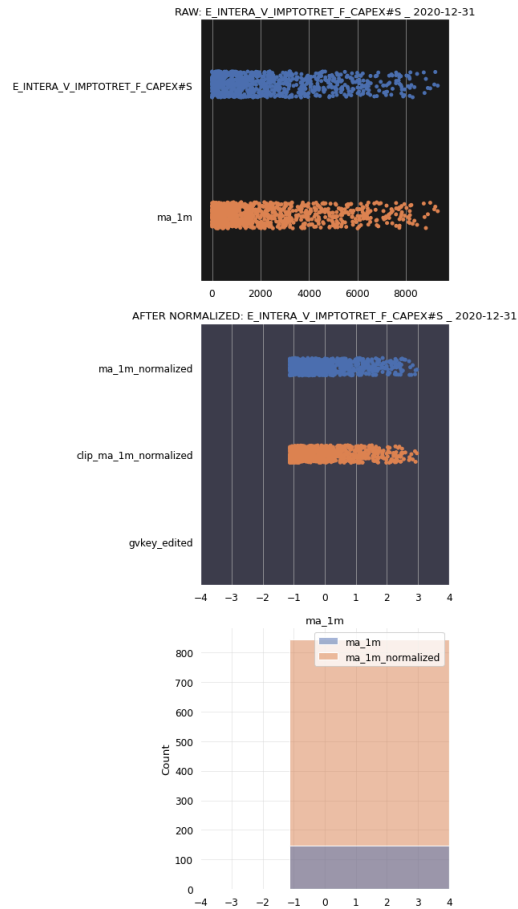
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438 3167301	AMERISOURCEBERGEN CORP	1.730990
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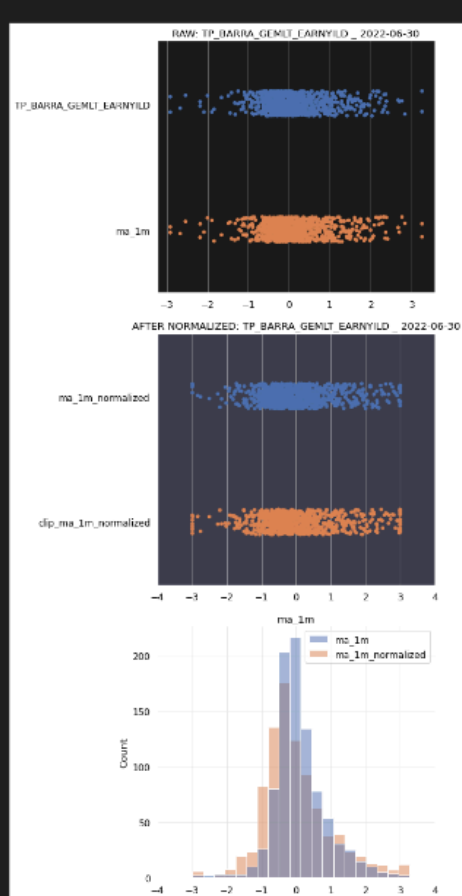
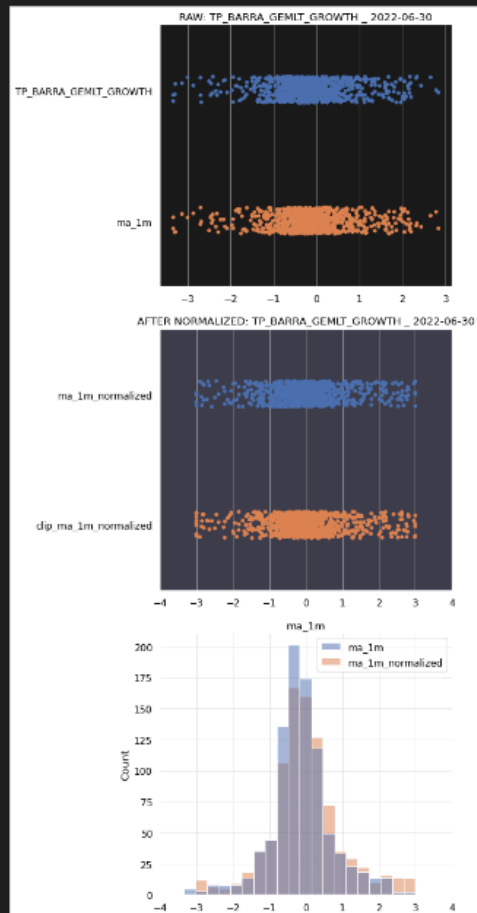
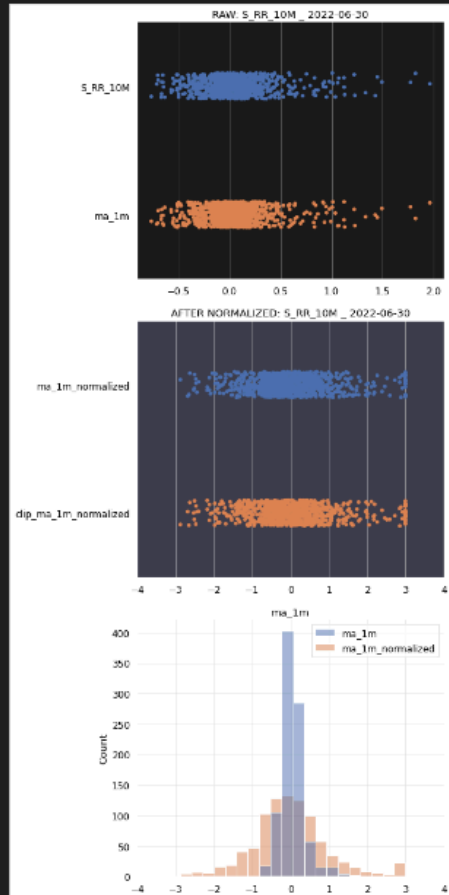
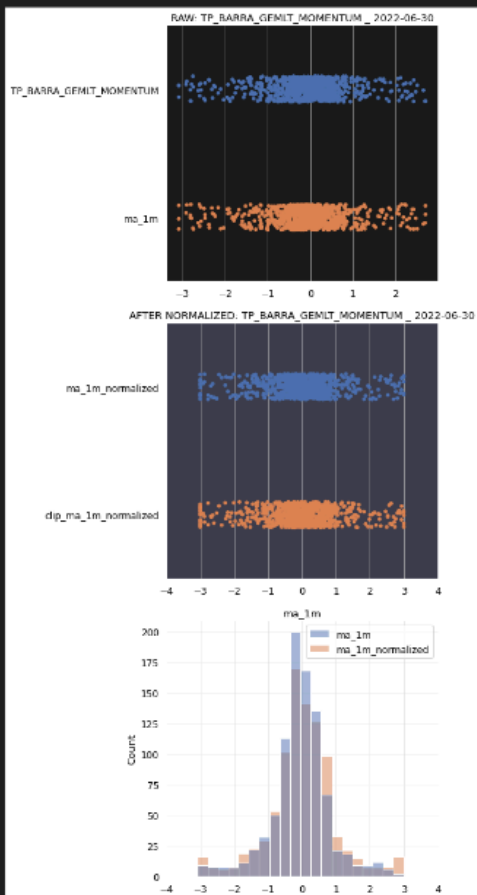


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536	3562701 PELOTON INTERACTIVE INC	8621.014666
722	17500801 AMICUS THERAPEUTICS INC	8382.656339
81	414501 PERKINELMER INC	8273.388888
604	11017901 VENTAS INC	3.888206
189	800701 WELLS FARGO & CO	7.644867
99	473701 FIRST HORIZON CORP	8.629920
588	6492501 BOSTON PROPERTIES INC	12.594605
94	460501 FEDERAL REALTY INVESTMENT TR	13.891693
403	2473101 KIMCO REALTY CORP	15.372332
227	978301 KEYCORP	17.281254
258	1122001 VORNADO REALTY TRUST	21.515146
418	2528301 KOHL'S CORP	21.741525
255	1098301 RAYTHEON TECHNOLOGIES CORP	22.090270



gvkey_edited	itemvalue	ma_1m
703 18364001	IRIDIUM COMMUNICATIONS INC	9320.001622
305 1585501	NORTONLIFELOCK INC	9219.208135
205 882301	PULTEGROUP INC	9177.911419
145 666901	LENNAR CORP	9010.408985
534 6389201	NOV INC	8830.620778
537 6417501	LITHIA MOTORS INC -CL A	8775.364296
503 3528701	CHEWY INC	8742.983245
622 14504601	ANTHEM INC	8467.327660
404 2534001	D R HORTON INC	8357.109672
149 674201	LINCOLN NATIONAL CORP	8283.682635
394 2490501	SUNRUN INC	0.151175
331 1887201	TWITTER INC	1.294210
598 13812201	ARENA PHARMACEUTICALS INC	1.419575
601 13874301	EQUINIX INC	2.444618
568 11349001	CROWN CASTLE INTL CORP	2.569983
27 228501	BOEING CO	2.975576
508 3562701	PELOTON INTERACTIVE INC	3.484410
426 2811301	CRISPR Therapeutics AG	4.015368
427 2811301	CRISPR THERAPEUTICS AG	4.015368
584 12559501	AKAMAI TECHNOLOGIES INC	4.332468





FEB20

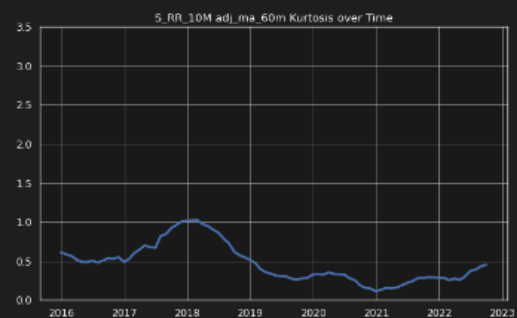
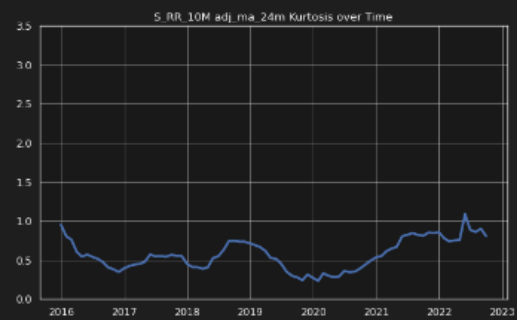
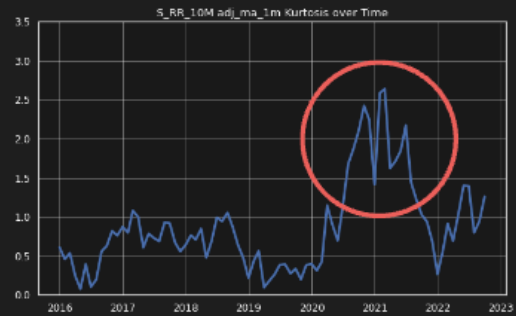
Kurtosis of cross section
Winsorized factor scores
with population Std Dev.
+/-3.5 outbounds and then
clipped to 3

Each month, the group of 900+ factor
scores for each factor are transformed
with moving average methods. These
MA scores are then winsorized to
handle outliers

TP_BARRA_GEMLT_MOMENTUM



S_RR_10M

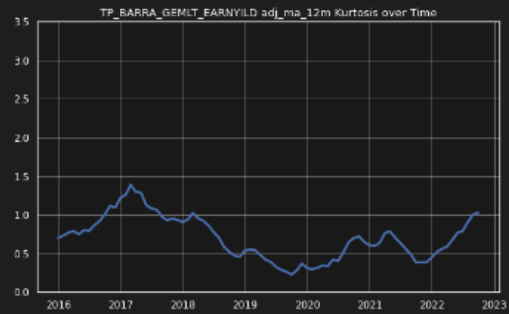


FEB20

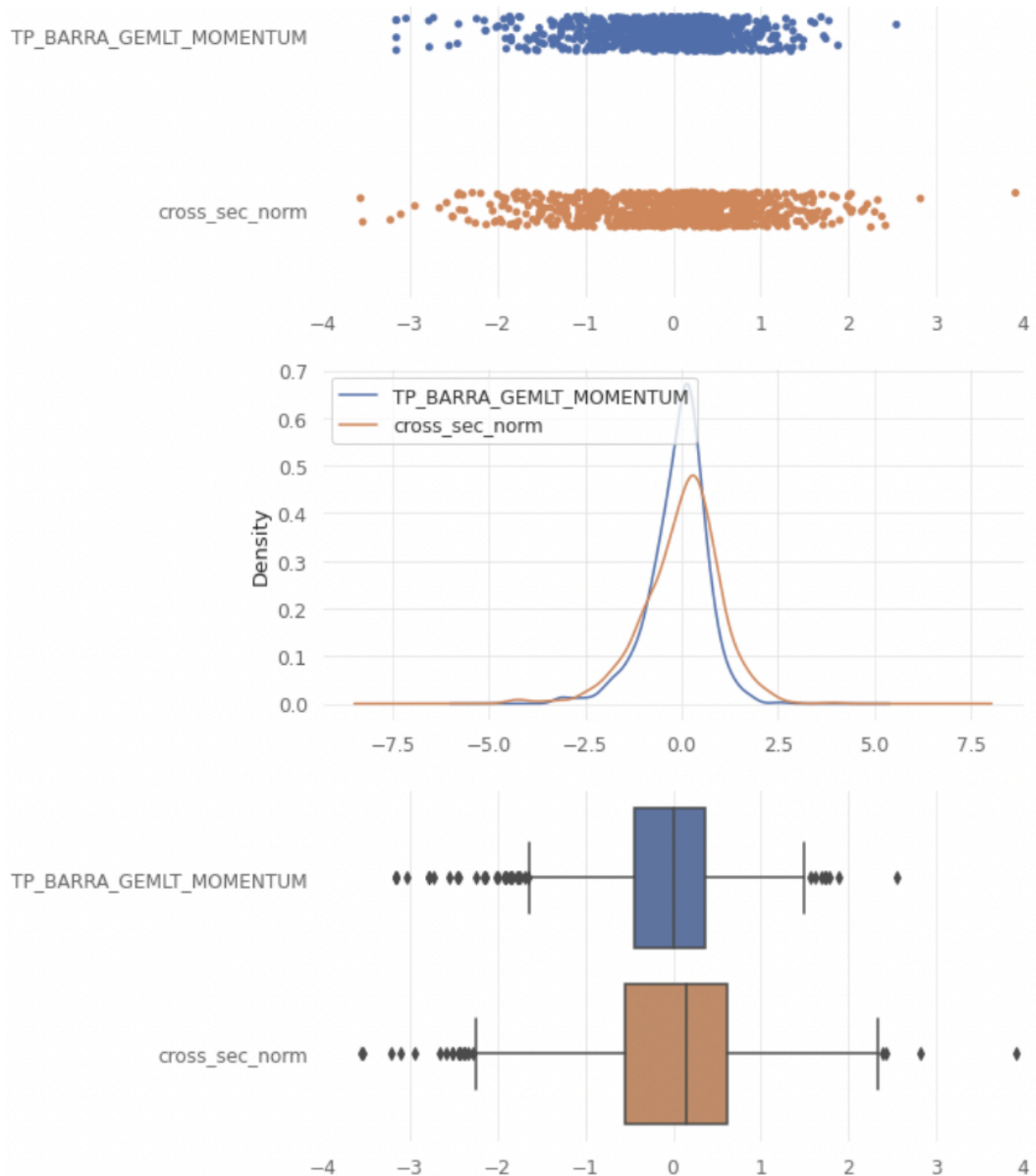
'TP_BARRA_GEMLT_GROWTH'

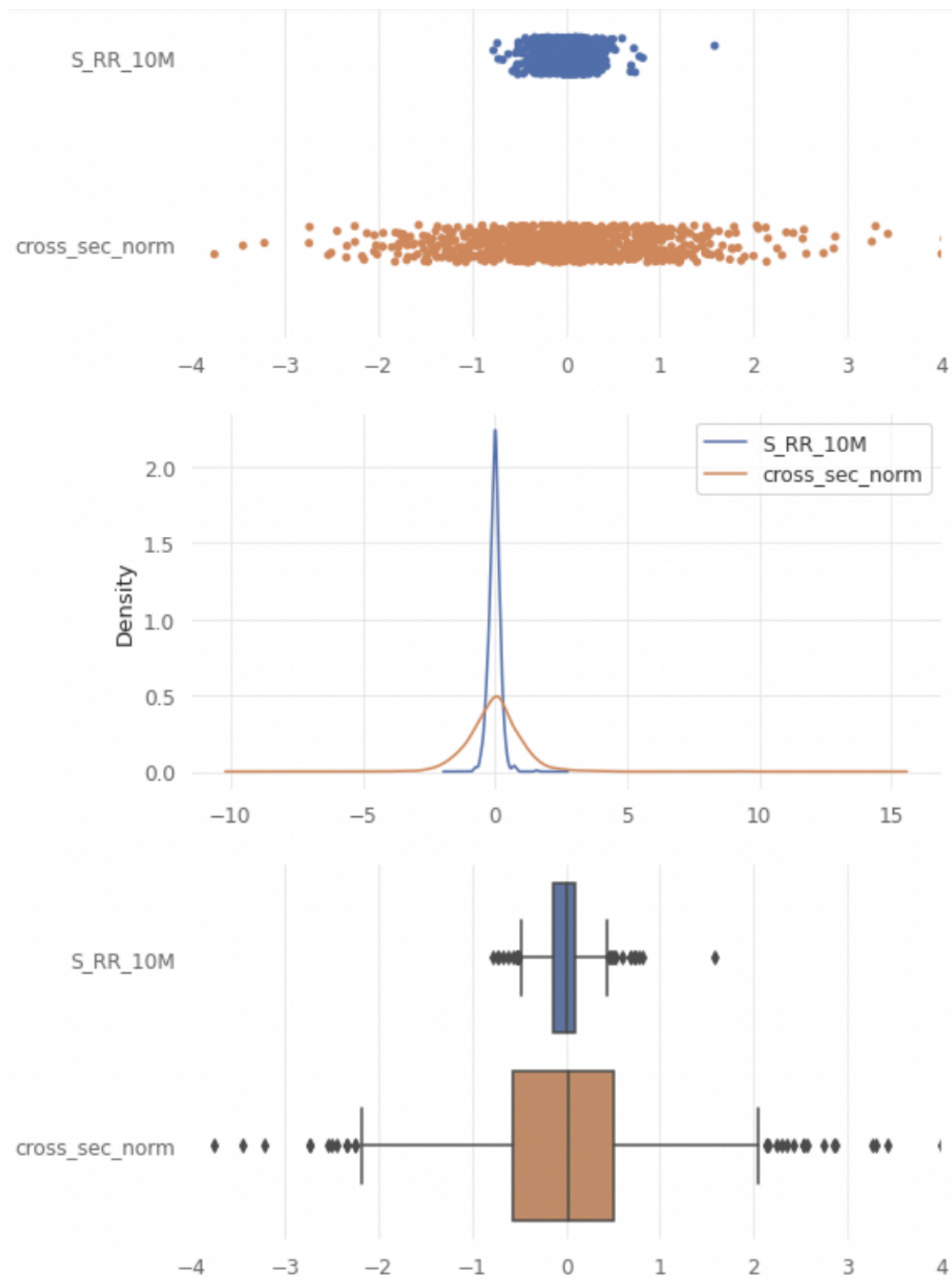


TP_BARRA_GEMLT_EARNYILD



Feb week2: Time series Kurtosis of all Tiles





Feb week1: Time series of Kurtosis of Tiles

CODE [Link](#)

MOMENTUM

For different transformations 1M, 12M,24M, 60M moving averages for Factor scores, find the kurtosis of each Tile for each month

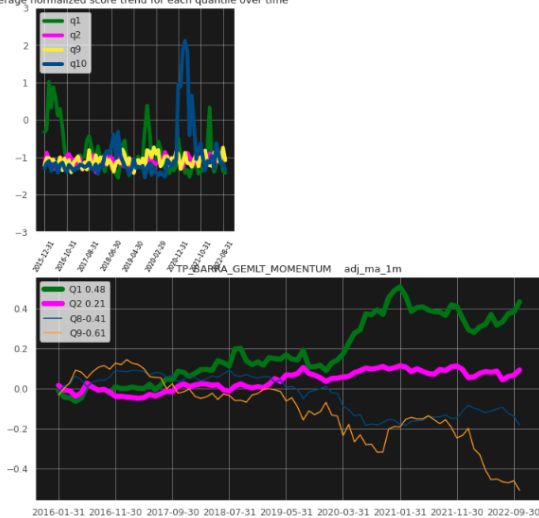
Observation:

Folder with reports with scores and names in top tile when the kurtosis is higher in the series for a combination of factor and transformation

[Link](#).

LEFT COLUMN: Winsorization: Normalize data-> clip to +-2.5- > normalize the inliers	RIGHT COLUMN: BARRA Winsorization: Normalize data-> clip to +-3
---	---

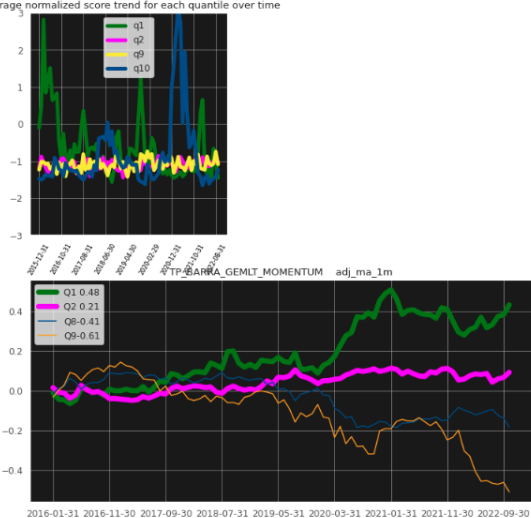
QuantilesTP_BARRA_GEMLT_MOMENTUM z_score(adj_ma_1m)
Average normalized score trend for each quantile over time



q1 max index 2016-02-29 max value
1.02
q10 max index 2021-03-31 max value
2.12

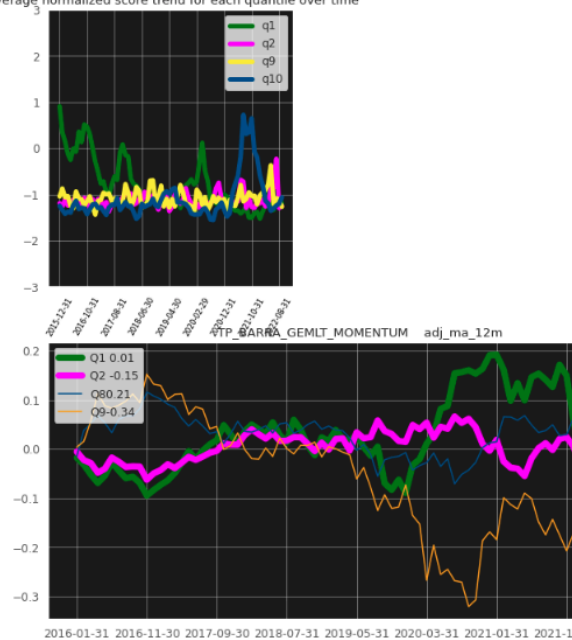
Winsorization: Normalize data-> clip to +2.5-
> normalize the inliers

q1 max index 2016-02-29 max value 2.82
q10 max index 2021-03-31 max value 3.15
QuantilesTP_BARRA_GEMLT_MOMENTUM z_score(adj_ma_1m)
Average normalized score trend for each quantile over time



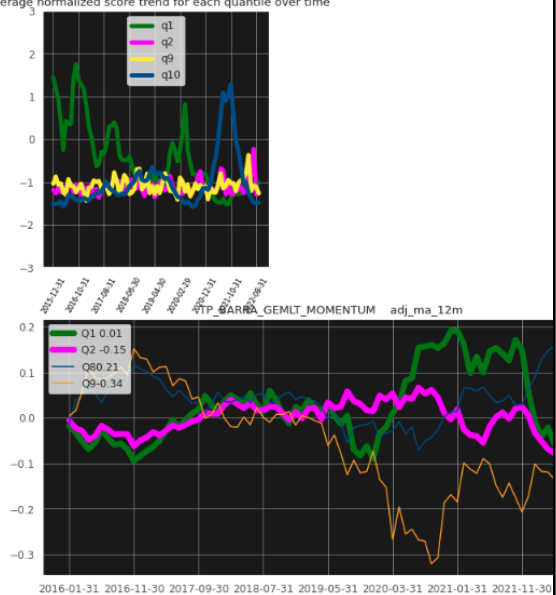
BARRA Winsorization: Normalize data-> clip
to ± 3 [<3.2, 3.5, 3.7]

QuantilesTP_BARRA_GEMLT_MOMENTUM z_score(adj_ma_12m)
Average normalized score trend for each quantile over time



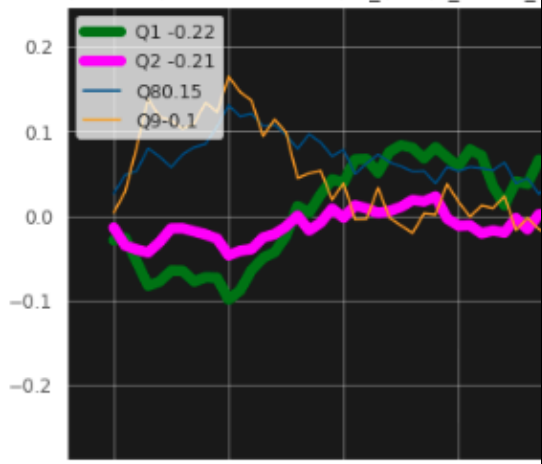
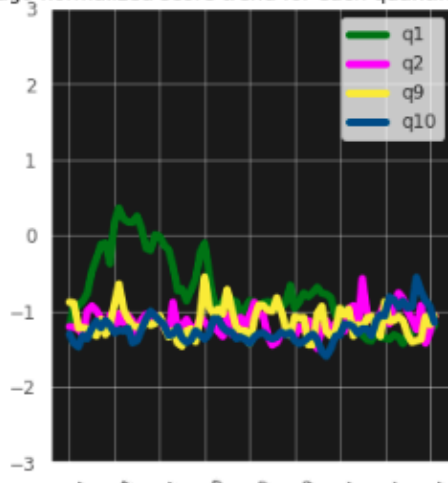
q1 max index 2015-12-31 max value
0.91
q10 max index 2021-07-31 max value

q1 max index 2016-09-30 max value 1.75
q10 max index 2021-10-31 max value 1.29
QuantilesTP_BARRA_GEMLT_MOMENTUM z_score(adj_ma_12m)
Average normalized score trend for each quantile over time



0.73

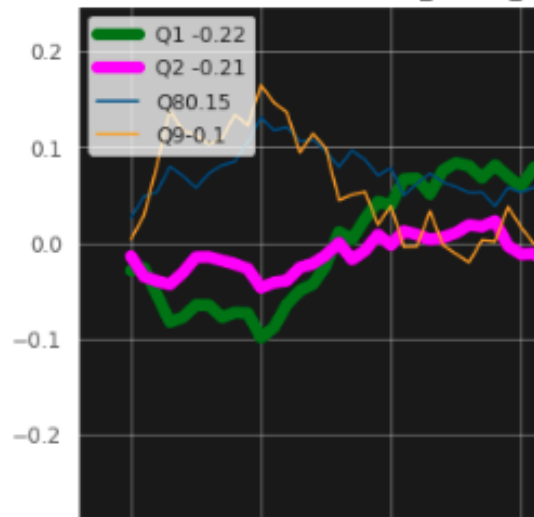
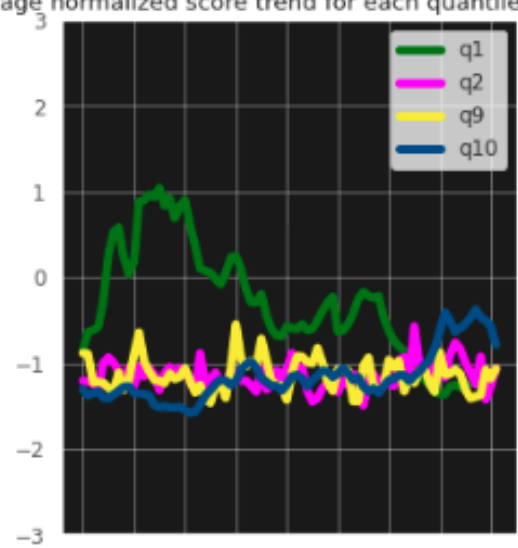
QuantilesTP_BARRA_GEMLT_MOMENTUM z_score(adj_ma_2
Average normalized score trend for each quantile over t



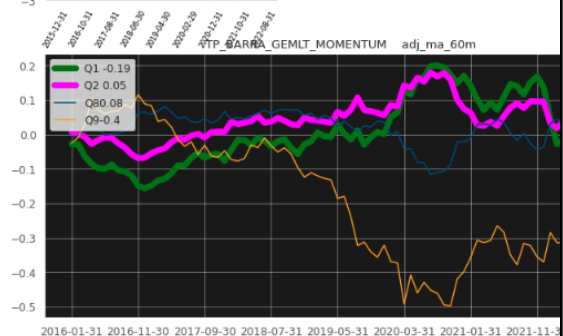
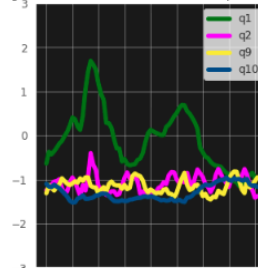
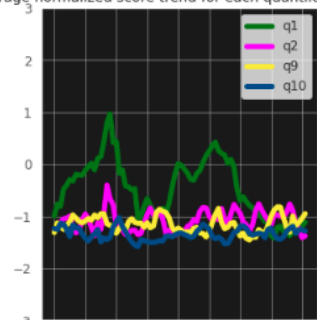
q1 max index 2016-11-30 max value
0.36

q10 max index 2022-05-31 max value
-0.56

QuantilesTP_BARRA_GEMLT_MOMENTUM z_score(ac
Average normalized score trend for each quantile



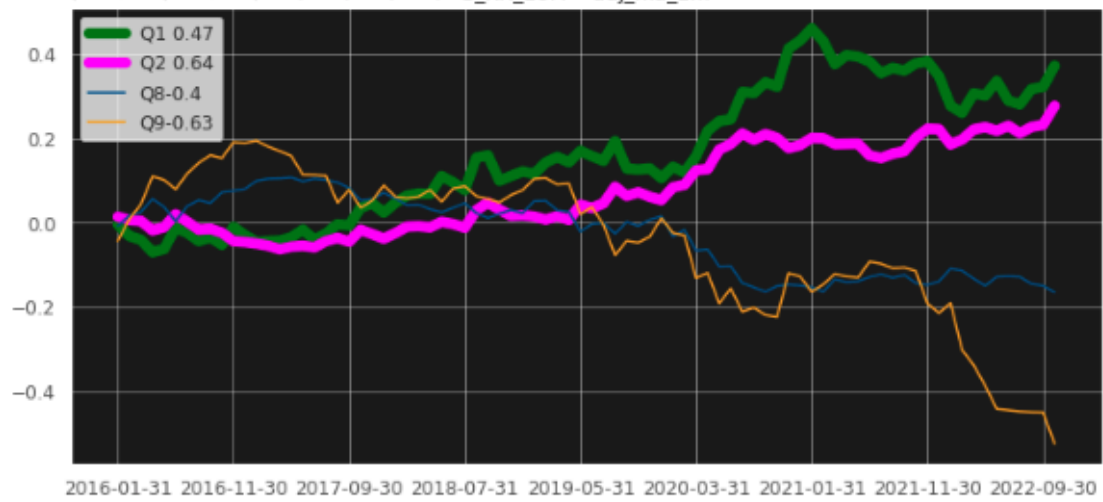
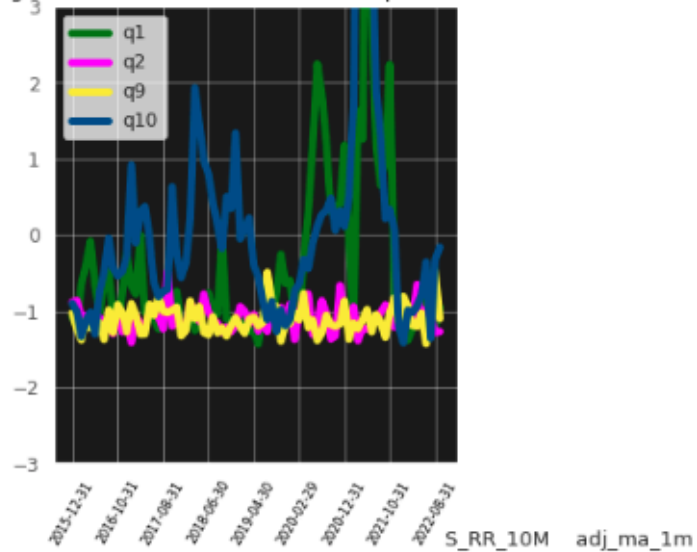
2016-01-31 2016-11-30 2017-09-30 2018-0



Observation:

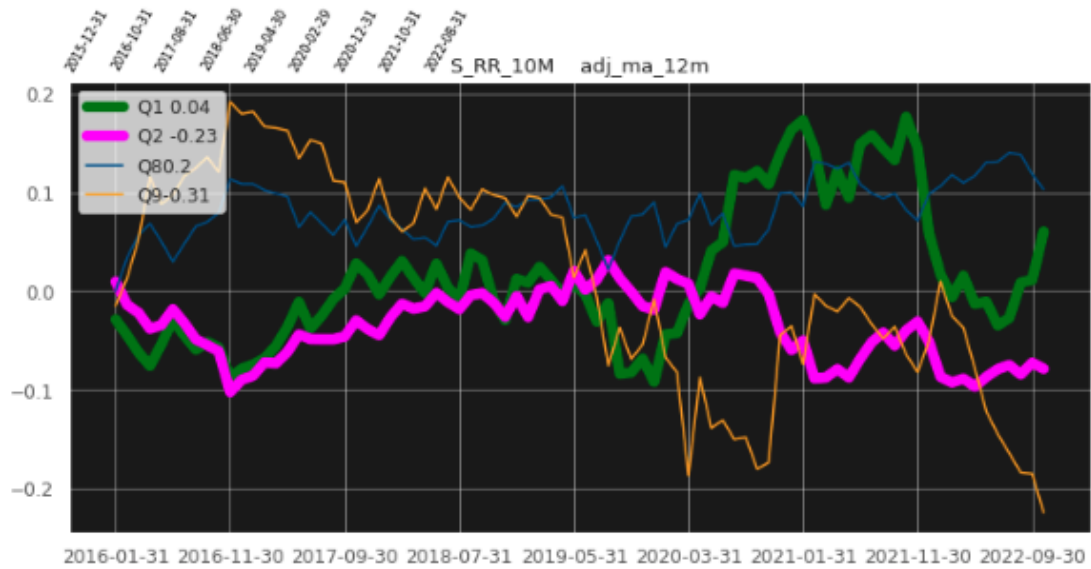
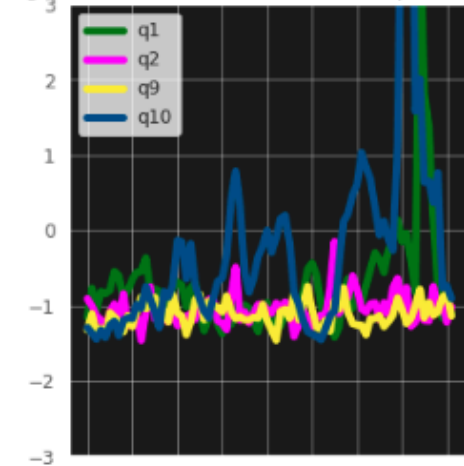
q1 max index 2021-05-31 max value 7.26
q10 max index 2021-03-31 max value 7.15

QuantilesS_RR_10M z_score(adj_ma_1m)
Average normalized score trend for each quantile over time

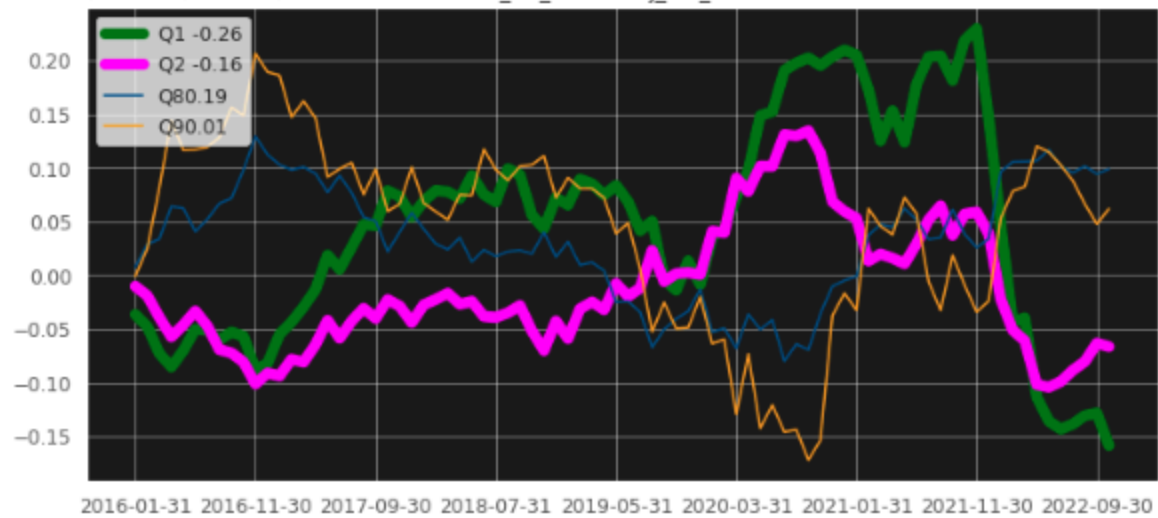
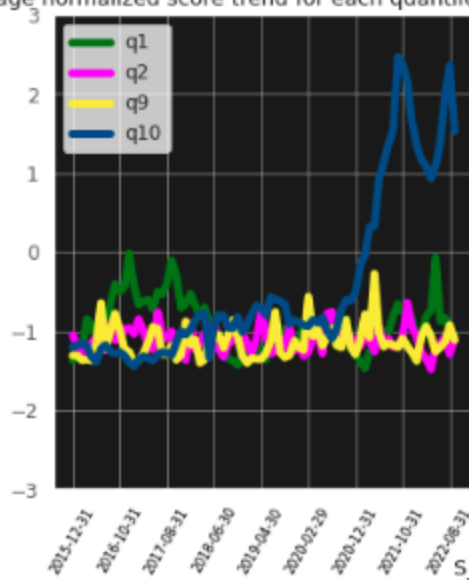


q1 max index 2022-02-28 max value 3.99
q10 max index 2021-12-31 max value 7.17

QuantilesS_RR_10M z_score(adj_ma_12m)
Average normalized score trend for each quantile over time

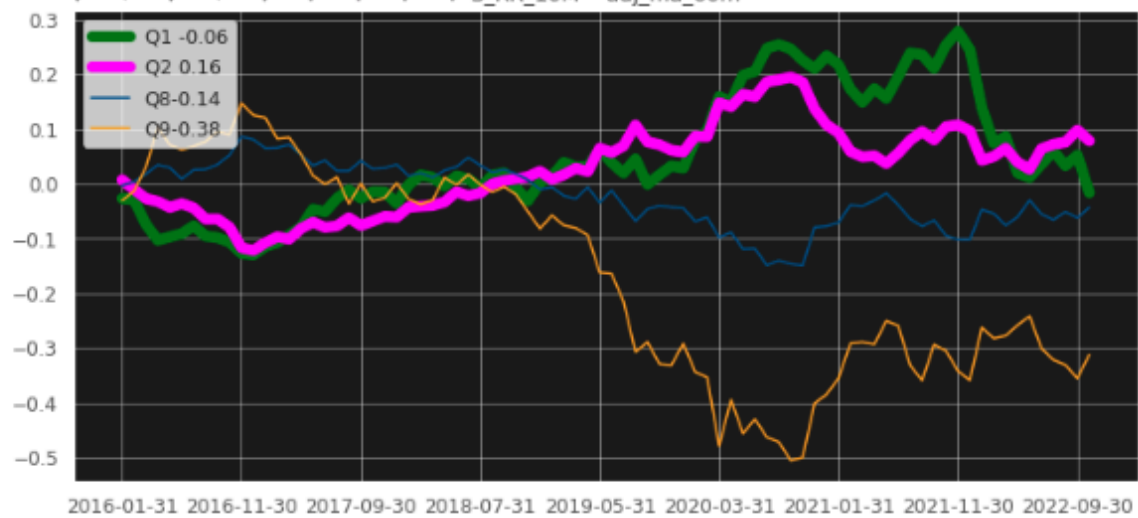
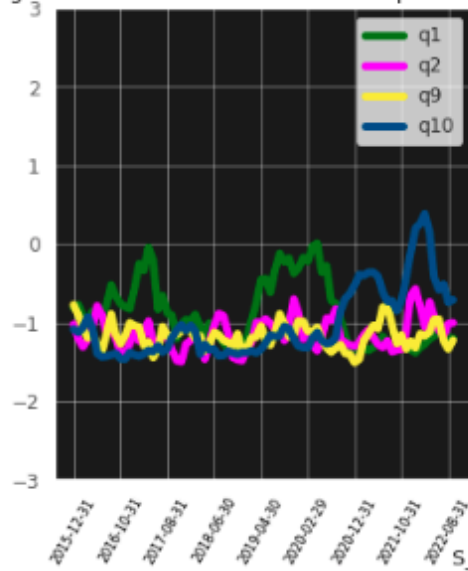


QuantilesS_RR_10M z_score(adj_ma_24m)
Average normalized score trend for each quantile over time



q1 max index 2020-04-30 max value 0.01
q10 max index 2022-03-31 max value 0.38

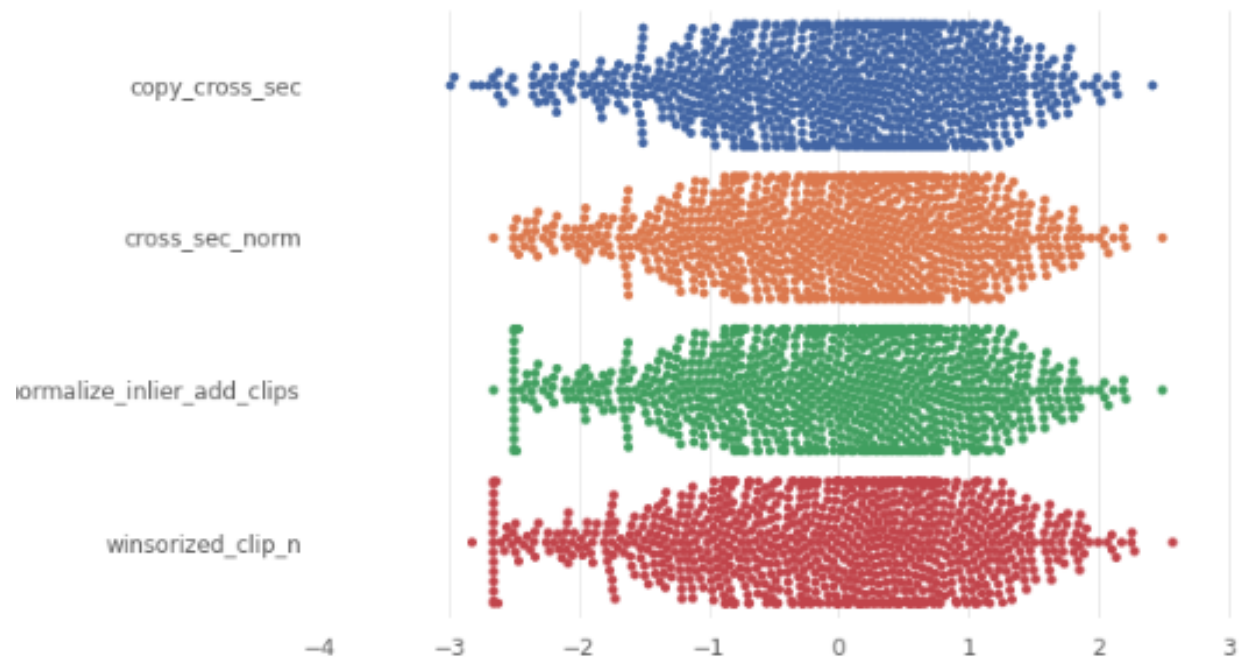
QuantilesS_RR_10M z_score(adj_ma_60m)
Average normalized score trend for each quantile over time



WINSORIZATION EXAMPLE:

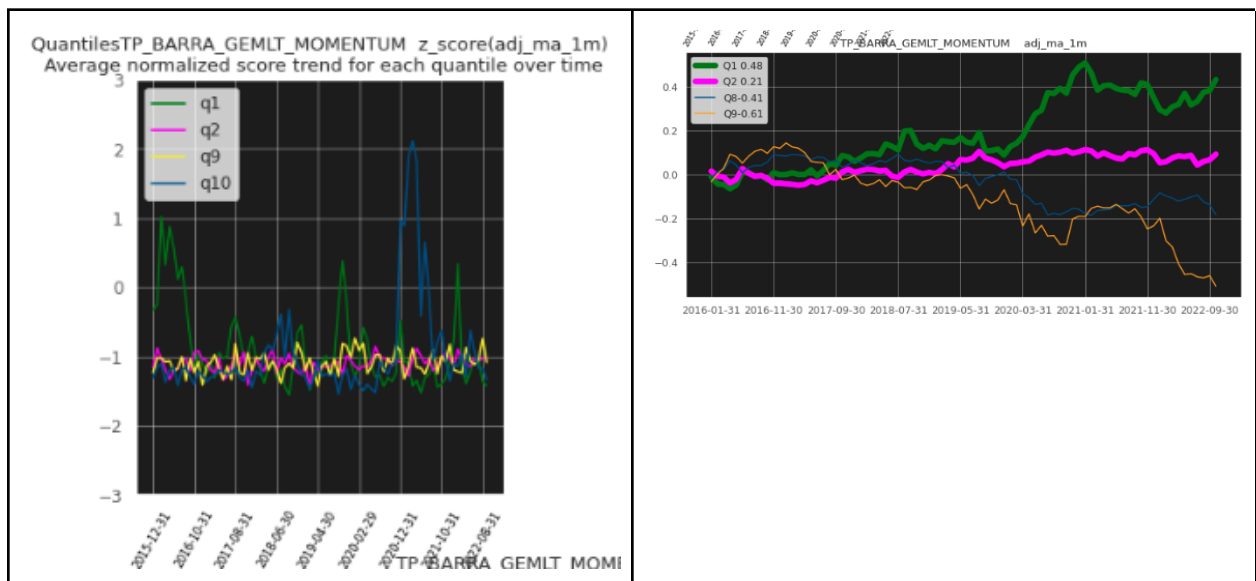
122	▼	<i>fx</i>					
	A	B	C	J	K	L	
1	gvkey	DATA_EXBETA	TP_BARRA_GE	cross_sec_norm	orig	clip	
26	183701	0.009927899564	0.396	0.6193621593	0.6193621593	0.6193621593	
27	187801	-0.04071359279	0.346	0.5527697556	0.5527697556	0.5527697556	
28	189101	0.03707272171	0.156	0.2997186214	0.2997186214	0.2997186214	
29	191301	-0.03924976485	0.555	0.8311260032	0.8311260032	0.8311260032	
30	191901	-0.03885846884	0.021	0.1199191313	0.1199191313	0.1199191313	
31	197601	-0.081107388	-0.821	-1.001496948	-1.001496948	-1.001496948	
32	198801	0.07074245007	0.108	0.2357899138	0.2357899138	0.2357899138	
33	200201		-0.567	-0.6632075367	-0.6632075367	-0.6632075367	
34	201901	0.004261192582	0.172	0.3210281906	0.3210281906	0.3210281906	
35	204401	0.04097358161	0.308	0.5021595287	0.5021595287	0.5021595287	
36	208601	0.03152931523	-0.213	-0.1917333182	-0.1917333182	-0.1917333182	
37	211101	0.07966472029	0.416	0.6459991208	0.6459991208	0.6459991208	
38	213601	0.09107609512	-0.188	-0.1584371164	-0.1584371164	-0.1584371164	
39	215401	-0.05170628363	0.11	0.2384536099	0.2384536099	0.2384536099	
40	217602	0.05973882717	-0.29	-0.29428562	-0.29428562	-0.29428562	
41	218401	-0.0341584605	-0.391	-0.4288022755	-0.4288022755	-0.4288022755	
42	226901	-0.08758071247	0.111	0.239785458	0.239785458	0.239785458	
43	227001	-0.0892894999	-2.137		-2.754209014	-2.5	
44	228501	0.06659143741	0.159	0.3037141656	0.3037141656	0.3037141656	
45	231201	-0.0621113243	-0.502	-0.5766374118	-0.5766374118	-0.5766374118	
46	240301	0.1000203848	0.455	0.6979411957	0.6979411957	0.6979411957	
47	243501	-0.00142488591	0.297	0.4875091999	0.4875091999	0.4875091999	
48	244401	-0.02832244668	-0.047	0.02935346219	0.02935346219	0.02935346219	

Raw scores> cross sectional normalization > clip at +-2.5

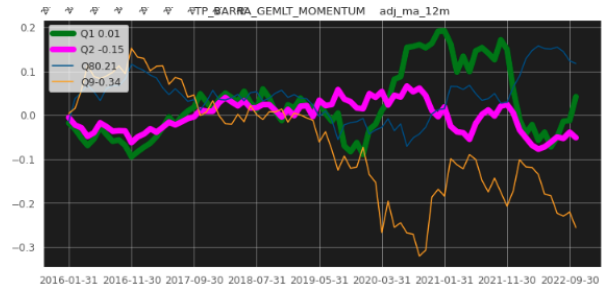
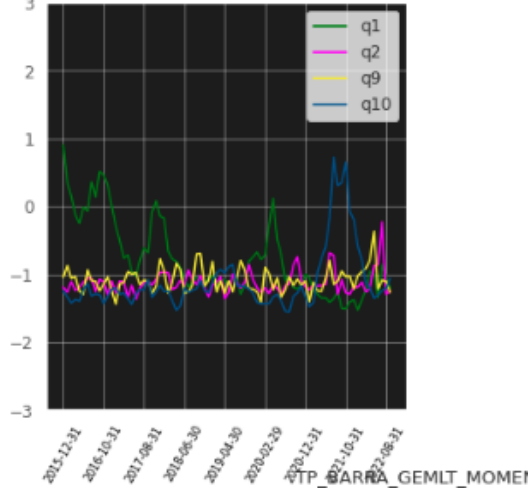


MOMENTUM. 1 Month
 RAW Factor. 2014-01-0.
 SHOW distribution of VaALUE factor in this format

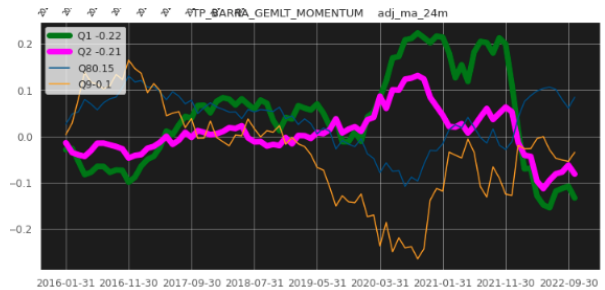
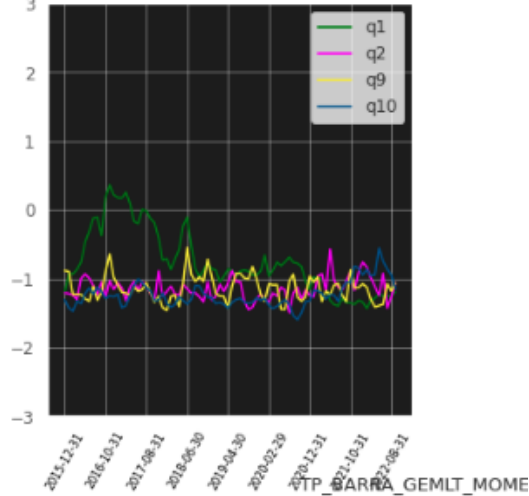
ARCHIVE



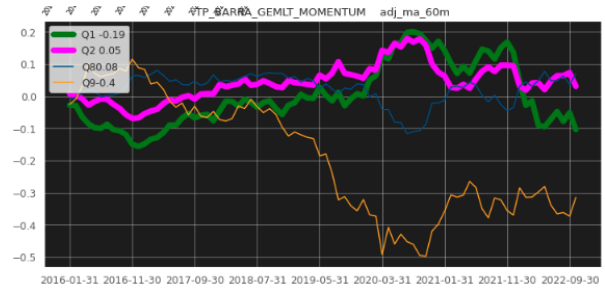
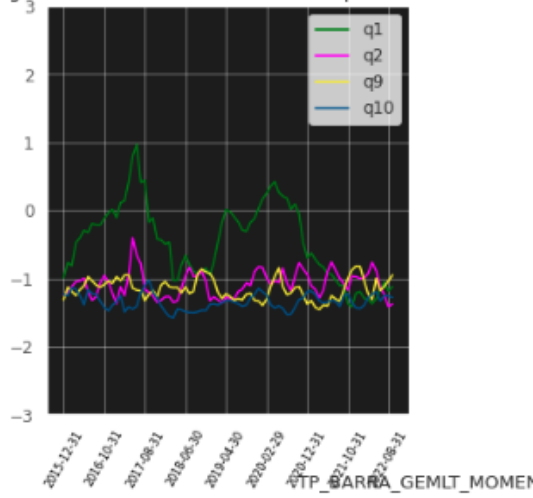
QuantilesTP_BARRA_GEMLT_MOMENTUM z_score(adj_ma_12m)
Average normalized score trend for each quantile over time



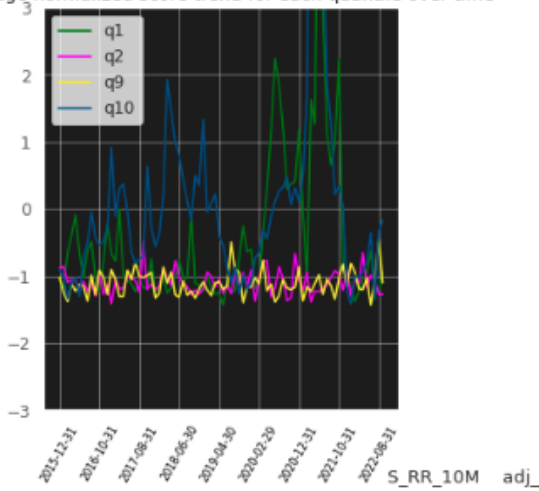
QuantilesTP_BARRA_GEMLT_MOMENTUM z_score(adj_ma_24m)
Average normalized score trend for each quantile over time



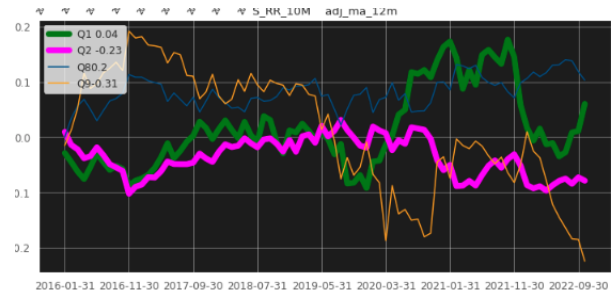
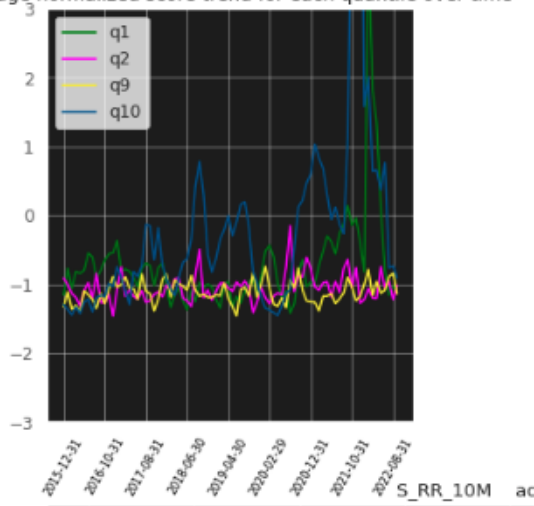
QuantilesTP_BARRA_GEMLT_MOMENTUM z_score(adj_ma_60m)
Average normalized score trend for each quantile over time



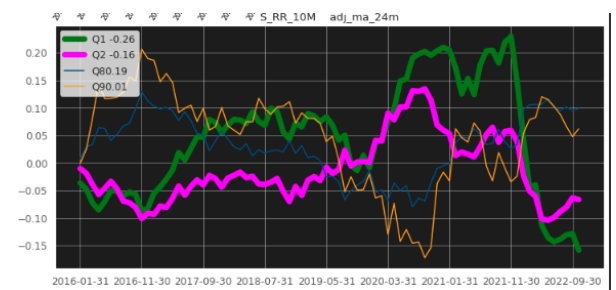
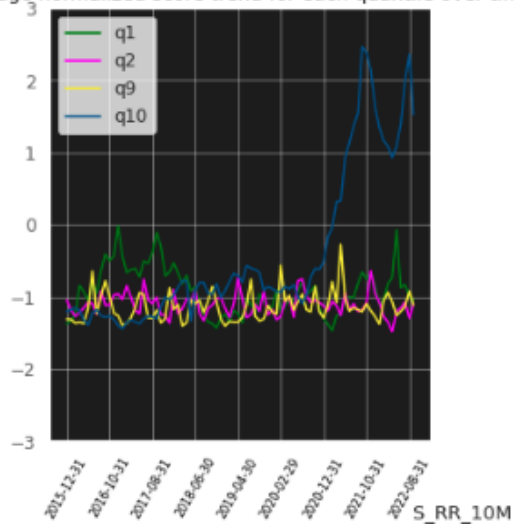
QuantilesS_RR_10M z_score(adj_ma_1m)
Average normalized score trend for each quantile over time



QuantilesS_RR_10M z_score(adj_ma_12m)
Average normalized score trend for each quantile over time



QuantilesS_RR_10M z_score(adj_ma_24m)
Average normalized score trend for each quantile over time



QuantilesS_RR_10M z_score(adj_ma_60m)
Average normalized score trend for each quantile over time

