

Database exists, assume schema does, too.

Seasonal Indexes

	03-31	06-30	09-30	12-31
0	Energy ETF	Information Technology ETF	Information Technology ETF	Information Technology ETF
1	Information Technology ETF	Consumer Discretionary ETF	Consumer Discretionary ETF	Financials ETF
2	Utilities ETF	Energy ETF	SP500	Materials ETF
3	SP1500	Materials ETF	Industrials ETF	SP600
4	Industrials ETF	SP1500	SP1500	Consumer Discretionary ETF
5	SP500	SP500	Health Care ETF	SP400
6	SP600	SP600	Utilities ETF	SP500
7	Health Care ETF	SP400	Consumer Staples ETF	SP1500
8	Consumer Staples ETF	Health Care ETF	Financials ETF	Health Care ETF
9	SP400	Communication Services ETF	Materials ETF	Consumer Staples ETF
10	Financials ETF	Real Estate ETF	Communication Services ETF	Energy ETF
11	Consumer Discretionary ETF	Financials ETF	SP400	Utilities ETF
12	Real Estate ETF	Industrials ETF	Real Estate ETF	Industrials ETF
13	Materials ETF	Consumer Staples ETF	SP600	Real Estate ETF
14	Communication Services ETF	Utilities ETF	Energy ETF	Communication Services ETF

	03-31	06-30	09-30	12-31
SP1500	-0.010622	0.081757	0.041626	0.049958
SP500	-0.011990	0.080771	0.045646	0.050086
SP600	-0.017768	0.080509	0.019158	0.057970
SP400	-0.019859	0.080174	0.020554	0.051549
Communication Services ETF	-0.032872	0.075995	0.022591	0.017899
Consumer Discretionary ETF	-0.021214	0.120254	0.052510	0.052777
Consumer Staples ETF	-0.018663	0.035480	0.034807	0.045915
Energy ETF	0.055913	0.096281	-0.039735	0.042416
Financials ETF	-0.020711	0.061049	0.030176	0.065446
Health Care ETF	-0.017923	0.078706	0.041045	0.047467
Industrials ETF	-0.011020	0.058300	0.045427	0.039920
Information Technology ETF	0.006217	0.121831	0.068693	0.067531
Materials ETF	-0.026671	0.082827	0.027940	0.058669
Real Estate ETF	-0.026416	0.075756	0.019424	0.038472
Utilities ETF	-0.001263	0.026125	0.039218	0.042001

Note if the final data in the prices ends on a quarter, this will aggregate into the seasonal_index above and there will be no comparison
Current

06-17

Energy ETF	-0.043815
Consumer Staples ETF	-0.096218
Utilities ETF	-0.125888
Health Care ETF	-0.134327
Materials ETF	-0.161041
SP600	-0.165794
Industrials ETF	-0.178228
SP1500	-0.184779
Financials ETF	-0.187815
SP500	-0.189930
Real Estate ETF	-0.190735
SP400	-0.192427
Communication Services ETF	-0.226489
Information Technology ETF	-0.232112
Consumer Discretionary ETF	-0.260025

standard deviations

	03-31	06-30	09-30	12-31
SP1500	0.134644	0.072380	0.037999	0.110320
SP500	0.127411	0.070450	0.039033	0.106496
SP600	0.199479	0.088447	0.037096	0.179394
SP400	0.157662	0.100224	0.037075	0.138781
Communication Services ETF	0.138244	0.095192	0.045269	0.123434
Consumer Discretionary ETF	0.151791	0.146922	0.083611	0.127243
Consumer Staples ETF	0.096633	0.035421	0.049261	0.063730
Energy ETF	0.369457	0.166709	0.099129	0.202483
Financials ETF	0.192299	0.053666	0.014462	0.140299
Health Care ETF	0.079810	0.054107	0.065798	0.098650
Industrials ETF	0.178470	0.072339	0.066050	0.134044
Information Technology ETF	0.135329	0.113409	0.054569	0.136753
Materials ETF	0.163483	0.099766	0.065317	0.127072
Real Estate ETF	0.161483	0.056090	0.032025	0.078165
Utilities ETF	0.092016	0.021473	0.033841	0.054883

t scores

	03-31	06-30	09-30	12-31
SP1500	-0.035281	0.505153	0.489908	0.202519
SP500	-0.042087	0.512730	0.522980	0.210329
SP600	-0.039834	0.407076	0.230960	0.144515
SP400	-0.056330	0.357747	0.247928	0.166115
Communication Services ETF	-0.106341	0.357027	0.223180	0.064848
Consumer Discretionary ETF	-0.062503	0.366041	0.280865	0.185493
Consumer Staples ETF	-0.086371	0.447954	0.315992	0.322196
Energy ETF	0.067680	0.258283	-0.179260	0.093682
Financials ETF	-0.048166	0.508740	0.933164	0.208614
Health Care ETF	-0.100433	0.650529	0.278976	0.215182
Industrials ETF	-0.027615	0.360421	0.307577	0.133187
Information Technology ETF	0.020546	0.480423	0.562966	0.220841
Materials ETF	-0.072960	0.371283	0.191302	0.206478
Real Estate ETF	-0.073157	0.604012	0.271246	0.220111
Utilities ETF	-0.006140	0.544116	0.518265	0.342246

p values

	03-31	06-30	09-30	12-31
SP1500	0.487036	0.675887	0.671106	0.573766
SP500	0.484537	0.678247	0.681422	0.576557
SP600	0.485364	0.644372	0.583899	0.552872
SP400	0.479310	0.627889	0.589904	0.560685
Communication Services ETF	0.461012	0.627646	0.581136	0.523813
Consumer Discretionary ETF	0.477047	0.630688	0.601465	0.567662
Consumer Staples ETF	0.468307	0.657720	0.613641	0.615774
Energy ETF	0.524851	0.593553	0.434579	0.534366
Financials ETF	0.482306	0.677006	0.790214	0.575945
Health Care ETF	0.463168	0.719135	0.600805	0.578288
Industrials ETF	0.489852	0.628793	0.610739	0.548761
Information Technology ETF	0.507551	0.668108	0.693606	0.580304
Materials ETF	0.473215	0.632451	0.569748	0.575182
Real Estate ETF	0.473143	0.705773	0.598102	0.580044
Utilities ETF	0.497743	0.687902	0.679964	0.622630

```
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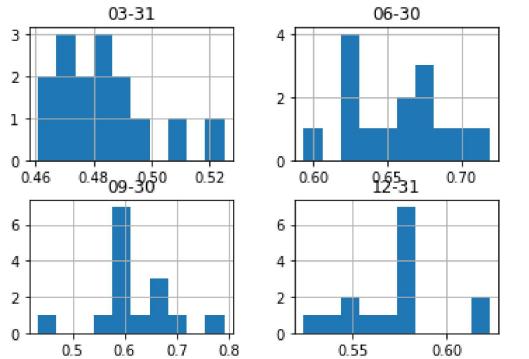
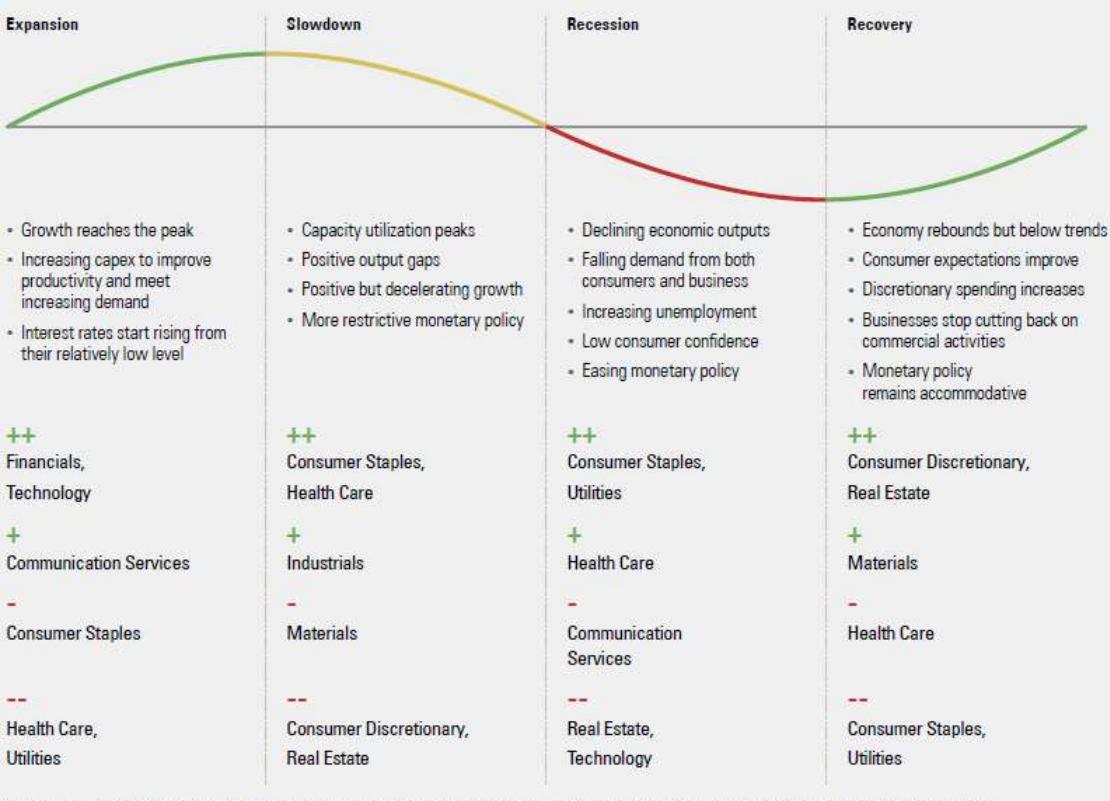


Figure 11: A Sector Roadmap for Business Cycles





Cycles

Strongest

Weakest

Expansion

Tech
Financials
Real Estate
Consumer D
Industrials
Materials
Energy
Healthcare
Cons. Staples
Utilities

Slowdown

Cons. Staples
Healthcare
Industrials
Utilities
Tech
Energy
Financials
Materials
Consumer D
Real Estate

Recession

Cons. Staples
Energy
Utilities
Healthcare
Consumer D
Materials
Industrials
Financials
Tech
Real Estate

Recovery

Real Estate
Consumer D
Materials
Tech
Industrials
Energy
Financials
Healthcare
Cons. Staples
Utilities

	Energy ETF	Consumer Staples ETF	Utilities ETF	Health Care ETF	Materials ETF	SP600	Industrials ETF	SP1500	Financials ETF	SP500	Real Estate ETF	SP400	Communication Services ETF	Information Technology ETF	Consumer Discretionary ETF
2017-03-31 00:00:00	nan	nan	nan	nan	nan	nan	nan	nan	nan	nan	nan	nan	nan	nan	nan
2017-06-30 00:00:00	-0.078709	0.010040	0.022113	0.072895	0.026999	0.018327	0.042167	0.030375	0.038955	0.030708	0.017375	0.031752	-0.024136	0.041388	0.028386
2017-09-30 00:00:00	0.069612	-0.012346	0.031518	0.040565	0.066617	0.064962	0.052781	0.044807	0.052789	0.045666	0.008095	0.035020	0.015498	0.083223	0.014521
2017-12-31 00:00:00	0.073946	0.059268	0.000687	0.018576	0.071798	0.038747	0.066175	0.066880	0.073683	0.069917	0.012742	0.074139	0.000763	0.093087	0.097848
2018-03-31 00:00:00	-0.078807	-0.073521	-0.033734	-0.020049	-0.072483	-0.011631	-0.033542	-0.021321	-0.015065	-0.024130	-0.086159	-0.003978	-0.085669	0.020711	-0.001942
2018-06-30 00:00:00	0.150528	0.006353	0.053422	0.055259	0.036210	0.106722	-0.008057	0.052094	-0.011331	0.047568	0.094633	0.045520	0.035862	0.080437	0.088528
2018-09-30 00:00:00	0.021911	0.050064	0.019751	0.137698	0.007338	0.032842	0.094874	0.070536	0.031675	0.078236	0.000044	0.032902	0.023115	0.117719	0.066008
2018-12-31 00:00:00	-0.267451	-0.055862	0.009925	-0.108129	-0.154310	-0.193040	-0.183620	-0.142834	-0.138848	-0.137319	-0.058855	-0.172165	-0.143117	-0.174415	-0.162070
2019-03-31 00:00:00	0.178564	0.111156	0.103055	0.081835	0.126958	0.124660	0.183161	0.151853	0.109942	0.144236	0.173365	0.157497	0.139541	0.217473	0.157197
2019-06-30 00:00:00	-0.048754	0.036556	0.035855	0.017469	0.040951	0.010843	0.034436	0.039106	0.067026	0.040369	0.015389	0.030815	0.035928	0.054745	0.040127
2019-09-30 00:00:00	-0.075658	0.056319	0.090872	-0.035439	-0.013089	-0.004200	0.004465	0.006291	0.013235	0.011423	0.075811	-0.009122	-0.002023	0.016115	0.002509
2019-12-31 00:00:00	0.054552	0.036517	0.002011	0.147851	0.066971	0.082573	0.058155	0.090490	0.096390	0.089876	0.005745	0.066590	0.086727	0.139034	0.056223
2020-03-31 00:00:00	-0.523877	-0.141472	-0.141270	-0.131539	-0.278876	-0.328050	-0.279339	-0.205302	-0.330709	-0.194477	-0.241350	-0.247693	-0.187109	-0.131215	-0.231167
2020-06-30 00:00:00	0.332245	0.094561	0.024507	0.164463	0.260712	0.223617	0.182339	0.206715	0.135641	0.201618	0.135399	0.259149	0.224230	0.318555	0.379795
2020-09-30 00:00:00	-0.188315	0.098022	0.051209	0.062281	0.120651	0.032878	0.118587	0.086119	0.028859	0.090383	0.013268	0.068091	0.097573	0.120087	0.192380
2020-12-31 00:00:00	0.300830	0.074374	0.073335	0.101111	0.172363	0.312278	0.178685	0.132216	0.253698	0.121185	0.092916	0.211458	0.182130	0.138205	0.172875
2021-03-31 00:00:00	0.324479	0.030385	0.031042	0.025327	0.105419	0.184526	0.116450	0.070761	0.165207	0.063518	0.087920	0.084662	0.083288	0.015110	0.073815
2021-06-30 00:00:00	0.126094	0.029888	-0.005272	0.083442	0.049264	0.043034	0.040613	0.080495	0.074954	0.083593	0.115985	0.033635	0.108092	0.114030	0.064435
2021-09-30 00:00:00	-0.026222	-0.018026	0.002739	0.000121	-0.041816	-0.030694	-0.043573	0.000378	0.024323	0.002523	-0.000098	-0.024123	-0.021207	0.006319	-0.012866
2021-12-31 00:00:00	0.050203	0.115277	0.124048	0.077925	0.136524	0.049293	0.080207	0.103038	0.042310	0.106772	0.139811	0.077726	-0.037011	0.141743	0.099010
2022-03-31 00:00:00	0.379204	-0.019862	0.034591	-0.045192	-0.014374	-0.058344	-0.041831	-0.049102	-0.032929	-0.049099	-0.065856	-0.089783	-0.114414	-0.090992	-0.103975
2022-06-17 00:00:00	-0.043815	-0.096218	-0.125888	-0.134327	-0.161041	-0.165794	-0.178228	-0.184779	-0.187815	-0.189930	-0.190735	-0.192427	-0.226489	-0.232112	-0.260025

	2017-03-31 00:00:00	2017-06-30 00:00:00	2017-09-30 00:00:00	2017-12-31 00:00:00	2018-03-31 00:00:00	2018-06-30 00:00:00	2018-09-30 00:00:00	2018-12-31 00:00:00	2019-03-31 00:00:00	2019-06-30 00:00:00	2019-09-30 00:00:00	2019-12-31 00:00:00	2020-03-31 00:00:00	2020-06-30 00:00:00	2020-09-30 00:00:00	2020-12-31 00:00:00	2021-03-31 00:00:00	2021-06-30 00:00:00	2021-09-30 00:00:00	2021-12-31 00:00:00	2022-03-31 00:00:00	2022-06-17 00:00:00		
0	Health Care ETF	Information Technology ETF	Consumer Discretionary ETF	Information Technology ETF	Energy ETF	Health Care ETF	Utilities ETF	Information Technology ETF	Financials ETF	Utilities ETF	Health Care ETF	Information Technology ETF	Consumer Discretionary ETF	Consumer Discretionary ETF	SP600	Energy ETF	Energy ETF	Financials ETF	Information Technology ETF	Energy ETF	Energy ETF	Energy ETF	Energy ETF	
	Industrials ETF	Energy ETF	Information Technology ETF	Consumer Discretionary ETF	SP600	Information Technology ETF	Consumer Staples ETF	Industrials ETF	Information Technology ETF	Real Estate ETF	Information Technology ETF	Health Care ETF	Energy ETF	Materials ETF	Energy ETF	SP600	Real Estate ETF	Information Technology ETF	Real Estate ETF	Utilities ETF	Consumer Staples ETF	Utilities ETF	Consumer Staples ETF	
	Information Technology ETF	Materials ETF	SP400	SP400	Real Estate ETF	Industrials ETF	Real Estate ETF	Energy ETF	Materials ETF	Consumer Staples ETF	Financials ETF	Utilities ETF	Information Technology ETF	Information Technology ETF	Financials ETF	Financials ETF	Information Technology ETF	Utilities ETF	Materials ETF	Materials ETF	Utilities ETF	Utilities ETF	Utilities ETF	
	Financials ETF	SP600	Energy ETF	SP600	Consumer Discretionary ETF	SP500	Health Care ETF	Real Estate ETF	SP500	Information Technology ETF	SP1500	Consumer Staples ETF	Materials ETF	Industrials ETF	SP400	Industrials ETF	Communication Services ETF	SP500	Utilities ETF	Consumer Staples ETF	Health Care ETF	SP500	Utilities ETF	Health Care ETF
	SP400	Financials ETF	Financials ETF	Financials ETF	Information Technology ETF	SP1500	SP500	SP400	Consumer Discretionary ETF	Financials ETF	SP500	Communication Services ETF	SP400	Consumer Staples ETF	Communication Services ETF	Materials ETF	SP500	SP1500	Consumer Staples ETF	Financials ETF	Materials ETF	Financials ETF	Materials ETF	Materials ETF
	SP500	Industrials ETF	Materials ETF	Health Care ETF	Health Care ETF	Consumer Discretionary ETF	Financials ETF	Consumer Discretionary ETF	SP1500	SP500	Communication Services ETF	SP500	Communication Services ETF	Communication Services ETF	Industrials ETF	Real Estate ETF	Health Care ETF	Health Care ETF	SP500	Industrials ETF	SP600	SP600	SP600	SP600
	SP1500	SP500	SP500	SP1500	Utilities ETF	Consumer Staples ETF	SP1500	SP1500	Consumer Staples ETF	SP1500	SP600	SP1500	SP600	SP500	Consumer Discretionary ETF	SP400	SP1500	Real Estate ETF	SP1500	SP1500	Health Care ETF	Industrials ETF	Industrials ETF	Industrials ETF
	Consumer Discretionary ETF	SP1500	SP1500	SP1500	SP500	SP1500	SP400	Communication Services ETF	SP500	Communication Services ETF	Industrials ETF	Materials ETF	Consumer Discretionary ETF	SP1500	SP1500	Materials ETF	Communication Services ETF	Financials ETF	Consumer Discretionary ETF	Consumer Discretionary ETF	SP500	SP500	SP500	SP500
	Materials ETF	Health Care ETF	Industrials ETF	Industrials ETF	SP500	SP600	Materials ETF	Communication Services ETF	Utilities ETF	Consumer Discretionary ETF	SP400	Real Estate ETF	SP500	SP400	Information Technology ETF	Consumer Discretionary ETF	Consumer Discretionary ETF	Consumer Staples ETF	Industrials ETF	SP1500	SP1500	Financials ETF	SP1500	Financials ETF
	Utilities ETF	SP400	Consumer Staples ETF	Utilities ETF	SP400	Financials ETF	Consumer Discretionary ETF	Materials ETF	Industrials ETF	Communication Services ETF	Industrials ETF	SP400	Industrials ETF	Health Care ETF	SP1500	SP1500	Materials ETF	Communication Services ETF	Health Care ETF	SP600	SP600	SP600	SP600	SP600
	SP600	Utilities ETF	SP600	Materials ETF	Materials ETF	Communication Services ETF	SP400	SP600	SP400	SP600	Consumer Discretionary ETF	Materials ETF	Health Care ETF	Utilities ETF	SP500	SP500	SP600	SP400	SP400	SP400	Real Estate ETF	Real Estate ETF	Real Estate ETF	Real Estate ETF
	Real Estate ETF	Communication Services ETF	Health Care ETF	Consumer Staples ETF	Communication Services ETF	Energy ETF	Information Technology ETF	Consumer Staples ETF	Health Care ETF	SP400	Energy ETF	Industrials ETF	Financials ETF	SP600	Health Care ETF	Utilities ETF	Utilities ETF	Industrials ETF	Energy ETF	Energy ETF	SP400	SP400	SP400	SP400
	Consumer Staples ETF	Consumer Discretionary ETF	Real Estate ETF	Energy ETF	Consumer Staples ETF	Utilities ETF	Industrials ETF	Financials ETF	Real Estate ETF	Materials ETF	Consumer Staples ETF	SP600	Real Estate ETF	Financials ETF	Real Estate ETF	Consumer Staples ETF	SP400	SP600	SP600	Information Technology ETF	Communication Services ETF	Information Technology ETF	Communication Services ETF	Communication Services ETF
	Communication Services ETF	Real Estate ETF	Communication Services ETF	Communication Services ETF	Industrials ETF	Materials ETF	SP600	Utilities ETF	SP600	Health Care ETF	Real Estate ETF	Financials ETF	Consumer Staples ETF	Real Estate ETF	Consumer Staples ETF	Health Care ETF	Consumer Staples ETF	Materials ETF	Financials ETF	Consumer Discretionary ETF	Information Technology ETF	Information Technology ETF	Information Technology ETF	Information Technology ETF
	Energy ETF	Consumer Staples ETF	Utilities ETF	Real Estate ETF	Financials ETF	Real Estate ETF	Energy ETF	Health Care ETF	Energy ETF	Energy ETF	Utilities ETF	Energy ETF	Utilities ETF	Energy ETF	Utilities ETF	Information Technology ETF	Utilities ETF	Industrials ETF	Communication Services ETF	Communication Services ETF	Communication Services ETF	Communication Services ETF	Communication Services ETF	Consumer Discretionary ETF

Comparative to Seasonal Indexes, tells you who is over or underperforming.

This is Seasonal Index - Extrapolated Current Quarter.

+: seasonal > current

-: current > seasonal

Note if the final data in the prices ends on a quarter, this will aggregate into the seasonal_index above and there will be no comparison

2022-06-17

Information Technology ETF	0.105318
Consumer Discretionary ETF	0.103945
Energy ETF	0.083099
Materials ETF	0.071426
SP1500	0.070498
SP500	0.069644
SP600	0.069416
SP400	0.069126
Health Care ETF	0.067854
Communication Services ETF	0.065505
Real Estate ETF	0.065298
Financials ETF	0.052571
Industrials ETF	0.050194
Consumer Staples ETF	0.030500
Utilities ETF	0.022444

	2017-03-31 00:00:00	2017-06-30 00:00:00	2017-09-30 00:00:00	2017-12-31 00:00:00	2018-03-31 00:00:00	2018-06-30 00:00:00	2018-09-30 00:00:00	2018-12-31 00:00:00	2019-03-31 00:00:00	2019-06-30 00:00:00	2019-09-30 00:00:00	2019-12-31 00:00:00	2020-03-31 00:00:00	2020-06-30 00:00:00	2020-09-30 00:00:00	2020-12-31 00:00:00	2021-03-31 00:00:00	2021-06-30 00:00:00	2021-09-30 00:00:00	2021-12-31 00:00:00	2022-03-31 00:00:00	2022-06-17 00:00:00
0	Utilities ETF	Energy ETF	Consumer Discretionary ETF	Consumer Discretionary ETF	Energy ETF	Health Care ETF	Utilities ETF	Information Technology ETF	Utilities ETF	Real Estate ETF	Health Care ETF	Health Care ETF	Consumer Discretionary ETF	Consumer Discretionary ETF	Energy ETF	Energy ETF	Real Estate ETF	Energy ETF	Real Estate ETF	Energy ETF	Energy ETF	Information Technology ETF
	Health Care ETF	SP600	Energy ETF	SP400	Utilities ETF	Energy ETF	Real Estate ETF	Real Estate ETF	Financials ETF	Utilities ETF	Information Technology ETF	Consumer Staples ETF	Energy ETF	Materials ETF	SP600	SP600	Communication Services ETF	Financials ETF	Utilities ETF	Utilities ETF	Utilities ETF	Consumer Discretionary ETF
	Industrials ETF	Materials ETF	Industrials ETF	Information Technology ETF	SP600	Industrials ETF	Consumer Staples ETF	Industrials ETF	Consumer Staples ETF	Consumer Staples ETF	Communication Services ETF	Information Technology ETF	Information Technology ETF	Communication Services ETF	Financials ETF	Financials ETF	Energy ETF	Real Estate ETF	Materials ETF	Materials ETF	Energy ETF	Energy ETF
	Financials ETF	Financials ETF	Information Technology ETF	SP600	Real Estate ETF	Information Technology ETF	Health Care ETF	Consumer Discretionary ETF	Industrials ETF	Financials ETF	SP1500	Utilities ETF	SP400	Industrials ETF	Communication Services ETF	Materials ETF	Financials ETF	Utilities ETF	Information Technology ETF	Consumer Staples ETF	Materials ETF	Materials ETF
	Consumer Staples ETF	Information Technology ETF	SP400	Financials ETF	Health Care ETF	SP500	Communication Services ETF	SP400	Communication Services ETF	SP600	SP500	Communication Services ETF	Materials ETF	Consumer Staples ETF	SP400	Industrials ETF	Health Care ETF	Health Care ETF	Consumer Staples ETF	Financials ETF	SP1500	
	SP400	SP400	SP500	Health Care ETF	Consumer Staples ETF	SP1500	SP500	Communication Services ETF	SP500	Communication Services ETF	SP500	Financials ETF	SP500	Communication Services ETF	Information Technology ETF	Industrials ETF	Communication Services ETF	SP500	SP1500	SP500	Health Care ETF	SP500
	SP500	Industrials ETF	SP1500	SP1500	SP1500	SP1500	Consumer Staples ETF	SP1500	SP1500	Materials ETF	SP400	SP600	SP1500	SP400	Consumer Discretionary ETF	Real Estate ETF	SP1500	SP500	SP1500	Industrials ETF	SP600	
	SP1500	SP1500	Consumer Staples ETF	SP500	Consumer Discretionary ETF	SP600	Financials ETF	SP500	SP1500	SP500	Industrials ETF	SP1500	SP500	SP500	Materials ETF	SP400	Consumer Staples ETF	Communication Services ETF	Consumer Discretionary ETF	SP500	SP400	
	Materials ETF	SP500	Materials ETF	Industrials ETF	SP500	Consumer Discretionary ETF	Materials ETF	Materials ETF	SP400	SP1500	SP400	SP400	Real Estate ETF	Industrials ETF	SP1500	SP1500	Consumer Discretionary ETF	Information Technology ETF	SP400	Industrials ETF	SP1500	Health Care ETF
	Real Estate ETF	Health Care ETF	Financials ETF	Utilities ETF	SP400	SP400	Consumer Discretionary ETF	SP600	Real Estate ETF	Energy ETF	Energy ETF	SP400	SP500	Health Care ETF	SP500	SP500	SP1500	Industrials ETF	SP600	Health Care ETF	Real Estate ETF	Communication Services ETF
	SP600	Communication Services ETF	Communication Services ETF	Materials ETF	Communication Services ETF	Financials ETF	Industrials ETF	Financials ETF	Health Care ETF	Industrials ETF	Materials ETF	Materials ETF	Health Care ETF	SP600	Information Technology ETF	SP500	Utilities ETF	Consumer Staples ETF	SP400	SP600	Real Estate ETF	
	Information Technology ETF	Utilities ETF	SP600	Communication Services ETF	Information Technology ETF	Communication Services ETF	SP400	Consumer Staples ETF	Information Technology ETF	Materials ETF	Consumer Discretionary ETF	Industrials ETF	Financials ETF	Utilities ETF	Real Estate ETF	Consumer Staples ETF	Materials ETF	Information Technology ETF	Energy ETF	SP400	Financials ETF	
	Consumer Discretionary ETF	Real Estate ETF	Real Estate ETF	Consumer Staples ETF	Materials ETF	Real Estate ETF	Information Technology ETF	Energy ETF	SP600	Consumer Discretionary ETF	Consumer Staples ETF	Financials ETF	Real Estate ETF	Financials ETF	Health Care ETF	Health Care ETF	SP600	Consumer Discretionary ETF	SP600	Communication Services ETF	Industrials ETF	
	Communication Services ETF	Consumer Discretionary ETF	Health Care ETF	Real Estate ETF	Industrials ETF	Utilities ETF	SP600	Utilities ETF	Consumer Discretionary ETF	Information Technology ETF	Real Estate ETF	SP600	Consumer Staples ETF	Real Estate ETF	Utilities ETF	Utilities ETF	SP400	Materials ETF	Financials ETF	Consumer Discretionary ETF	Consumer Staples ETF	
	Energy ETF	Consumer Staples ETF	Utilities ETF	Energy ETF	Financials ETF	Materials ETF	Energy ETF	Health Care ETF	Energy ETF	Health Care ETF	Utilities ETF	Energy ETF	Utilities ETF	Energy ETF	Consumer Staples ETF	Information Technology ETF	Industrial ETF	Communication Services ETF	Information Technology ETF	Utilities ETF		

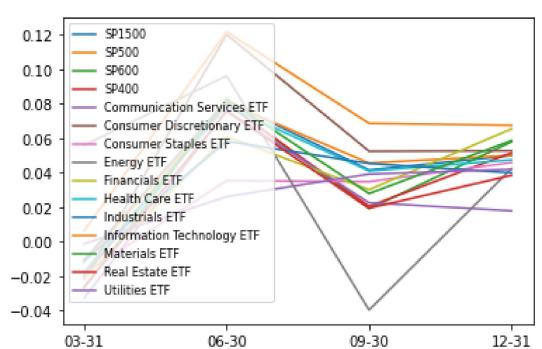
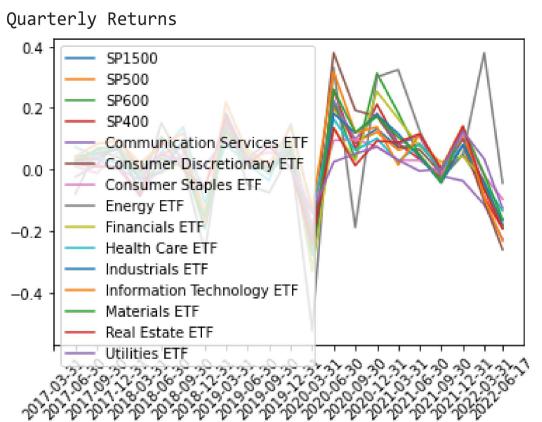
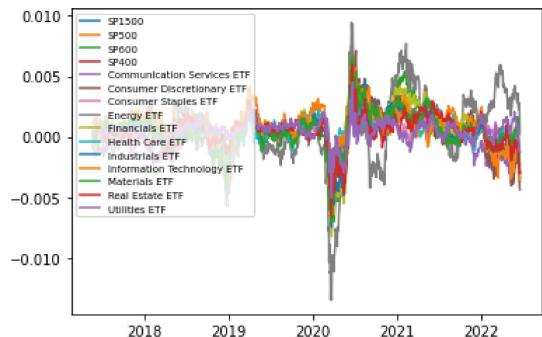
Index Symbol risk_trend_factor

0	SP500	SPY	-3.791861
1	SP1500	SPTM	-3.879022
2	SP400	MDYG	-5.134573
3	SP600	SLY	-5.242200

Symbol risk_trend_factor Sector

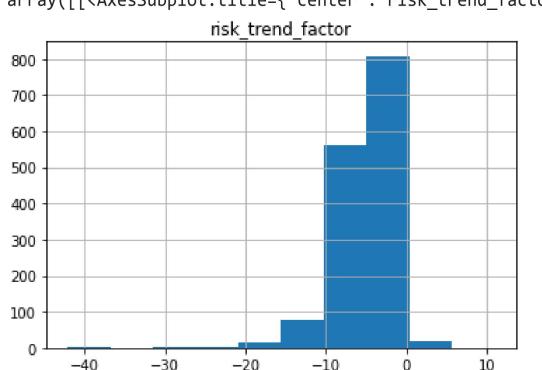
3	VDE	-0.123306	Energy ETF
2	VDC	-2.283970	Consumer Staples ETF
10	VPU	-2.520459	Utilities ETF
9	VNQ	-3.053370	Real Estate ETF
8	VAW	-3.165271	Materials ETF
5	VHT	-3.323632	Health Care ETF
6	VIS	-4.514668	Industrials ETF
4	VFH	-4.617891	Financials ETF
1	VCR	-4.721407	Consumer Discretionary ETF
7	VGT	-4.954472	Information Technology ETF
0	VOX	-8.783598	Communication Services ETF

Rolling Quarterly Mean Return



0.051078501531639196

```
array([[[<AxesSubplot:title={'center':'risk_trend_factor'}>]], dtype=object)
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```
Index(['Open', 'High', 'Low', 'Close', 'Adj Close', 'Volume', 'Symbol',
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       'MIN_Lookback_1_Months', 'trailing_1yr_min', 'supply_trend_1yr',
       'supply_trend_60d', 'supply_trend_30d', 'trailing_60d_max',
       'trailing_60d_min', 'trailing_30d_max', 'trailing_30d_min', '90dSMA',
       '90dSDDev', 'TP', '21dstdTP', '21dMA-TP', '21dBOLU', '21dBOLD',
       'trailing_risk_40d_max', 'trailing_risk_40d_min', 'risk_per_share',
       '30d_vol', '30d_vol_2yr', 'volume_factor', '1YMF', 'risk_trend_factor'],
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1520

```

Index(['Symbol', 'max_2y', 'min_2y', 'std_2y', 'mean_2y', 'max_1y', 'min_1y',
       'std_1y', 'mean_1y', 'latest_p', '2yr_close_0pct', '2yr_close_2pct',
       '2yr_close_9pct', '2yr_close_25pct', '2yr_close_50pct',
       '2yr_close_75pct', '2yr_close_91pct', '2yr_close_98pct',
       '2yr_close_100pct', '1yr_close_0pct', '1yr_close_2pct',
       '1yr_close_9pct', '1yr_close_25pct', '1yr_close_50pct',
       '2yr_close_75pct', '1yr_close_91pct', '1yr_close_98pct',
       '1yr_close_100pct', 'risk_trend_factor', 'supply_trend_1yr',
       'supply_trend_60d', 'supply_trend_30d', 'vol_30d_2yr', 'pct_1yr',
       'pct_2yr', 'MIN_Lookback_One_Year', 'MIN_Lookback_2_Months',
       'MIN_Lookback_1_Months', 'vol_30d', 'volume_factor', 'adf', 'hurst',
       '1YMF', 'Market Index', 'Sector'],
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```

	latest_p	MIN_Lookback_One_Year	MIN_Lookback_2_Months	MIN_Lookback_1_Months	risk_trend_factor	volume_factor	adf	hurst	Sector	Market Index	index	index_Symbol
Symbol												
ACC	64.230003	49.209999	65.019997	65.019997	10.926848	2.134689	0.978004	0.420279	Real Estate	SP400	NaN	NaN
MTOR	35.939999	32.93	36.279999	36.279999	5.065223	1.664475	0.319063	0.43585	error	SP600	NaN	NaN
TVTY	32.130001	27.870001	32.889999	32.889999	2.341879	1.643789	0.518794	0.448871	error	SP600	NaN	NaN
BANF	94.860001	77.379997	86.82	86.82	2.011991	1.135864	0.955166	0.536352	error	SP600	NaN	NaN
Y	830.5	737.890015	862.869995	862.869995	1.771776	1.56538	0.382688	0.459685	Financial Services	SP400	NaN	NaN
...
ODFL	NaN	NaN	NaN	NaN	NaN	-5.178995	NaN	NaN	Industrials	NaN	SP500	SPY
EW	NaN	NaN	NaN	NaN	NaN	-2.677285	NaN	NaN	Healthcare	NaN	SP500	SPY
PCRX	NaN	NaN	NaN	NaN	NaN	-2.849253	NaN	NaN	Healthcare	NaN	SP600	SLY
CBOE	NaN	NaN	NaN	NaN	NaN	-4.539896	NaN	NaN	Financial Services	NaN	SP500	SPY
PCAR	NaN	NaN	NaN	NaN	NaN	-4.010257	NaN	NaN	Industrials	NaN	SP500	SPY

1555 rows × 12 columns

0.975

temp_sm

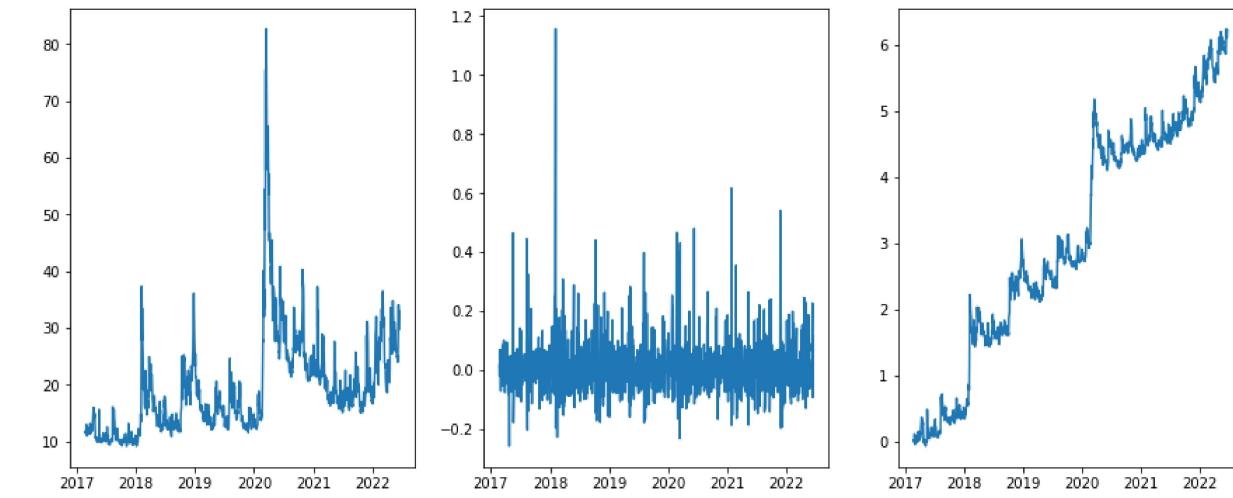
	index	MIN_Lookback_One_Year	MIN_Lookback_2_Months	MIN_Lookback_1_Months	risk_trend_factor	volume_factor
Symbol						
A	2022-06-17	147.679993	179.570007	179.570007	-9.088903	1.131711
AA	2022-06-17	44.419998	98.089996	98.089996	-3.704472	0.98632
AAL	2022-06-17	22.549999	22.549999	22.549999	-3.126898	0.707794
AAN	2022-06-17	NaN	35.439999	35.439999	NaN	NaN
AAON	2022-06-17	81.25	83.790001	83.790001	-10.22921	1.041044
...
ZIMV	2022-06-17	NaN	NaN	NaN	NaN	NaN
ZION	2022-06-17	60.650002	75.440002	75.440002	-4.600841	0.978199
ZTS	2022-06-17	187.320007	249.270004	249.270004	-6.71488	1.095466
ZUMZ	2022-06-17	50.060001	55.099998	55.099998	-5.921479	1.674903
ZYXI	2022-06-17	16.263636	16.263636	16.263636	-10.695845	0.673641

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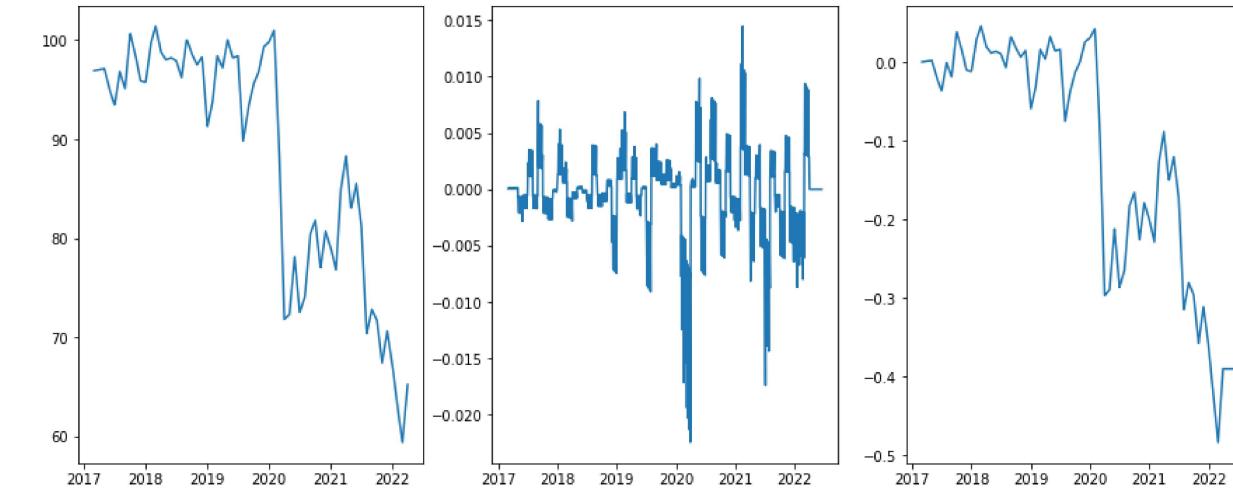
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Index(['risk_trend_factor', 'Sector', 'index', 'index_Symbol'], dtype='object')
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	MIN_Lookback_One_Year	MIN_Lookback_2_Months	MIN_Lookback_1_Months	risk_trend_factor	volume_factor	index	sector	sector_risk_trend_factor	index	Sector
Symbol										
ACC	49.209999	65.019997	65.019997	10.926848	2.134689	VNQ	MDYG	-3.05337	SP400	Real Estate
MTOR	32.93	36.279999	36.279999	5.065223	1.664475	error	SLY	error	SP600	error
TVTY	27.870001	32.889999	32.889999	2.341879	1.643789	error	SLY	error	SP600	error
BANF	77.379997	86.82	86.82	2.011991	1.135864	error	SLY	error	SP600	error
Y	737.890015	862.869995	862.869995	1.771776	1.56538	VFH	MDYG	-4.617891	SP400	Financial Services
SAFM	177.479996	200.0	200.0	1.751569	1.334104	VDC	MDYG	-2.28397	SP400	Consumer Defensive
SJI	29.24	35.32	35.32	1.295238	0.791297	error	SLY	error	SP600	error
LNTH	25.790001	64.139999	69.738998	1.178774	1.823238	VHT	SLY	-3.323632	SP600	Healthcare
ROG	206.130005	274.51001	274.51001	1.068804	0.980653	error	SLY	error	SP600	error
TWI	11.82	15.77	18.889999	0.931088	1.389288	VIS	SLY	-4.514668	SP600	Industrials
PBF	18.780001	30.129999	32.41	0.887657	0.835417	VDE	SLY	-0.123306	SP600	Energy
GO	36.77	36.77	37.82	0.842135	1.191531	VDC	MDYG	-2.28397	SP400	Consumer Defensive
HRB	26.23	28.17	34.959999	0.731411	0.963511	VCR	MDYG	-4.721407	SP400	Consumer Cyclical
AZPN	162.559998	169.220001	191.460007	0.719312	0.677612	VGT	MDYG	-4.954472	SP400	Technology
CEIX	18.93	50.389999	55.259998	0.677246	1.548727	VDE	SLY	-0.123306	SP600	Energy
PSB	165.850006	189.229996	189.830002	0.57675	2.540601	error	MDYG	error	SP400	error
MCK	204.660004	333.440002	339.940002	0.573819	1.048139	VHT	SPY	-3.323632	SP500	Healthcare
GCP	27.780001	32.279999	32.279999	0.502796	1.87078	error	SLY	error	SP600	error
WRB	54.953335	71.269997	71.529999	0.374885	1.220256	VFH	SPY	-4.617891	SP500	Financial Services
FCN	147.380005	167.279999	170.649994	0.359043	0.694756	error	MDYG	error	SP400	error
XOM	64.800003	91.510002	92.919998	0.347413	1.153813	VDE	SPY	-0.123306	SP500	Energy
MANT	92.0	92.0	94.730003	0.320637	2.782348	VGT	SLY	-4.954472	SP600	Technology
SM	24.780001	43.689999	43.689999	0.305033	0.640686	VDE	SLY	-0.123306	SP600	Energy
DINO	39.389999	40.950001	48.290001	0.269915	1.094012	VDE	MDYG	-0.123306	SP400	Energy
PLAB	14.56	20.299999	20.299999	0.264129	2.163783	VGT	SLY	-4.954472	SP600	Technology
MPC	64.839996	91.879997	98.290001	0.209274	1.221452	VDE	SPY	-0.123306	SP500	Energy
LLY	235.850006	314.0	314.0	0.187301	0.967658	VHT	SPY	-3.323632	SP500	Healthcare
VLO	84.949997	111.519997	131.690002	0.182835	1.3872	VDE	SPY	-0.123306	SP500	Energy
APA	24.299999	45.220001	45.27	0.181301	0.999608	VDE	SPY	-0.123306	SP500	Energy
PPC	26.280001	29.700001	30.559999	0.177885	1.275425	VDC	MDYG	-2.28397	SP400	Consumer Defensive
MRO	14.16	27.719999	29.0	0.151107	1.000459	VDE	SPY	-0.123306	SP500	Energy
DVN	31.99	64.980003	73.18	0.148782	1.104104	VDE	SPY	-0.123306	SP500	Energy
UTHR	212.619995	218.380005	218.380005	0.139402	1.481235	VHT	MDYG	-3.323632	SP400	Healthcare
VIVO	27.450001	28.719999	28.719999	0.109712	0.591657	error	SLY	error	SP600	error
ROCC	25.59	42.66	42.66	0.108216	1.213679	VDE	SLY	-0.123306	SP600	Energy
COP	61.779999	107.519997	108.300003	0.10252	0.95084	VDE	SPY	-0.123306	SP500	Energy
OXY	32.52	63.240002	69.169998	0.093736	1.190976	VDE	SPY	-0.123306	SP500	Energy
MGPI	76.68	97.610001	104.0	0.074244	1.204144	error	SLY	error	SP600	error

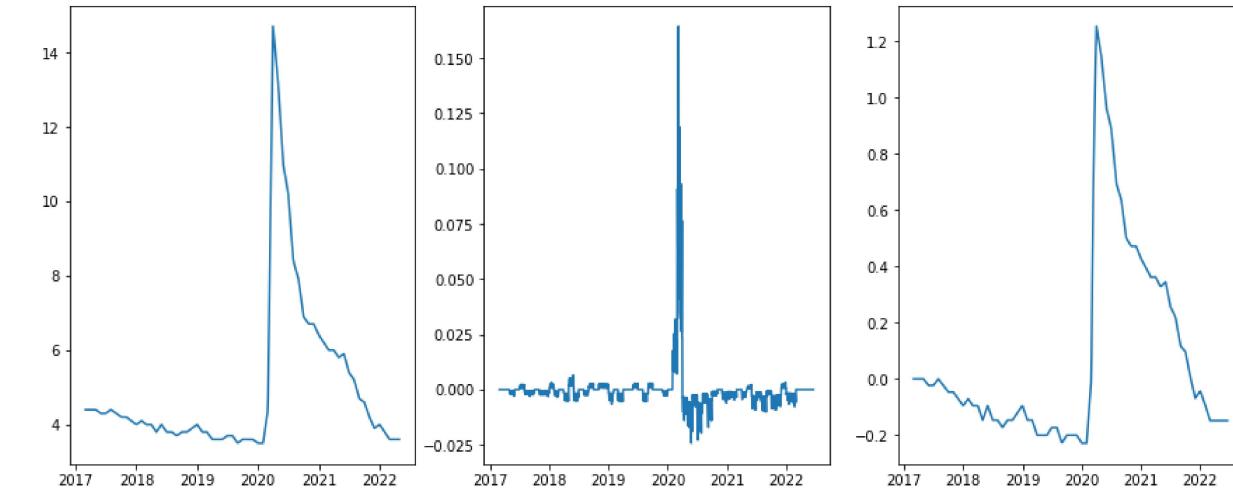
nominal, pct_change, pct_change().cumsum
Market volatility



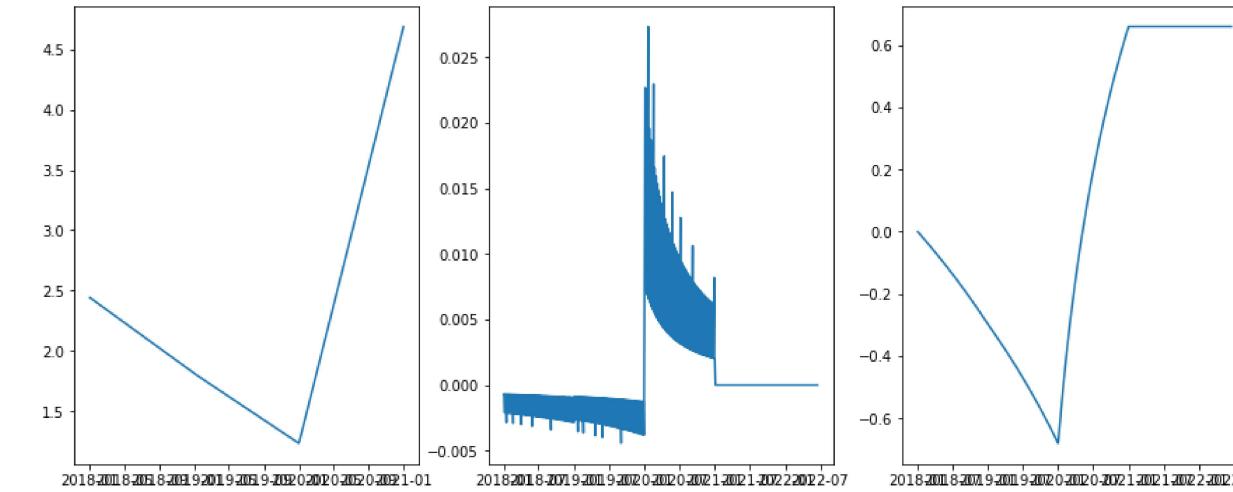
Consumer Confidence

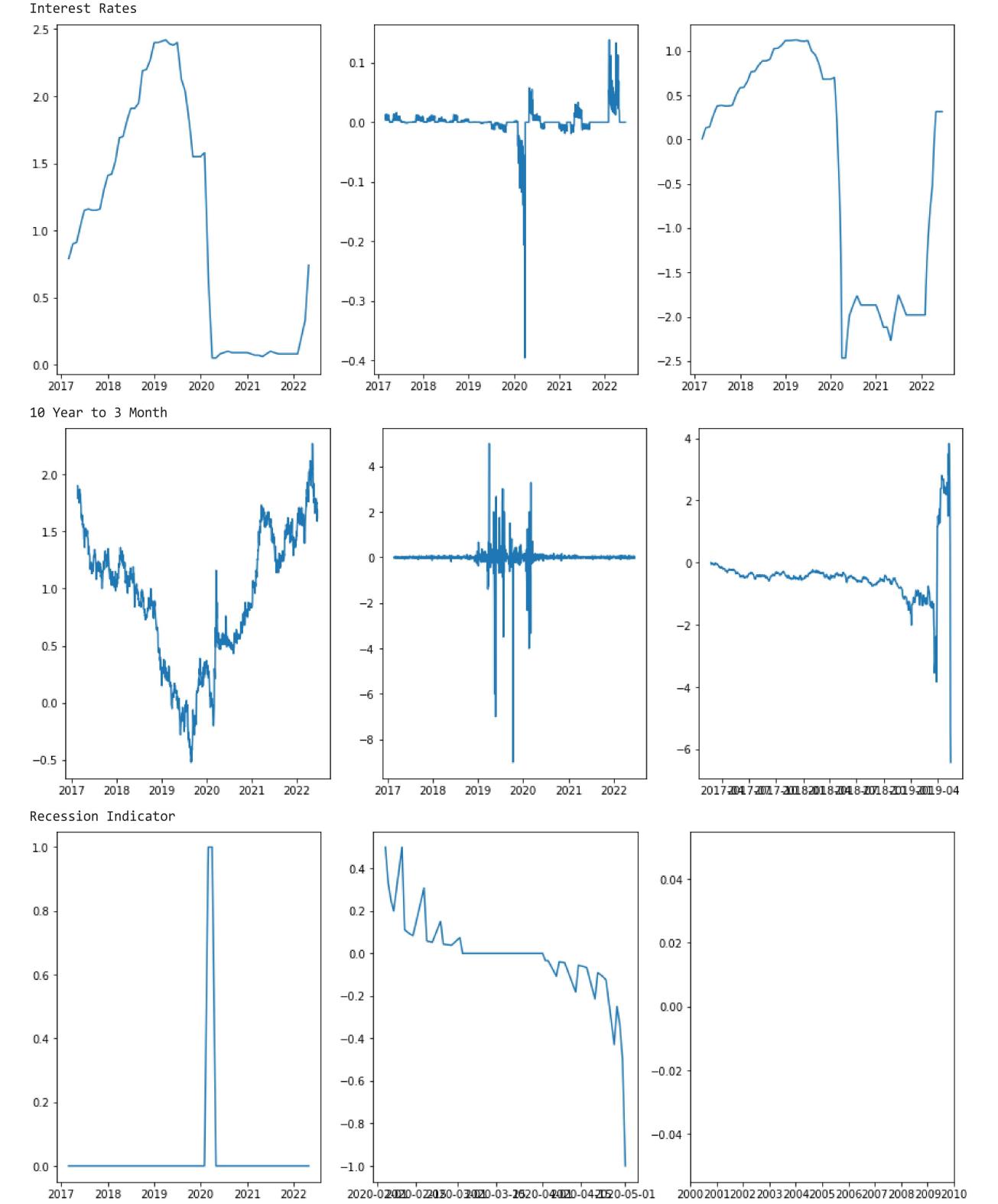


Unemployment



Inflation





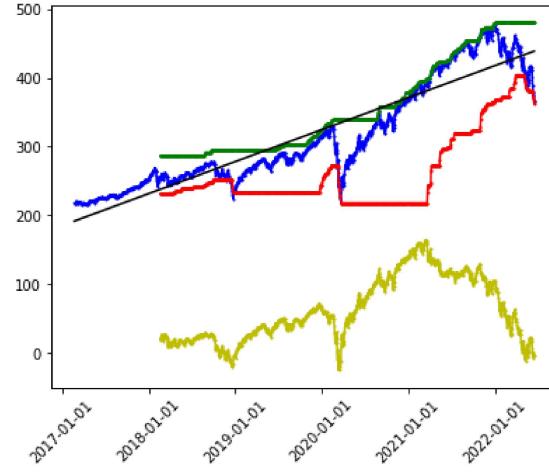
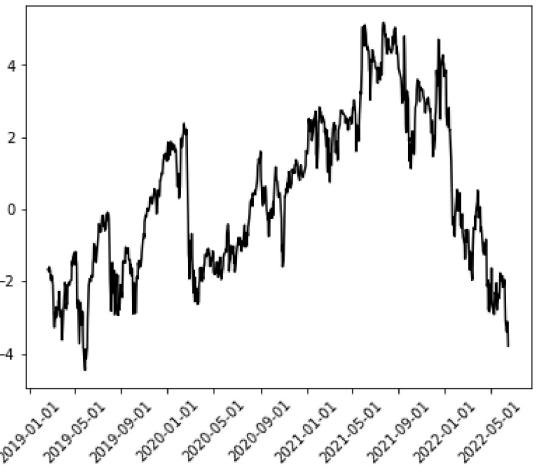
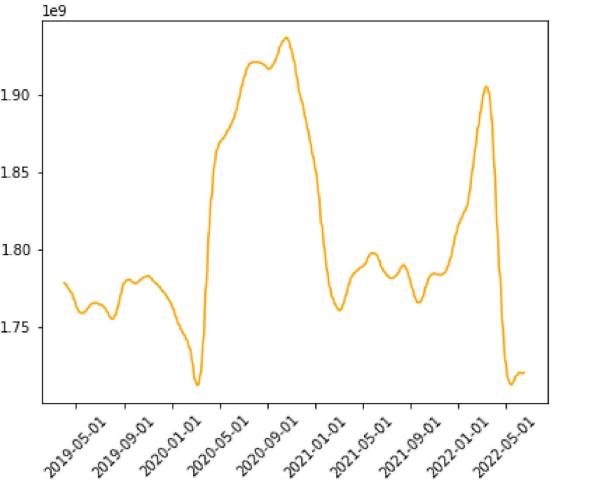
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adf < .05 or .01, mean reverting
Hurst
> .5 - The time series is mean reverting.
= .5 - The time series is a Geometric Brownian Motion.
< .5 - The time series is trending.
symbol: SPY
sector: error
sector: error
Index: SP500
vol_30d_2yr: 1719938470.5078125
Sector 1YMF: -287.8400573730469
1YMF: -287.8400573730469
risk trend factor: -3.791860877423899
    totalAssets   trailingPE
SPY  3.781762e+11      3.819317

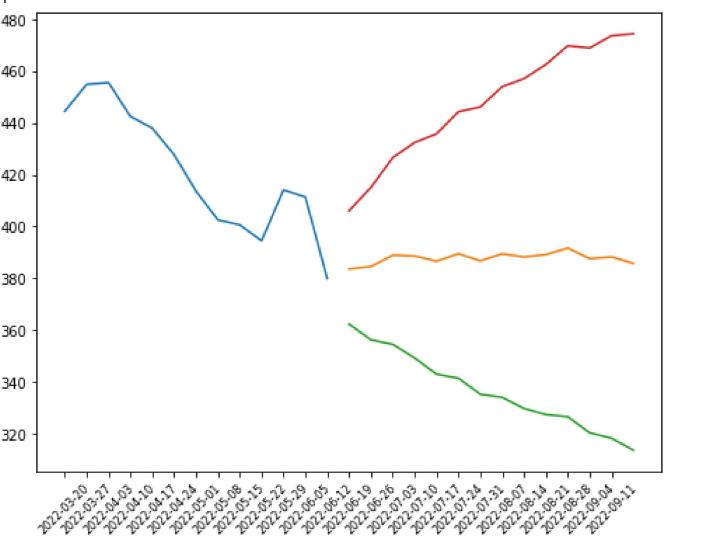
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	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	365.859985	364.518828	396.470318	428.421808	419.420001	25.514981	368.390039	470.449963

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
SPY	1.183517	365.859985	1719938470.507812	0.369677	0.658465	0.422658
	I axis	r axis				
	legend	legend				
blue	symbol	magenta	sector			
green	trailing_1yr_max	cyan	index			
red	trailing_1yr_min					
orange	30d_vol_2yr					
black	risk_trend_factor/linear					
yellow	supply_trend_1yr					



ets next 13 weeks
inner cv scores:
best model: ['add', 'add', True]
best inner cv score, sdev (11 folds): 955.5530380098148 1191.7433986704013
test cv mean error, stdev (10 folds): 1006.6410231755444 1238.3800061175375
sell date: 2022-08-28
expected return: 0.07058189734213904
discounted return: 0.0009610577166867529
quarter return: 1.0923975305788942



['options', ('2022-06-30', '2022-09-16', '2022-09-30', '2022-12-16', '2023-01-20', '2023-03-17', '2023-06-16', '2023-12-15', '2024-01-19', '2024-12-20')]

symbol: SPTM

sector: error

sector: error

Index: SP1500

vol_30d_2yr: 10189559.1796875

Sector 1YMF: -34.95000076293945

1YMF: -34.95000076293945

risk trend factor: -3.8790224724143685

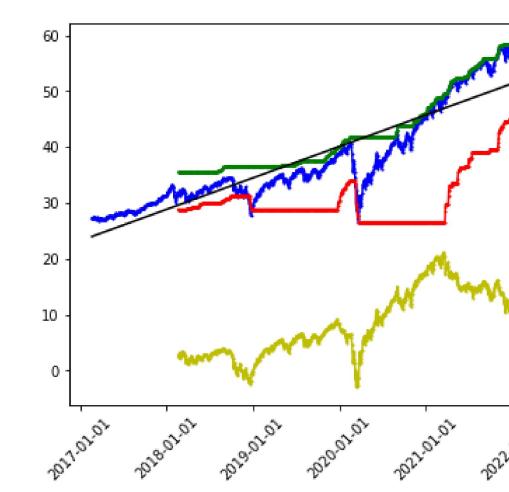
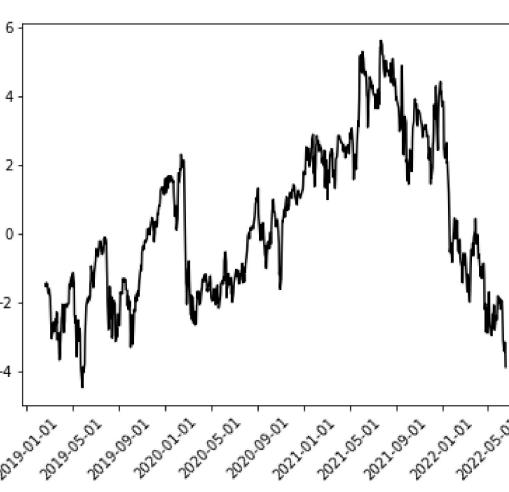
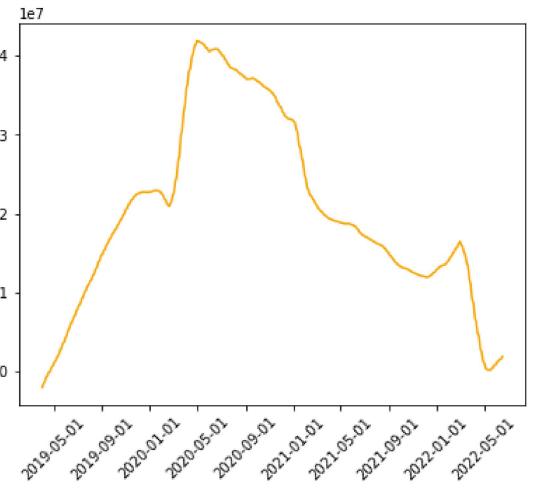
totalAssets

SPTM 5.538233e+09

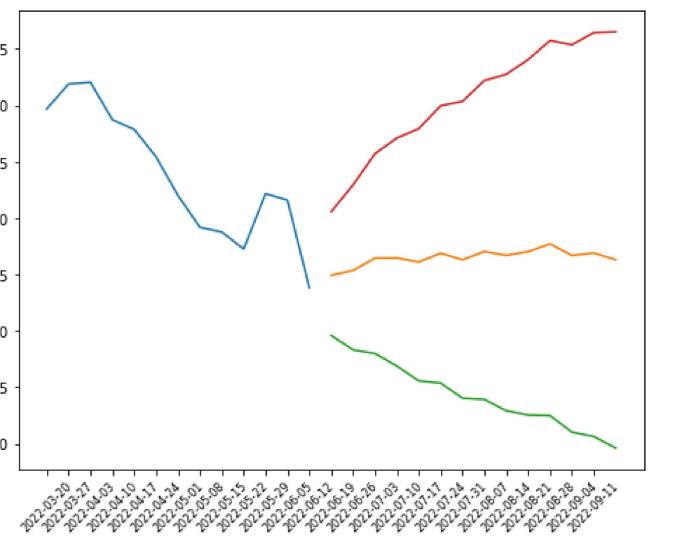
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	45.310001	44.984943	48.919841	52.854739	51.683968	3.088065	45.507837	57.860099

volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
SPTM	1.653055	45.310001	10189559.179688	0.388272	0.658826	0.429487

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		



sets next 13 weeks
 inner cv scores:
 best model: ['add', None]
 best inner cv score, sdev (11 folds): 14.216913910760638 16.99929371054808
 test cv mean error, stdev (10 folds): 15.009608201431117 17.634103163229298
 sell date: 2022-08-28
 expected return: 0.07826007110730726
 discounted return: 0.0010618125740489148
 quarter return: 1.1025602010577402



symbol: MDYG
 sector: error
 sector: error
 Index: SP400
 vol_30d_2yr: 4938966.40625
 Sector 1YMF: -69.05999755859375
 1YMF: -69.05999755859375
 risk trend factor: -5.134573474205833
 Empty DataFrame
 Columns: []
 Index: [MDYG]

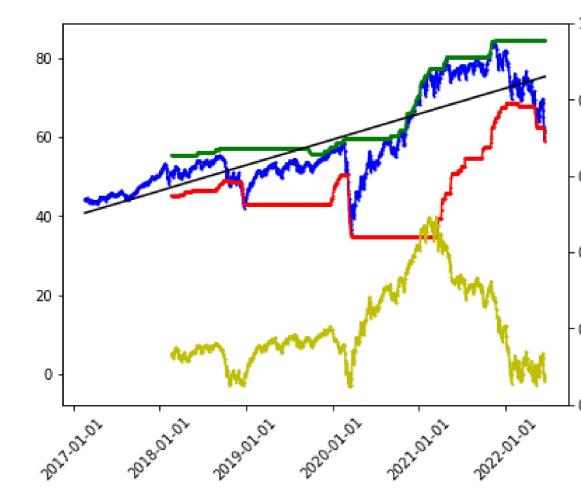
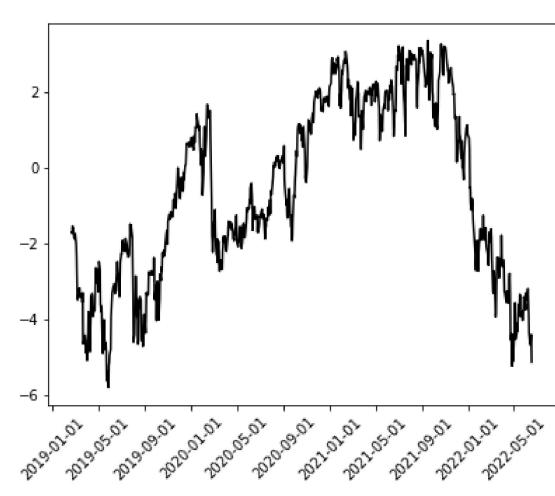
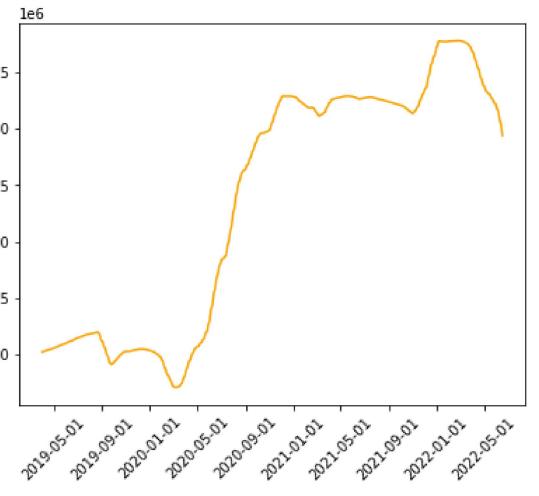
Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
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2022-06-17	59.93	59.511554	65.413016	71.314478	69.046349	4.323319	60.399712	77.692987
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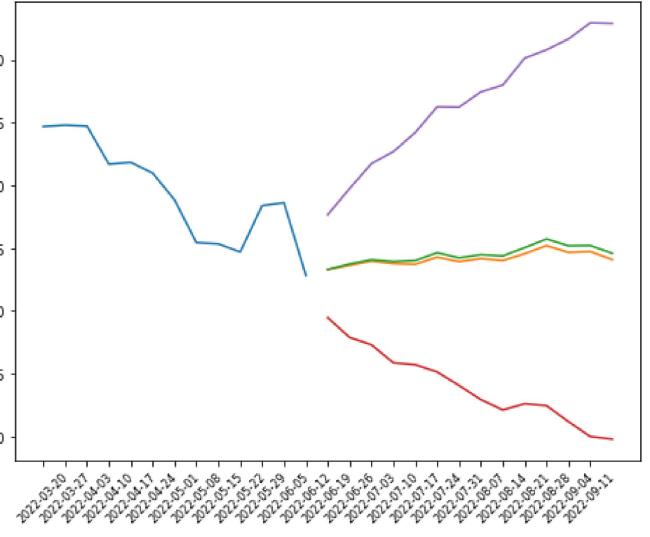
volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
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MDYG	0.576598	59.93	4938966.40625	0.256027	0.494117	0.451147
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l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		



ets next 13 weeks
inner cv scores:
best model: ['add', 'mul', True]
best inner cv score, sdev (11 folds): 63.12940057605013 122.8158975223343
test cv mean error, stdev (10 folds): 68.7769682058603 127.44125678814828
sell date: 2022-08-28
expected return: 0.08795996029825129
discounted return: 0.001188090383676288
quarter return: 1.115429391183908



symbol: SLY
sector: error
sector: error
Index: SP600
vol_30d_2yr: 1808137.109375
Sector 1YMF: -77.27001953125
1YMF: -77.27001953125
risk trend factor: -5.242200185196592
Empty DataFrame
Columns: []
Index: [SLY]

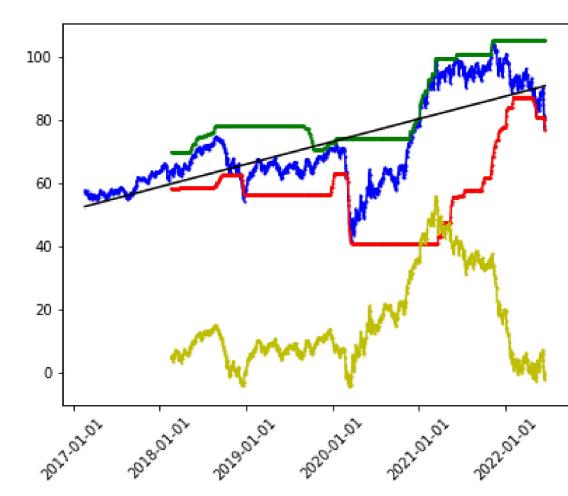
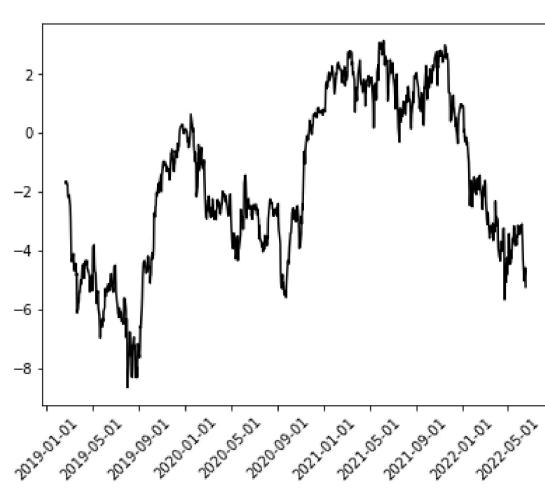
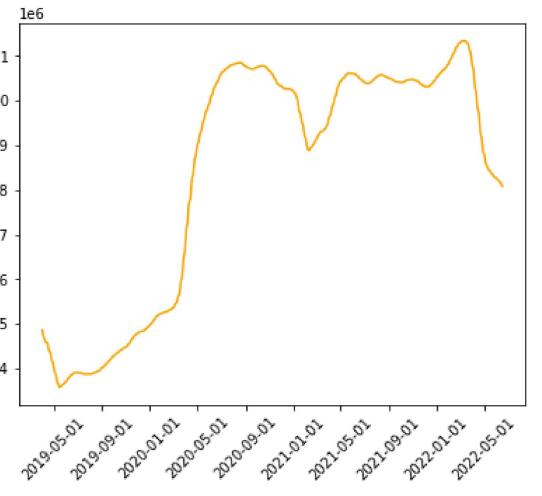
Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper

2022-06-17 78.089996 78.068302 85.071269 92.074236 88.226349 4.474948 79.276452 97.176246

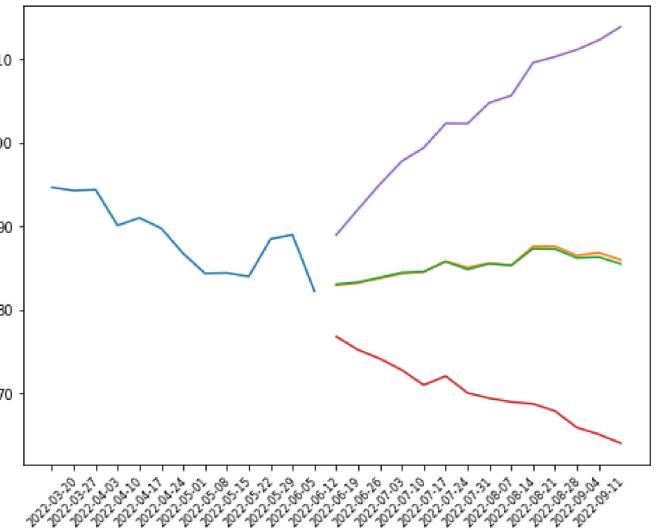
volume_factor latest_p vol_30d_2yr pct_2yr adf hurst

SLY 1.23276 78.089996 1808137.109375 0.449524 0.532018 0.51304

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		



ets next 13 weeks
 inner cv scores:
 best model: ['mul', 'add', False]
 best inner cv score, sdev (11 folds): 103.79480906546087 141.07842997596458
 test cv mean error, stdev (10 folds): 112.11692332120931 145.36713007164084
 sell date: 2022-08-28
 expected return: 0.12123340538683379
 discounted return: 0.0016129802185542719
 quarter return: 1.1598313773583642



symbol: VDE
 sector: error
 sector: Energy
 Index: nan
 vol_30d_2yr: 25785341.015625
 Sector 1YMF: -3.82000732421875
 1YMF: -3.82000732421875
 risk trend factor: -0.12330558135216596
 totalAssets trailingPE
 VDE 1.106882e+10 8.493072

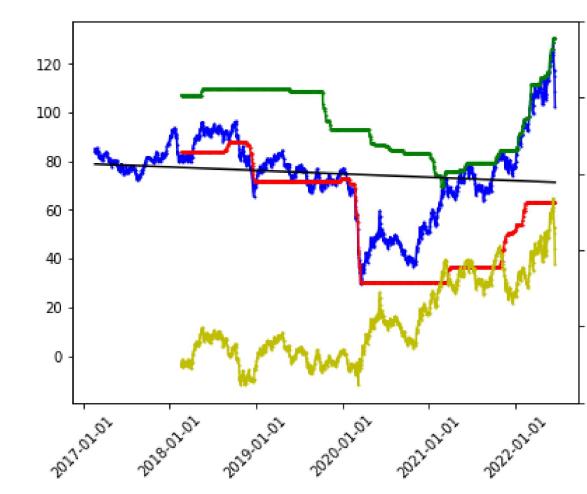
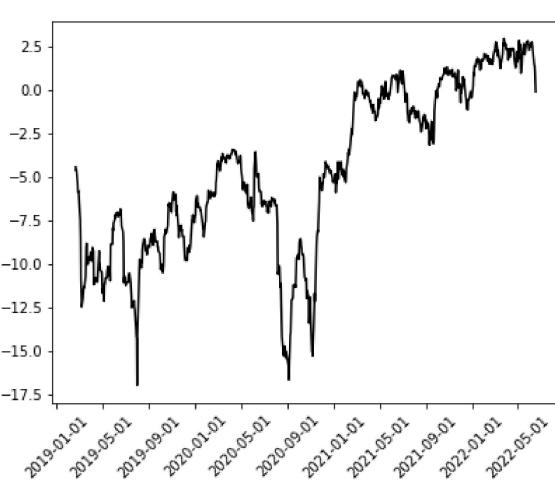
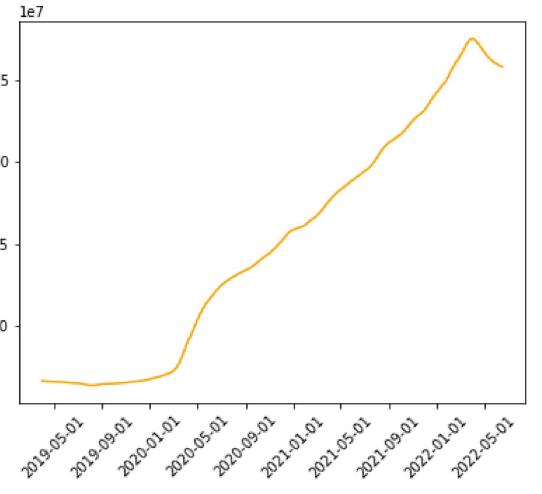
Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper

2022-06-17 102.349998 106.909959 119.43381 131.957661 112.539048 6.727104 99.08484 125.993256

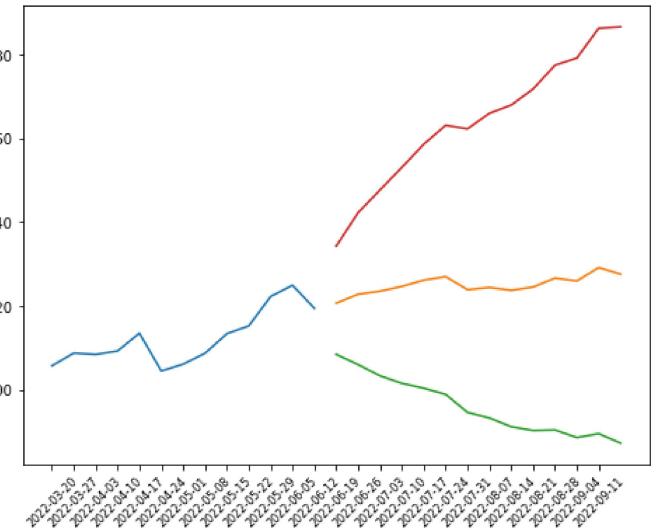
volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
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VDE	0.896641	102.349998	25785341.015625	0.70127	0.621023	0.512979
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l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		



ets next 13 weeks
inner cv scores:
best model: ['add', 'add', False]
best inner cv score, sdev (11 folds): 162.26029547339874 186.69480203926034
test cv mean error, stdev (10 folds): 177.93582907450696 188.7790932527092
sell date: 2022-09-11
expected return: 0.26130892989861954
discounted return: 0.002734909707801547
quarter return: 1.2856549169792901

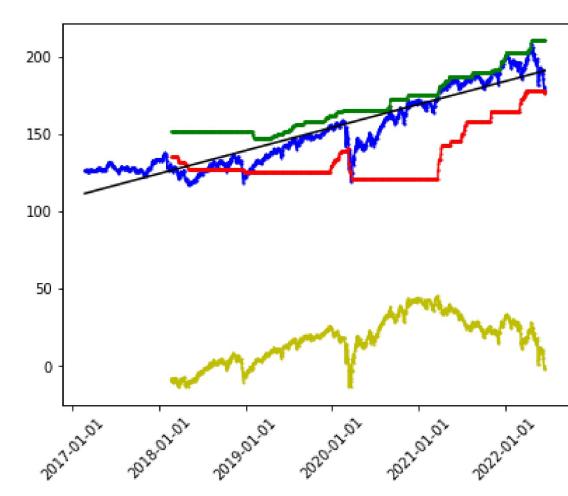
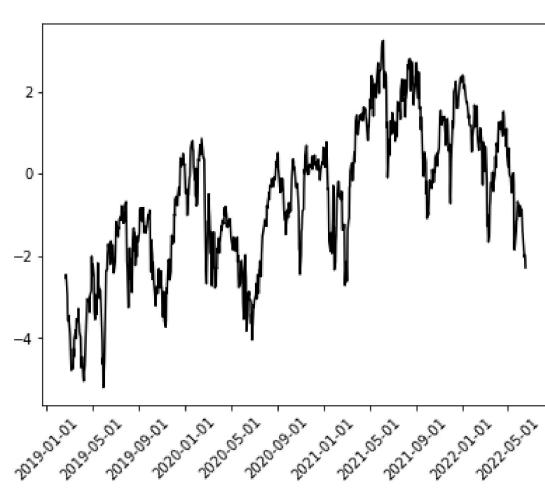
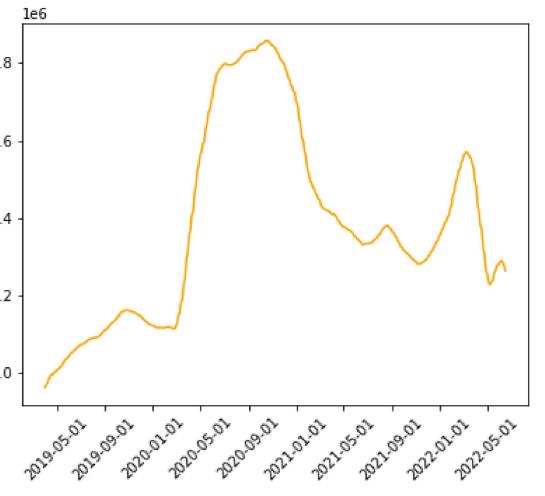


symbol: VDC
sector: error
sector: Consumer Defensive
Index: nan
vol_30d_2yr: 3264449.609375
Sector 1YMF: -74.80001831054688
1YMF: -74.80001831054688
risk trend factor: -2.283970024749523
totalAssets
VDC 8.239956e+09

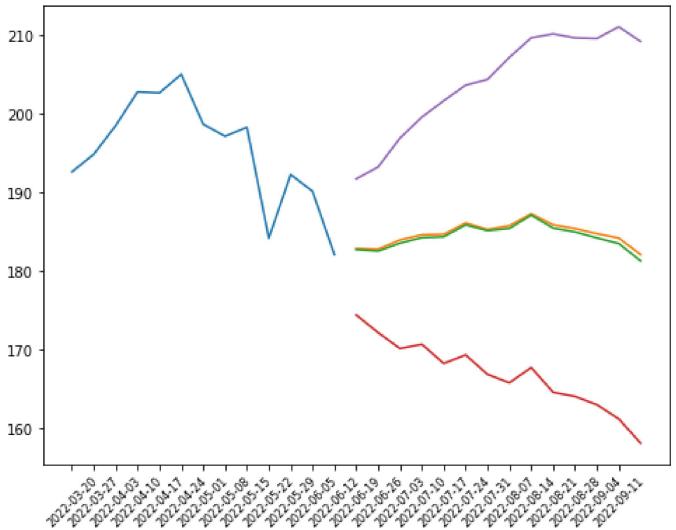
Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper	
2022-06-17	177.059998	176.153403	185.845715	195.538026	194.674128	7.920194	178.833739	210.514517

volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
VDC	1.413592	177.059998	3264449.609375	0.48903	0.752482	0.355797

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		



ets next 13 weeks
 inner cv scores:
 best model: ['mul', None]
 best inner cv score, sdev (11 folds): 100.42512436388353 79.00572548206128
 test cv mean error, stdev (10 folds): 95.34992470977237 81.1342076121161
 sell date: 2022-08-14
 expected return: 0.057358010250891024
 discounted return: 0.0009789587563415747
 quarter return: 1.0941963312790575



['options', ('2022-07-15',)]
 symbol: VPU
 sector: error
 sector: Utilities
 Index: nan
 vol_30d_2yr: 5031661.71875
 Sector 1YMF: -59.12998962402344
 1YMF: -59.12998962402344
 risk trend factor: -2.5204591944584465
 totalAssets
 VPU 7.854255e+09

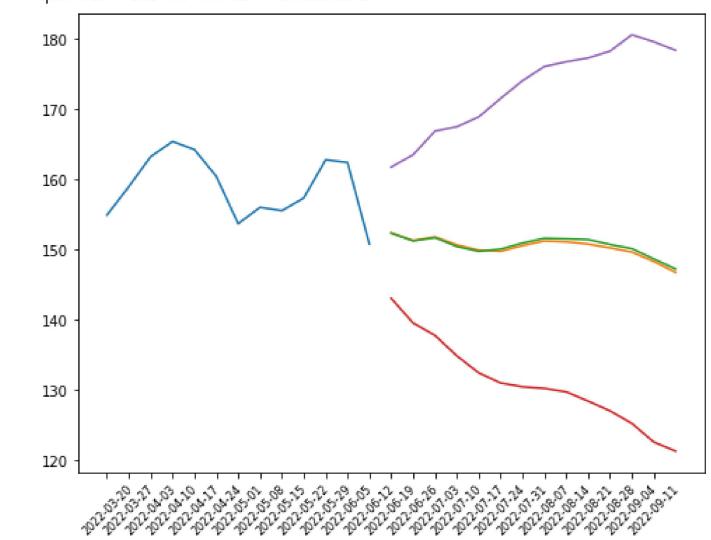
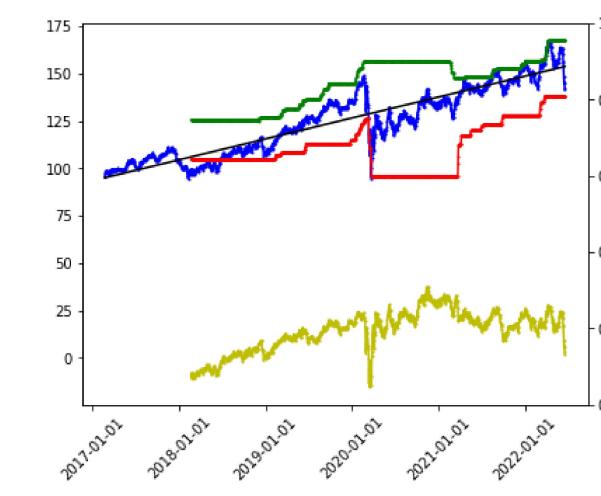
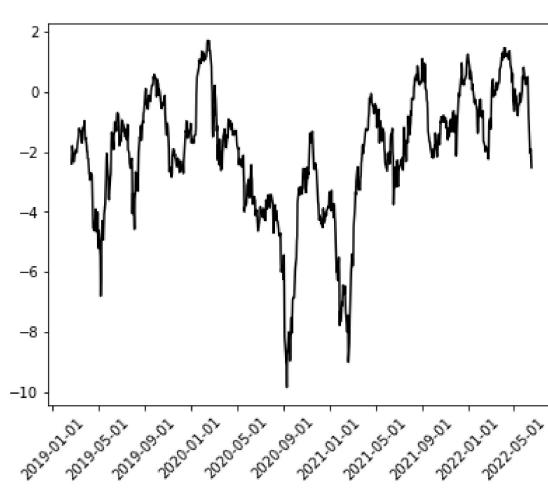
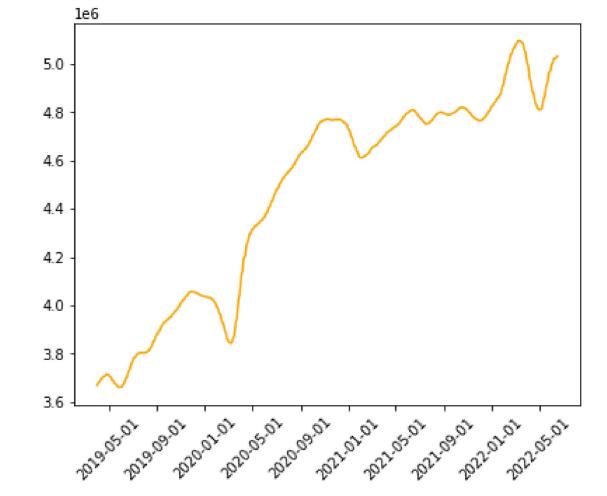
Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
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2022-06-17	141.440002	142.694749	156.469524	170.244299	158.564286	5.736683	147.09092	170.037651
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volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
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VPU	1.250581	141.440002	5031661.71875	0.451674	0.569436	0.290073
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l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

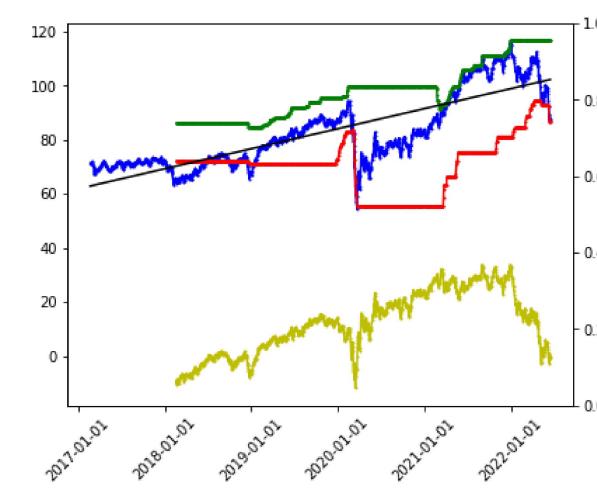
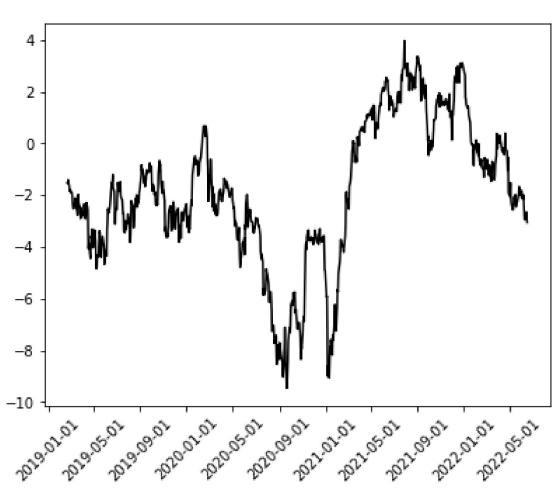
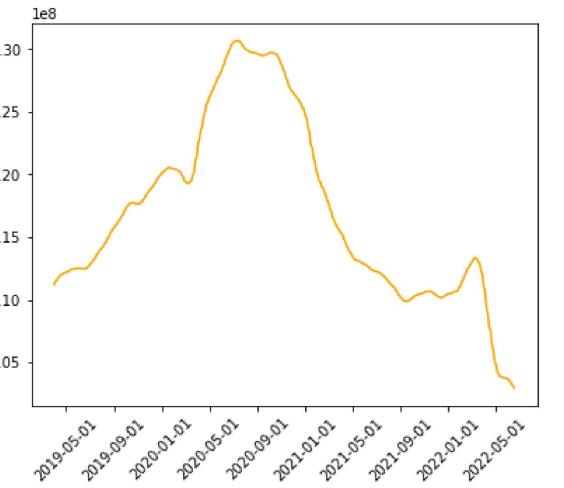


symbol: VNQ
sector: error
sector: Real Estate
Index: nan
vol_30d_2yr: 102932828.515625
Sector 1YMF: -76.09000396728516
1YMF: -76.09000396728516
risk trend factor: -3.053370235265123
totalAssets
VNQ 7.839537e+10

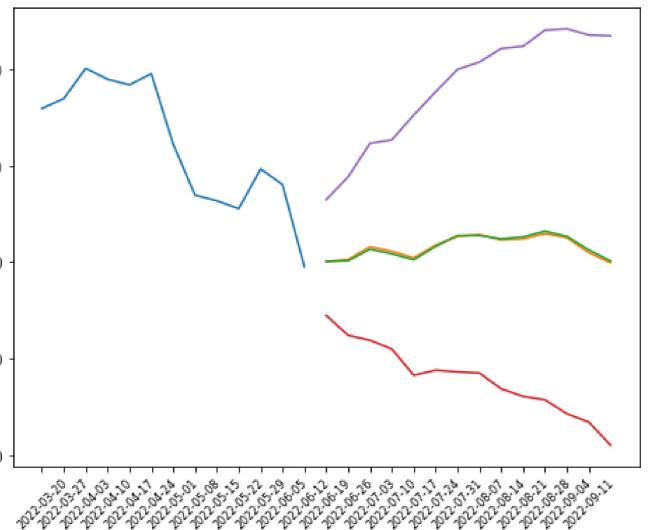
Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper	
2022-06-17	87.699997	86.580768	94.91381	103.246851	101.788572	7.189885	87.408801	116.168343

volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
VNQ	1.231534	87.699997	102932828.515625	0.296727	0.445676	0.39584

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		



ets next 13 weeks
inner cv scores:
best model: ['mul', 'add', True]
best inner cv score, sdev (11 folds): 86.6754558291555 161.69827782578633
test cv mean error, stdev (10 folds): 93.69119366383254 167.9867282547259
sell date: 2022-08-28
expected return: 0.0600990038461087
discounted return: 0.000822342214404248
quarter return: 1.0785573848150745



['options', ('2023-01-20', '2024-01-19')]

symbol: VAW
sector: error
sector: Basic Materials
Index: nan
vol_30d_2yr: 2683599.21875
Sector 1YMF: -109.739990234375
1YMF: -109.739990234375
risk trend factor: -3.165271062358118
totalAssets
VAW 5.085875e+09

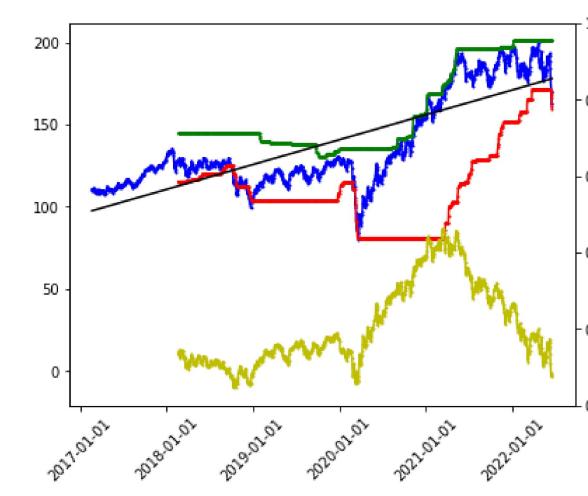
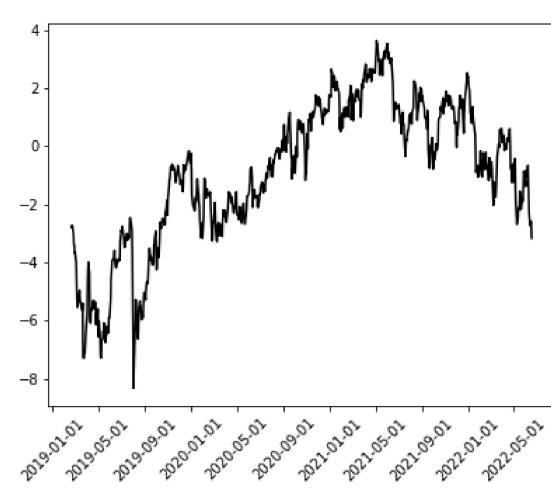
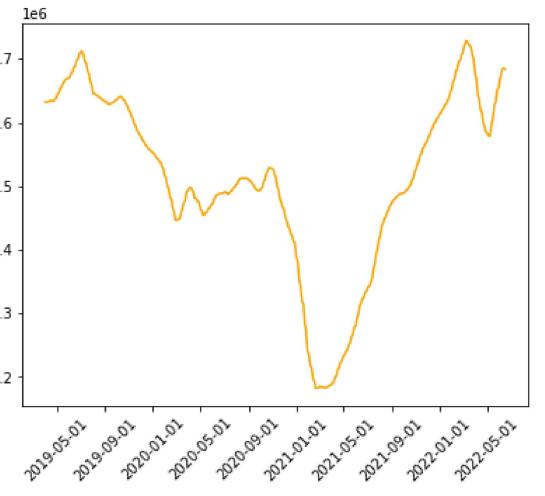
Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
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2022-06-17	162.80003	163.360294	181.546031	199.731768	187.277779	8.558355	170.161068	204.394489
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volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
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VAW	1.040096	162.80003	2683599.21875	0.553392	0.650248	0.42433
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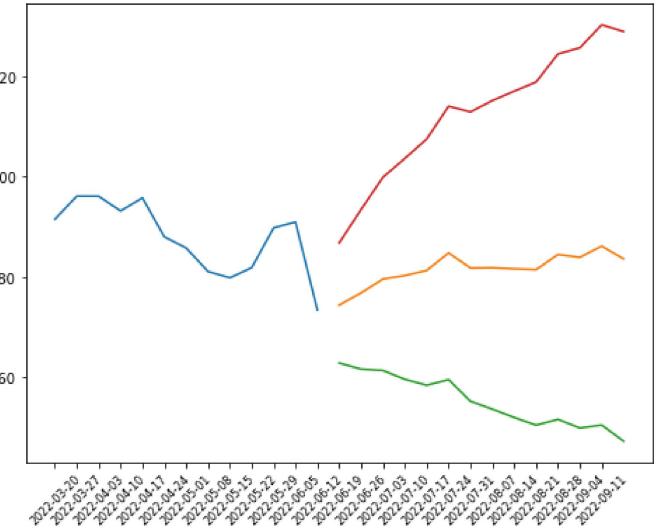
l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		



```

ets next 13 weeks
inner cv scores:
best model: ['add', 'add', False]
best inner cv score, sdev (11 folds): 205.01175993608055 229.50284903376593
test cv mean error, stdev (10 folds): 219.7129902096578 235.7145379038364
sell date: 2022-09-11
expected return: 0.1434571605937443
discounted return: 0.0015783769202852849
quarter return: 1.1561507849128567

```



```

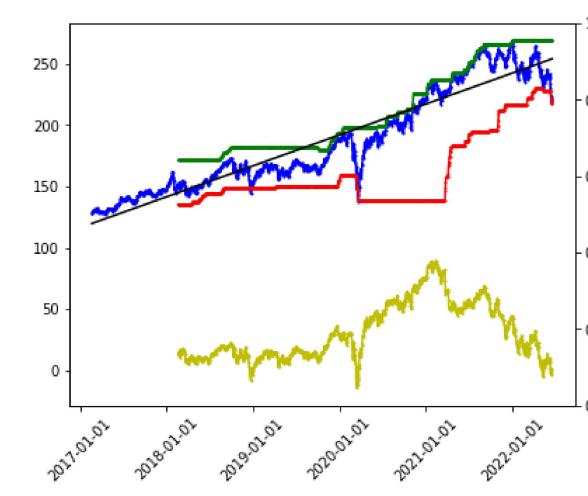
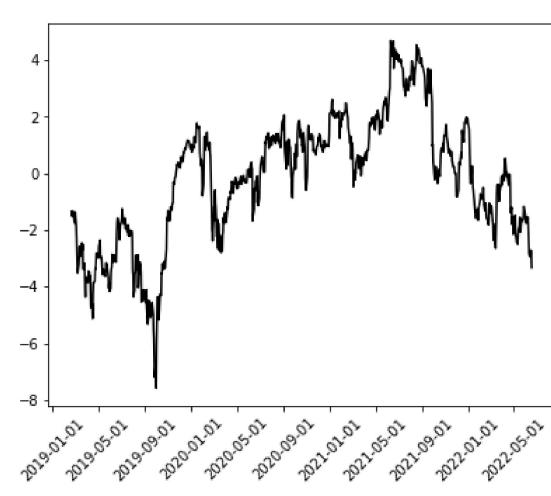
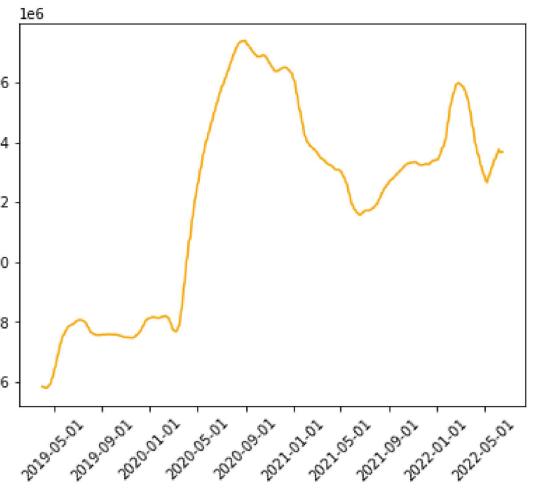
['options', ('2022-08-19',)]
symbol: VHT
sector: error
sector: Healthcare
Index: nan
vol_30d_2yr: 5367987.5
Sector 1YMF: -122.20997619628906
1YMF: -122.20997619628906
risk trend factor: -3.3236323632363236
    totalAssets  trailingPE
VHT  1.866525e+10   4.748669

```

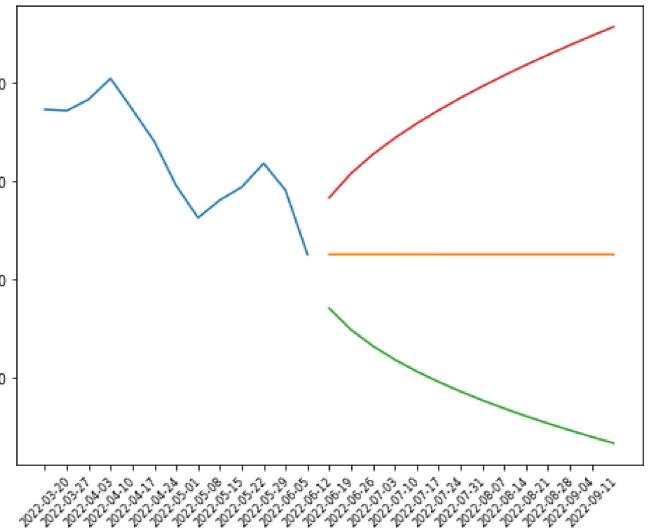
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	220.210007	218.770447	234.353333	249.93622	243.78492	11.544258	220.696404	266.873435

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
VHT	1.223885	220.210007	5367987.5	0.406751	0.629182	0.332826

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		



ets next 13 weeks
 inner cv scores:
 best model: [None, 'add', True]
 best inner cv score, sdev (11 folds): 237.05412833601966 269.8255274714534
 test cv mean error, stdev (10 folds): 227.72489246640166 281.2988311923906
 sell date: 2022-06-19
 expected return: 0.021888029867561654
 discounted return: 0.021888029867561665
 quarter return: 7.33001226082971

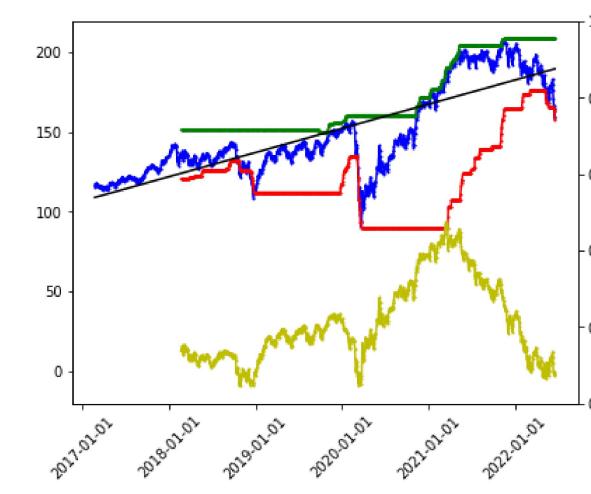
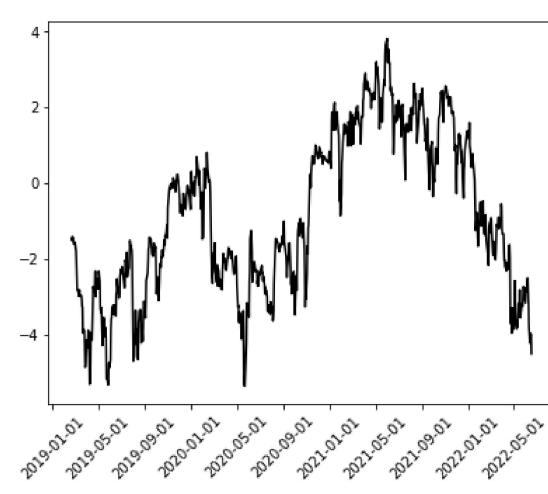
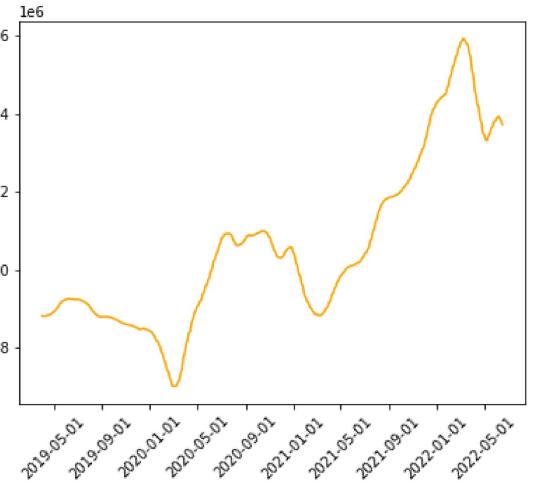


symbol: VIS
 sector: error
 sector: Industrials
 Index: nan
 vol_30d_2yr: 3372254.1015625
 Sector 1YMF: -141.5800018310547
 1YMF: -141.5800018310547
 risk trend factor: -4.514668337867341
 Empty DataFrame
 Columns: []
 Index: [VIS]

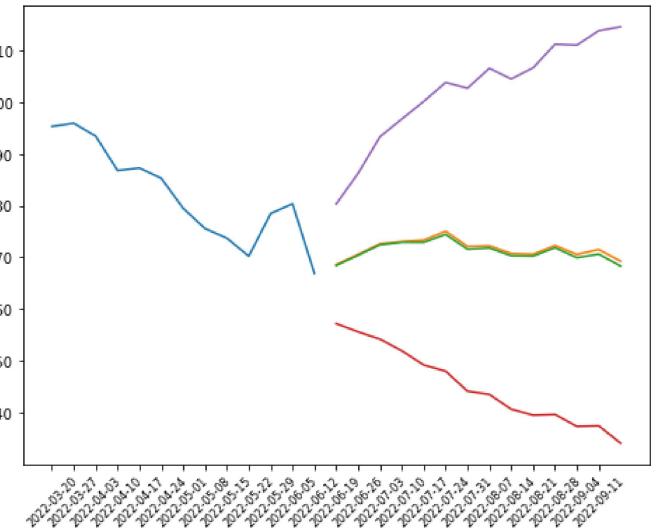
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	159.809998	159.424409	172.598254	185.772099	181.362857	9.892736	161.577386	201.148329

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
VIS	0.869685	159.809998	3372254.101562	0.42518	0.484643	0.470479

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		



ets next 13 weeks
inner cv scores:
best model: ['mul', None]
best inner cv score, sdev (11 folds): 213.0870605161709 181.94570153913904
test cv mean error, stdev (10 folds): 223.72397175150405 187.53720445617554
sell date: 2022-07-24
expected return: 0.09548269646947537
discounted return: 0.002536408054857109
quarter return: 1.2624497831793169

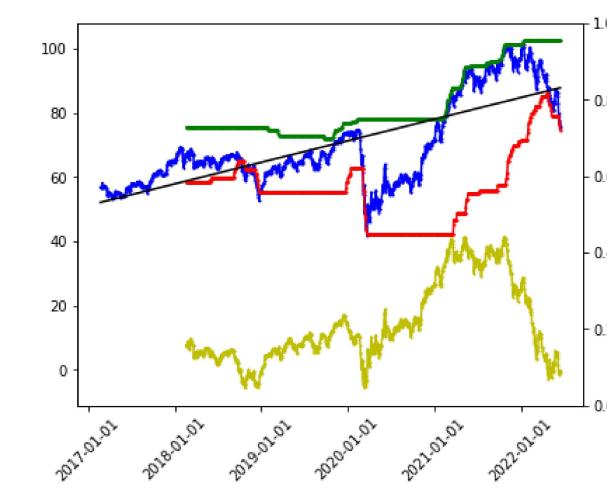
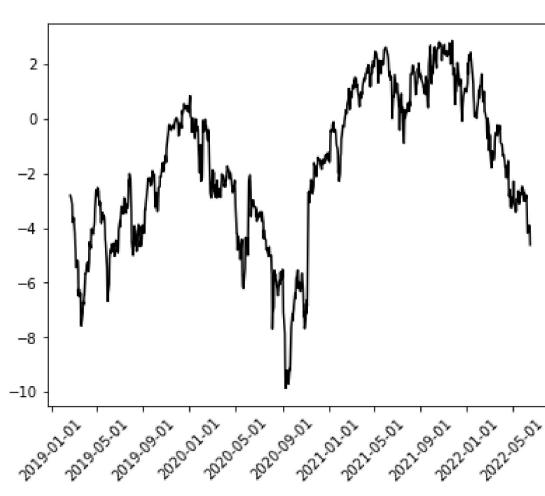
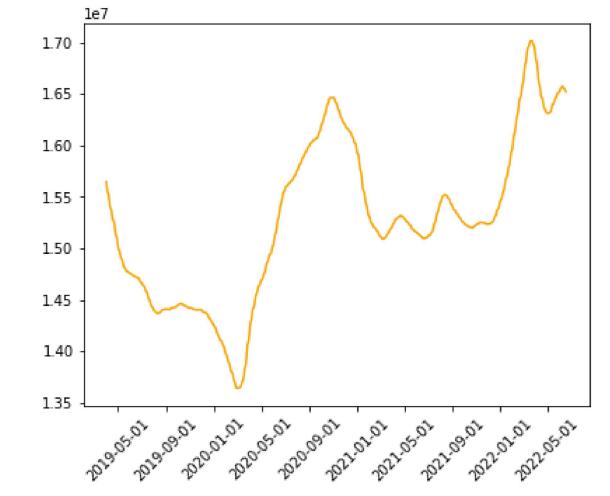


```
[options', ('2022-08-19',)]
symbol: VFH
sector: error
sector: Financial Services
Index: nan
vol_30d_2yr: 16520124.609375
Sector 1YMF: -72.2699966430664
1YMF: -72.2699966430664
risk trend factor: -4.617890709055871
    totalAssets
VFH 1.046217e+10
```

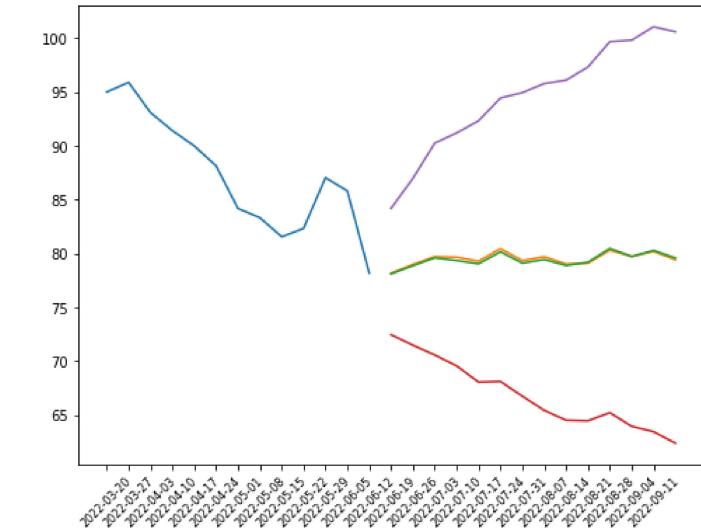
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSD	90d_lower	90d_upper
2022-06-17	75.849998	74.907534	82.472858	90.038182	86.832222	5.55532	75.721582	97.942862

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
VFH	1.270717	75.849998	16520124.609375	0.43829	0.480904	0.491635

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		



ets next 13 weeks
inner cv scores:
best model: ['mul', None]
best inner cv score, sdev (11 folds): 54.78029860420309 49.08269637960944
test cv mean error, stdev (10 folds): 57.39467195215102 50.743015953261754
sell date: 2022-07-24
expected return: 0.06062646092997322
discounted return: 0.0016363299522101915
quarter return: 1.1623215267522433



['options', ('2022-08-19',)]
symbol: VCR
sector: error
sector: Consumer Cyclical
Index: nan
vol_30d_2yr: 2596418.1640625
Sector 1YMF: -359.96002197265625
1YMF: -359.96002197265625
risk trend factor: -4.72140697901556
totalAssets
VCR 6.015592e+09

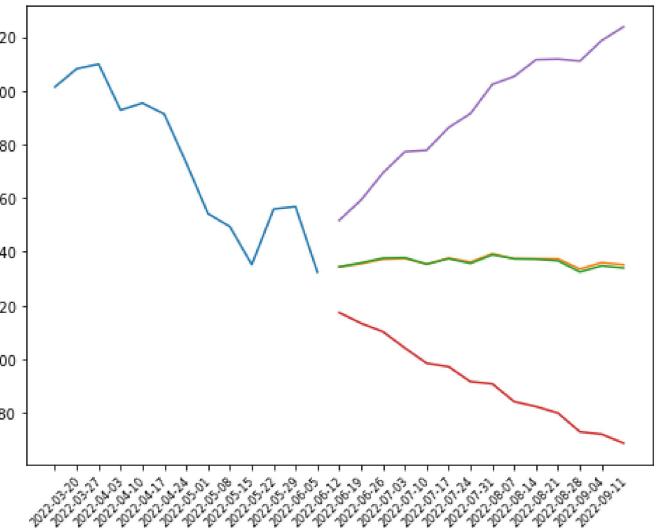
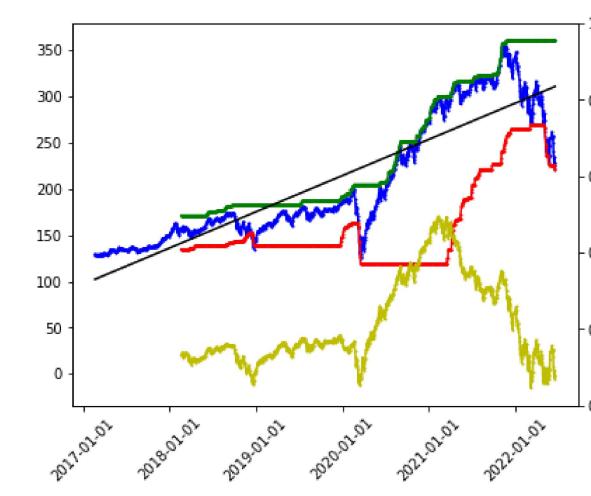
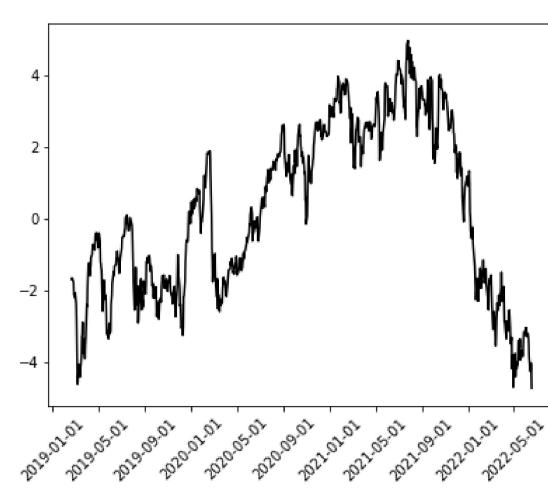
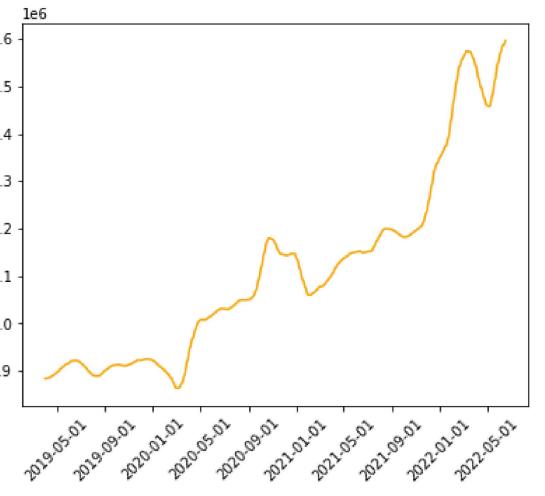
Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
-----------	---------	----------	---------	--------	---------	-----------	-----------

2022-06-17	225.869995	218.39857	242.946031	267.493493	271.133333	28.125894	214.881544	327.385121
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volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
---------------	----------	-------------	---------	-----	-------

VCR	1.292819	225.869995	2596418.164062	0.205768	0.641228	0.473825
-----	----------	------------	----------------	----------	----------	----------

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

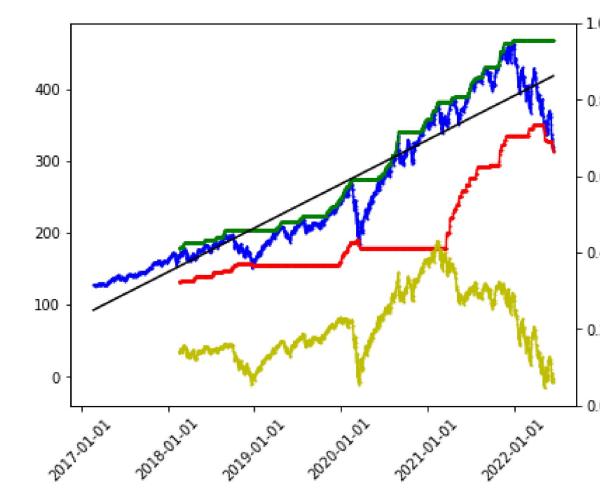
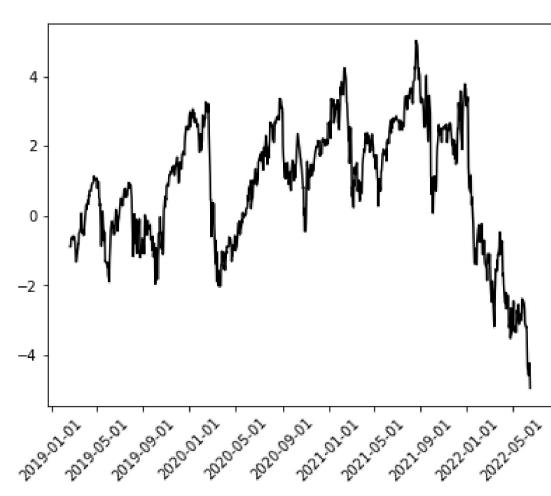
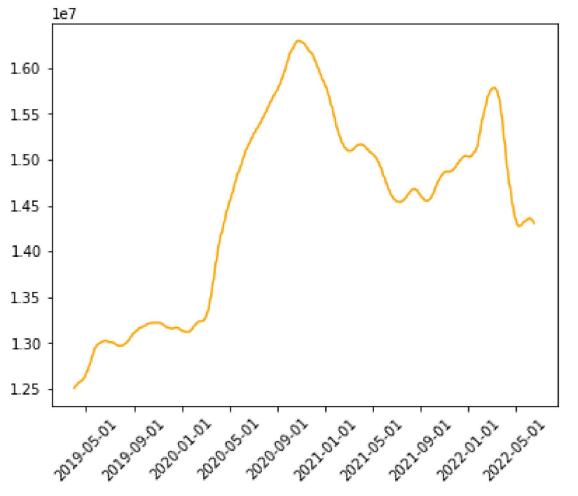


symbol: VGT
sector: error
sector: Technology
Index: nan
vol_30d_2yr: 14308852.5390625
Sector 1YMF: -363.4599914550781
1YMF: -363.4599914550781
risk trend factor: -4.954471974241429
totalAssets
VGT 5.138536e+10

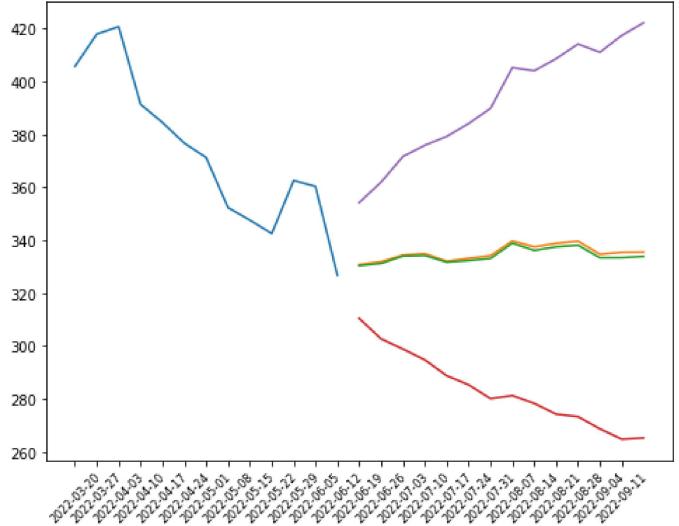
Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper	
2022-06-17	319.809998	313.391914	345.179842	376.96777	371.755716	29.840347	312.075022	431.43641

volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
VGT	1.152846	319.809998	14308852.539062	0.262275	0.685573	0.43018

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		



ets next 13 weeks
inner cv scores:
best model: ['mul', 'add', True]
best inner cv score, sdev (11 folds): 992.8049728521456 793.2003753375456
test cv mean error, stdev (10 folds): 1054.935316188718 805.9910660489109
sell date: 2022-08-07
expected return: 0.06229491495844206
discounted return: 0.001209362328965513
quarter return: 1.1176118263536885

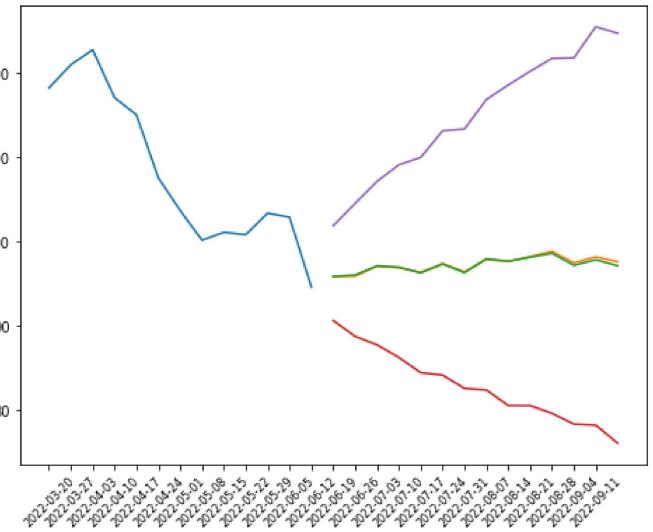
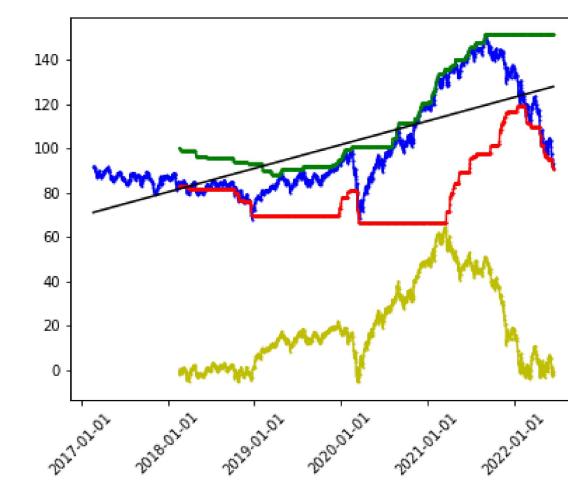
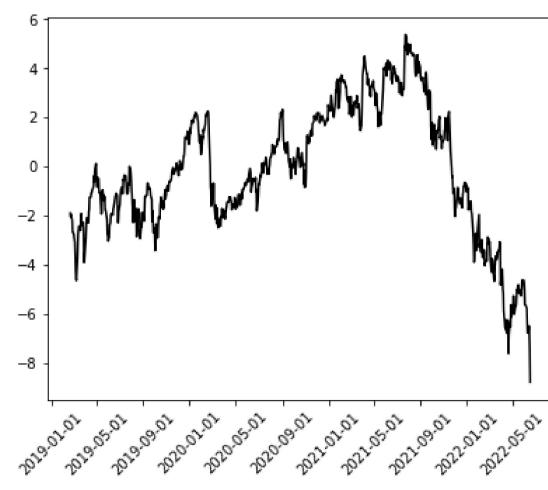
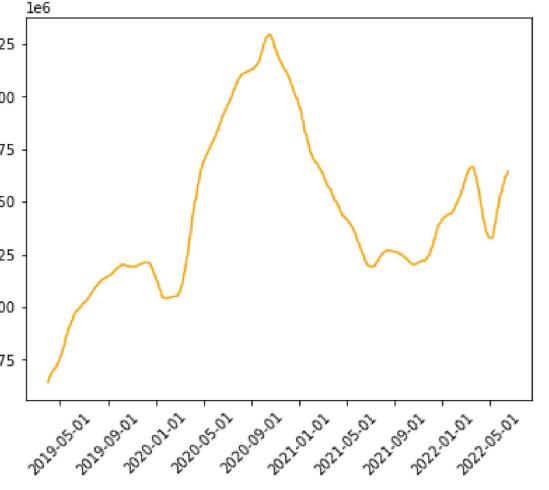


['options', ('2022-08-19',)]
symbol: VOX
sector: error
sector: Communication Services
Index: nan
vol_30d_2yr: 4644931.8359375
Sector 1YMF: -166.010009765625
1YMF: -166.010009765625
risk trend factor: -8.783597691159713
Empty DataFrame
Columns: []
Index: [VOX]

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	92.860001	91.464788	99.415079	107.365371	107.439841	9.28909	88.861661	126.018022

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
VOX	1.840996	92.860001	4644931.835938	0.059723	0.708136	0.512969

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		



```

['options', ('2022-07-15',)]
symbol: ACC
sector: Real Estate
Index: SP400
vol_30d_2yr: 27009982.03125
Sector 1YMF: 13.440017700195312
1YMF: 13.440017700195312
risk trend factor: 10.926847725292072
          beta currentRatio debtToEquity dividendRate dividendYield \
ACC   1.00147        2.184       122.276      1.88       0.029
                           earningsGrowth     ebitda ebitdaMargins forwardPE grossMargins \
ACC           1.498    466354240      0.47421   98.81539      0.5349
                           grossProfits heldPercentInstitutions      industry marketCap \
ACC   498042000      0.97986 REIT-Residential  8938053632
                           operatingMargins payoutRatio pegRatio priceToBook \
ACC      0.19318        4.7       1.96      2.993987
                           priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
ACC      9.088625      0.06005      1.888      0.01582
                           returnOnEquity revenueGrowth revenuePerShare      sector \
ACC      0.01872        0.176       7.081 Real Estate
                           sharesOutstanding shortRatio totalCash totalCashPerShare      totalDebt \
ACC    139156992      0.86     87656000      0.63    4008523008
                           totalRevenue trailingPE
ACC      983433024      513.84

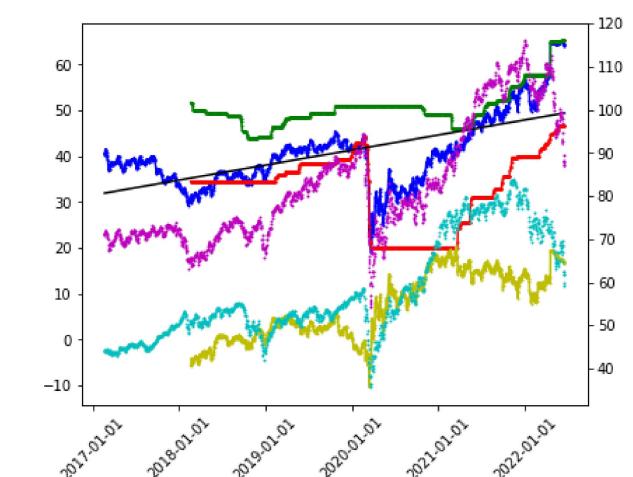
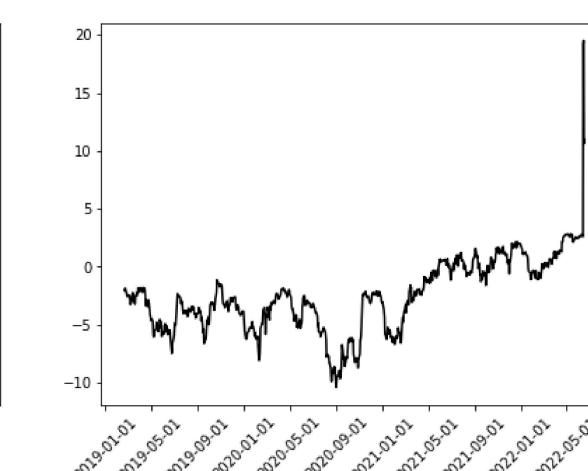
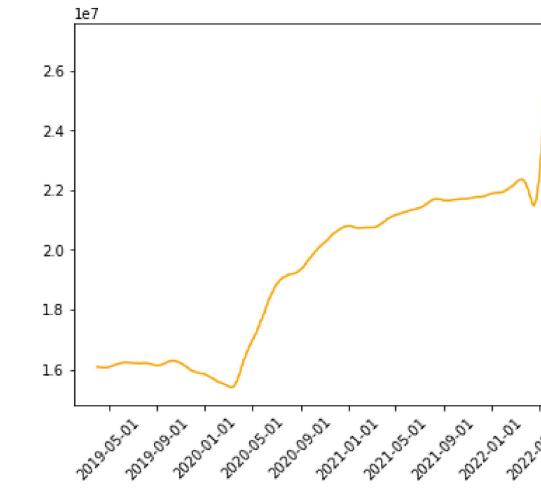
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	64.230003	64.240713	64.712222	65.183731	62.082857	3.916774	54.249309	66.249309

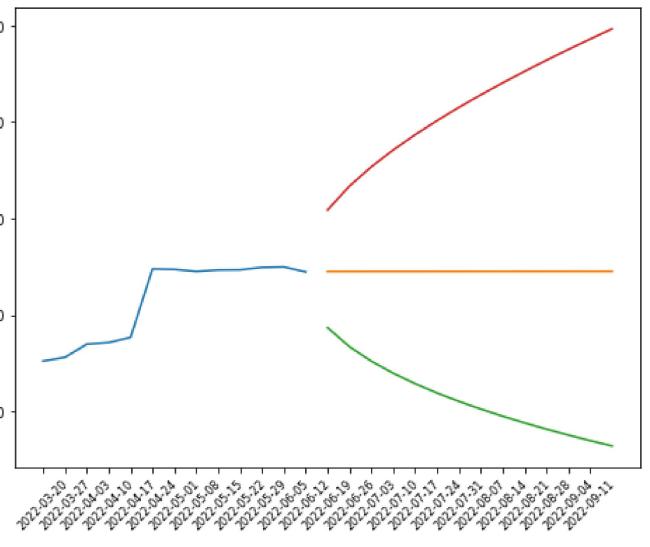
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf
ACC	2.134689	64.230003	27009982.03125	0.97101	0.978004

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Sector 1YMF: -76.09000396728516
Sector Volume Factor: 1.2315342134094496
Sector Risk Trend Factor: -3.05337023526515
Index 1YMF: -69.05999755859375
Index Volume Factor: 0.5765983741853883
Index Risk Trend Factor: -5.13457347420583



```
ets next 13 weeks
inner cv scores:
best model: [None, 'add', True]
best inner cv score, sdev (11 folds): 14.002980451308668 10.44243195266
test cv mean error, stdev (10 folds): 15.172164712879768 10.24265171338
sell date: 2022-09-18
expected return: 0.0043873211349221685
discounted return: 4.758509843005854e-05
quarter return: 1.0043873211349195
```



	2022-03-31	2021-12-31	2021-09-30	\
['quarterly_balance_sheet',				
Capital Surplus	4.693018e+09	4.694242e+09	4.538210e+09	
Total Liab	4.218002e+09	4.273301e+09	4.501487e+09	
Total Stockholder Equity	3.093994e+09	3.117378e+09	2.982993e+09	
Minority Interest	1.842520e+08	1.839070e+08	6.423900e+07	
Deferred Long Term Liab	7.300000e+06	3.450000e+07	2.750000e+07	
Total Assets	7.496248e+09	7.574586e+09	7.548719e+09	
Common Stock	1.393000e+06	1.391000e+06	1.390000e+06	
Other Current Assets	1.698800e+07	1.432600e+07	2.016300e+07	
Other Liab	1.522020e+08	1.697290e+08	1.850330e+08	
Treasury Stock	-1.600417e+09	1.578255e+09	-1.556607e+09	
Other Assets	2.143290e+08	1.773490e+08	2.318220e+08	
Cash	8.765600e+07	1.2083510e+08	4.207300e+07	
Total Current Liabilities	5.727700e+07	1.168230e+08	9.838000e+07	
Other Stockholder Equity	-1.596530e+09	-1.574312e+09	-1.551896e+09	
Property Plant Equipment	7.156799e+09	7.198609e+09	7.232212e+09	
Total Current Assets	1.251200e+08	1.678280e+08	8.468500e+07	
Net Tangible Assets	3.093994e+09	3.086578e+09	2.982993e+09	
Net Receivables	2.047600e+07	3.268700e+07	2.218800e+07	
Long Term Debt	3.509626e+09	3.513684e+09	3.723677e+09	
Accounts Payable	5.727700e+07	9.306700e+07	9.838000e+07	
Intangible Assets	NaN	3.080000e+07	NaN	

	2021-06-30			
Capital Surplus	4.515450e+09			
Total Liab	4.437234e+09			
Total Stockholder Equity	3.035925e+09			
Minority Interest	6.528200e+07			
Deferred Long Term Liab	2.460000e+07			
Total Assets	7.538441e+09			
Common Stock	1.386000e+06			
Other Current Assets	2.747600e+07			
Other Liab	1.373950e+08			
Treasury Stock	-1.480911e+09			
Other Assets	2.333970e+08			
Cash	3.028300e+07			
Total Current Liabilities	6.970500e+07			
Other Stockholder Equity	-1.476181e+09			
Property Plant Equipment	7.237327e+09			
Total Current Assets	6.771700e+07			
Net Tangible Assets	3.035925e+09			
Net Receivables	9.775000e+06			
Long Term Debt	3.734507e+09			
Accounts Payable	6.970500e+07			
Intangible Assets	NaN]

	2022-03-31	2021-12-31	\
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Net Income	39183000.0	40712000.0	
Change To Liabilities	0.0	-5928000.0	
Total Cashflows From Investing Activities	NaN	-39104000.0	
Net Borrowings	NaN	-203737000.0	
Total Cash From Financing Activities	NaN	-2685000.0	
Change To Operating Activities	NaN	-4668000.0	
Issuance Of Stock	NaN	1000.0	
Change In Cash	NaN	72441000.0	
Total Cash From Operating Activities	NaN	114230000.0	
Depreciation	NaN	69294000.0	
Other Cashflows From Investing Activities	NaN	-436000.0	
Dividends Paid	NaN	-65817000.0	
Change To Account Receivables	NaN	8001000.0	
Other Cashflows From Financing Activities	NaN	266868000.0	
Change To Netincome	NaN	5202000.0	
Repurchase Of Stock	NaN	NaN	

	2021-09-30	2021-06-30		
Net Income	-11439000.0	-9402000.0		
Change To Liabilities	28335000.0	11132000.0		
Total Cashflows From Investing Activities	-57467000.0	-76294000.0		
Net Borrowings	-10415000.0	53424000.0		
Total Cash From Financing Activities	-57209000.0	17226000.0		
Change To Operating Activities	40390000.0	-29447000.0		
Issuance Of Stock	21198000.0	38476000.0		
Change In Cash	4477000.0	-7470000.0		
Total Cash From Operating Activities	119153000.0	51598000.0		
Depreciation	69445000.0	68741000.0		
Other Cashflows From Investing Activities	2944000.0	-961000.0		
Dividends Paid	-65948000.0	-65379000.0		
Change To Account Receivables	-12413000.0	3867000.0		
Other Cashflows From Financing Activities	-523000.0	-9295000.0		
Change To Netincome	3365000.0	5289000.0		
Repurchase Of Stock	-1521000.0	-1521000.0]
['quarterly_earnings',	Revenue	Earnings		

Quarter

2Q2021	208521000	-9402000
3Q2021	228877000	-11439000
4Q2021	272289000	40712000
1Q2022	273746000	39183000]

	2022-03-31	2021-12-31	2021-09-30	\
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['quarterly_financials',	None	None	None	
Research Development	None	None	None	
Effect Of Accounting Charges	None	None	None	
Income Before Tax	43060000.0	42051000.0	-13019000.0	
Minority Interest	184252000.0	183907000.0	64239000.0	
Net Income	39183000.0	40712000.0	-11439000.0	

Selling General Administrative	9098000.0	25234000.0	10309000.0
Gross Profit	154845000.0	177993000.0	94800000.0
Ebit	75195000.0	80965000.0	15046000.0
Operating Income	75195000.0	80965000.0	15046000.0
Other Operating Expenses	NaN	2500000.0	2500000.0
Interest Expense	-31675000.0	-31922000.0	-30741000.0
Extraordinary Items	None	None	None
Non Recurring	None	None	None
Other Items	None	None	None
Income Tax Expense	340000.0	340000.0	340000.0
Total Revenue	273746000.0	272289000.0	228877000.0
Total Operating Expenses	198551000.0	191324000.0	213831000.0
Cost Of Revenue	118901000.0	94296000.0	134077000.0
Total Other Income Expense Net	-32135000.0	-38914000.0	-28065000.0
Discontinued Operations	None	None	None
Net Income From Continuing Ops	42720000.0	41711000.0	-13359000.0
Net Income Applicable To Common Shares	39183000.0	40299000.0	-12006000.0

2021-06-30

Research Development	None
Effect Of Accounting Charges	None
Income Before Tax	-10712000.0
Minority Interest	65282000.0
Net Income	-9402000.0
Selling General Administrative	12093000.0
Gross Profit	99534000.0
Ebit	18700000.0
Operating Income	18700000.0
Other Operating Expenses	2500000.0
Interest Expense	-30658000.0
Extraordinary Items	None
Non Recurring	None
Other Items	None
Income Tax Expense	341000.0
Total Revenue	208521000.0
Total Operating Expenses	189821000.0
Cost Of Revenue	108987000.0
Total Other Income Expense Net	-29412000.0
Discontinued Operations	None
Net Income From Continuing Ops	-11053000.0
Net Income Applicable To Common Shares	-9973000.0

['mutualfund_holders',
0 Vanguard Specialized-Real Estate Index Fund 6638008 2022-01-30 0.0476
1 Vanguard Total Stock Market Index Fund 3960227 2021-12-30 0.0284
2 iShares Core S&P Midcap ETF 3862557 2022-01-30 0.0277
3 Vanguard Small-Cap Index Fund 3503603 2021-12-30 0.0251
4 Allspring Special Mid Cap Value Fund 3211005 2022-02-27 0.0230
5 Vanguard Small-Cap Growth Index Fund 2184685 2021-12-30 0.0157
6 Vanguard Extended Market Index Fund 1858080 2021-12-30 0.0133
7 JP Morgan Small Cap Equity Fund 1574099 2021-12-30 0.0113
8 SPDR S&P Mid Cap 400 ETF Trust 1194316 2022-01-30 0.0086
9 Price (T.Rowe) Small Cap Stock Fund 1085917 2021-12-30 0.0078

Value

0 346902298
1 226881404
2 201857228
3 200721415
4 172784179
5 125160603
6 106449403
7 90180131
8 62414954
9 62212184]

symbol: MTOR

sector: error

sector: error

Index: SP600

vol_30d_2yr: 15456103.3203125

Sector 1YMF: 2.329998016357422

1YMF: 2.329998016357422

risk trend factor: 5.06522316023419

Empty DataFrame

Columns: []

Index: [MTOR]

Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper

2022-06-17 35.939999 35.942037 36.098889 36.25574 35.883651 0.243988 35.395675 36.371626

volume_factor latest_p vol_30d_2yr pct_2yr adf hurst

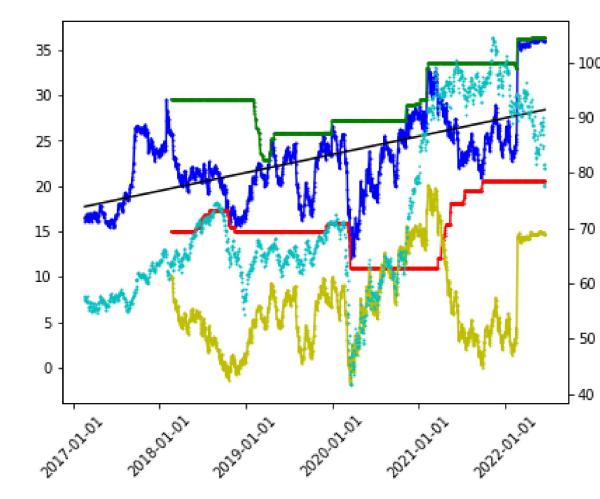
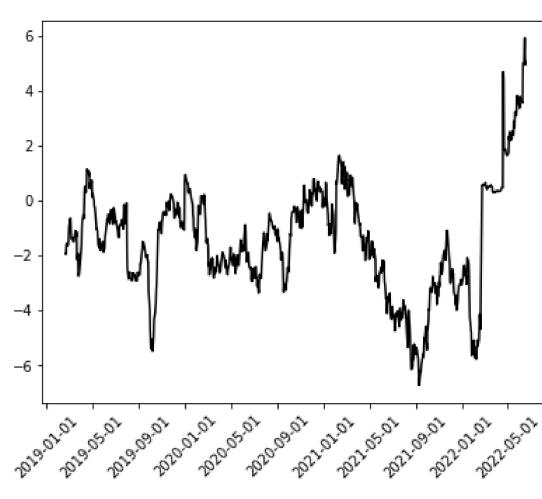
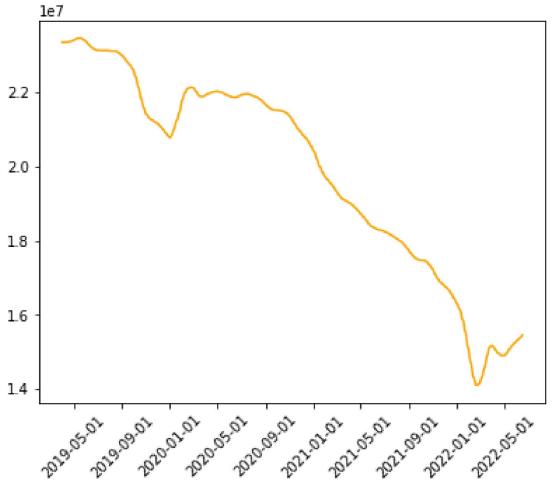
MTOR 1.664475 35.939999 15456103.320312 0.980154 0.319063 0.43585

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Index 1YMF: -77.27001953125

Index Volume Factor: 1.232760496116622

Index Risk Trend Factor: -5.242200185196592



ets next 13 weeks

inner cv scores:

best model: ['add', 'add', True]

best inner cv score, sdev (11 folds): 16.339797467108134 12.251312736702047

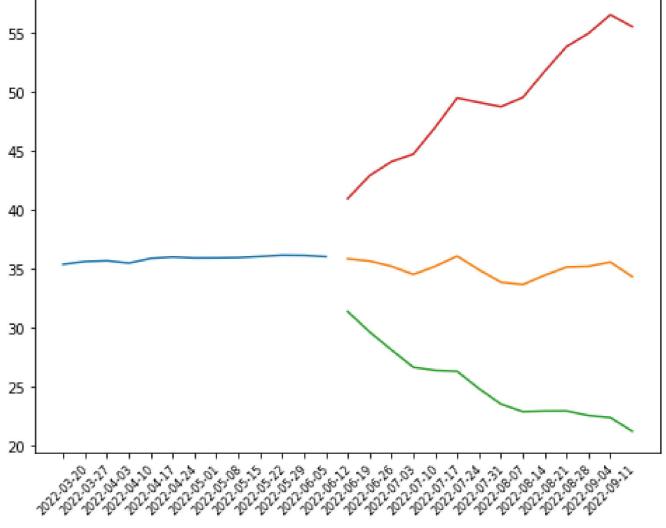
test cv mean error, stdev (10 folds): 16.151104613250034 12.834042499659013

sell date: 2022-07-24

expected return: 0.004201066765801288

discounted return: 0.000116458639726024

quarter return: 1.0107711668268085



['options', ('2022-08-19',)]

symbol: TTVY

sector: error

sector: error

Index: SP600

vol_30d_2yr: 10900973.046875

Sector 1YMF: 2.7400035858154297

1YMF: 2.7400035858154297

risk trend factor: 2.3418794362082624

Empty DataFrame

Columns: []

Index: [TTVY]

Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
-----------	---------	----------	---------	--------	---------	-----------	-----------

2022-06-17	32.130001	31.878985	32.19127	32.503555	31.861111	0.826432	30.208246	33.513976
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volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
---------------	----------	-------------	---------	-----	-------

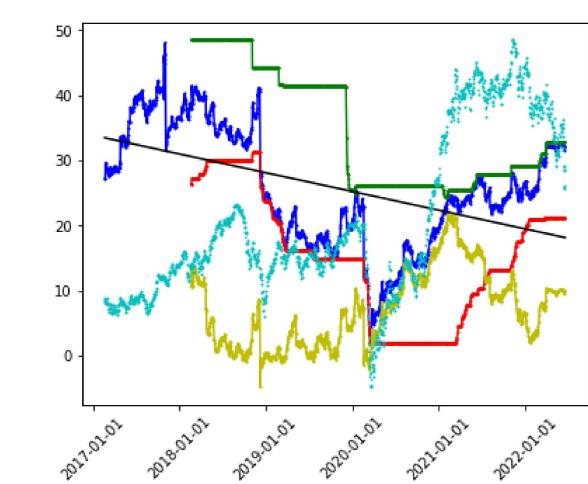
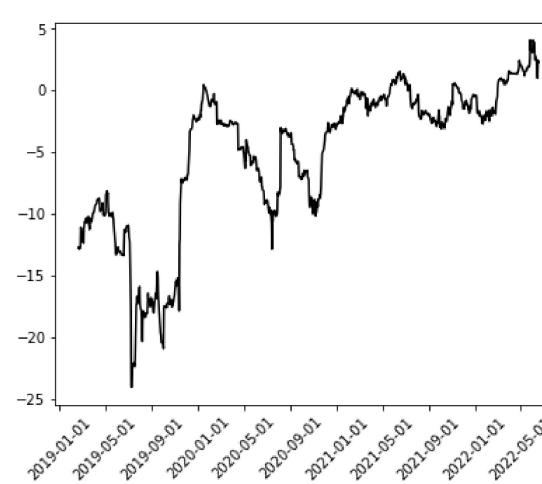
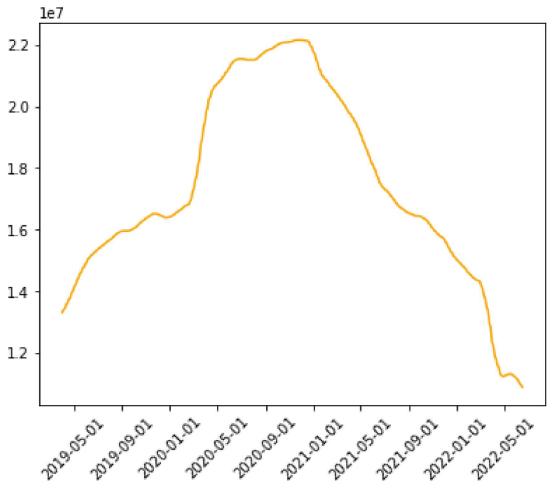
TTVY	1.643789	32.130001	10900973.046875	0.966327	0.518794	0.448871
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l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Index 1YMF: -77.27001953125

Index Volume Factor: 1.232760496116622

Index Risk Trend Factor: -5.242200185196592



ets next 13 weeks

inner cv scores:

best model: [None, 'add', False]

best inner cv score, sdev (11 folds): 21.097800759872197 17.71902968222689

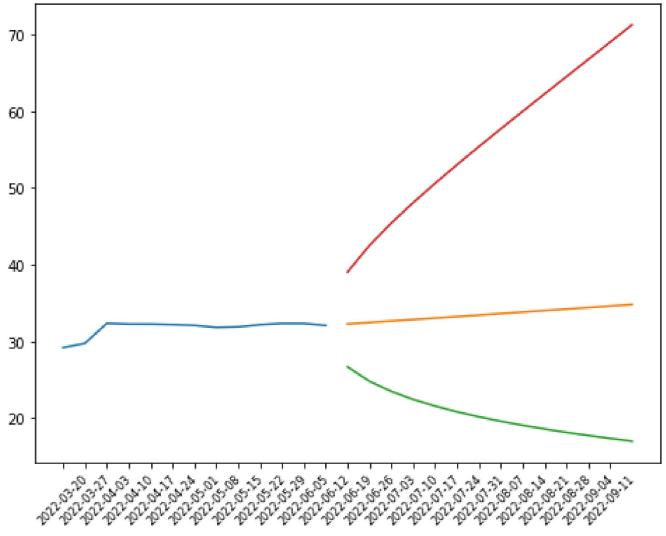
test cv mean error, stdev (10 folds): 22.5903469866116 17.91244789487483

sell date: 2022-09-18

expected return: 0.08387397070642642

discounted return: 0.0008758358538163424

quarter return: 1.083873970706425



['options', ('2022-08-19',)]

symbol: BANF

sector: error

sector: error

Index: SP600

vol_30d_2yr: 2480755.6640625

Sector 1YMF: 33.56000518798828

1YMF: 33.56000518798828

risk trend factor: 2.0119906818931326

Empty DataFrame

Columns: []

Index: [BANF]

Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper

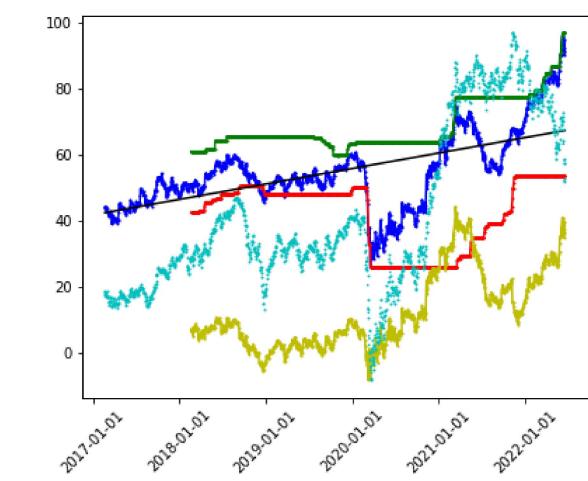
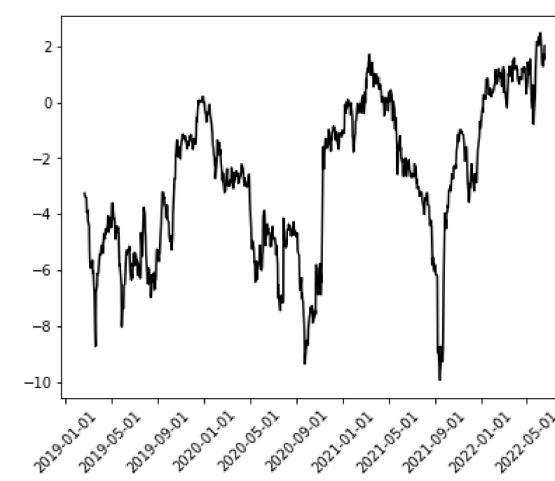
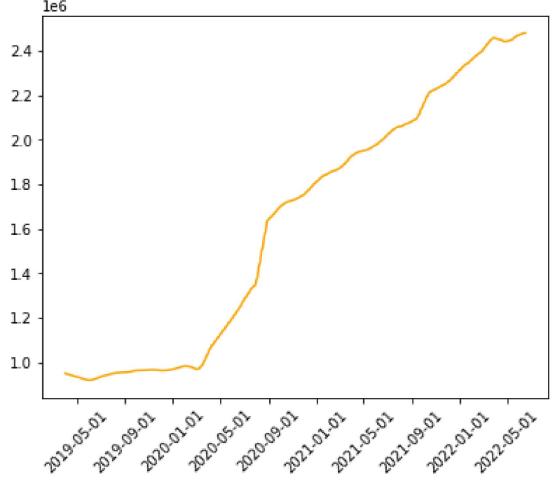
2022-06-17 94.860001 81.144325 89.856826 98.569327 85.566191 4.220089 77.126013 94.006368

volume_factor latest_p vol_30d_2yr pct_2yr adf hurst

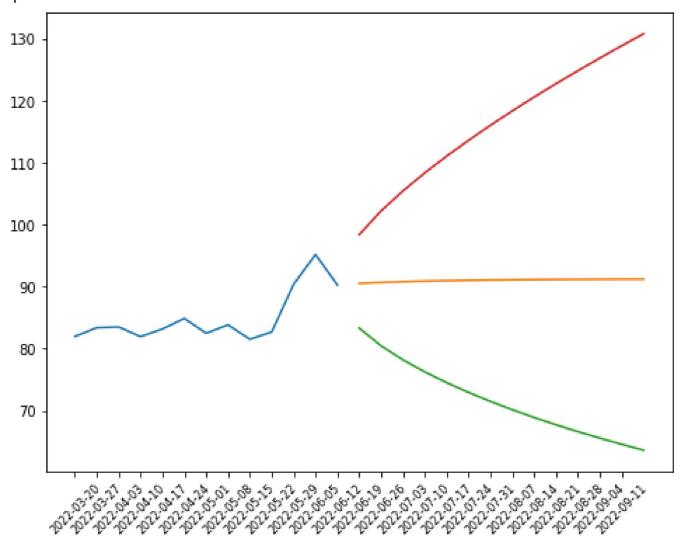
BANF 1.135864 94.860001 2480755.664062 0.965783 0.955166 0.536352

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Index 1YMF: -77.27001953125
Index Volume Factor: 1.232760496116622
Index Risk Trend Factor: -5.242200185196592



ets next 13 weeks
inner cv scores:
best model: [None, 'add', True]
best inner cv score, sdev (11 folds): 64.40840297506074 42.523508838176234
test cv mean error, stdev (10 folds): 68.88292685552456 42.0575639735724
sell date: 2022-09-18
expected return: -0.03831151591514609
discounted return: -0.0004245261879796125
quarter return: 0.96168848408485



symbol: Y
sector: Financial Services
Index: SP400
vol_30d_2yr: 1623886.71875
Sector 1YMF: 27.8699951171875
1YMF: 27.8699951171875
risk trend factor: 1.771775570386466
beta currentRatio debtToEquity earningsGrowth ebitda \
Y 0.663839 1.597 31.5 -0.433 1620000000
ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
Y 0.13423 9.936376 90016496 0.44211 5101669000
heldPercentInstitutions industry marketCap \
Y 0.86723 Insurance—Property & Casualty 11220848640
operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
Y 1928840960 0.11935 0 0.15 1.305451
priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
Y 0.929715 0.0771 1.004 0.02938
returnOnEquity revenueGrowth revenuePerShare sector \
Y 0.11868 0.025 878.577 Financial Services
sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
Y 13454900 2.32 2298860032 170.857 2822777088
totalRevenue trailingPE
Y 12069126144 12.311554

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDDev	90d_lower	90d_upper
2022-06-17	830.5	830.573879	833.250157	835.926435	838.613332	7.460501	823.69233	853.534333

volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
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Y	1.56538	830.5	1623886.71875	0.919536	0.382688	0.459685
---	---------	-------	---------------	----------	----------	----------

I axis r axis

legend legend

blue	symbol	magenta	sector
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green	trailing_1yr_max	cyan	index
-------	------------------	------	-------

red	trailing_1yr_min
-----	------------------

orange	30d_vol_2yr
--------	-------------

black	risk_trend_factor/linear
-------	--------------------------

yellow	supply_trend_1yr
--------	------------------

Sector 1YMF: -72.2699966430664

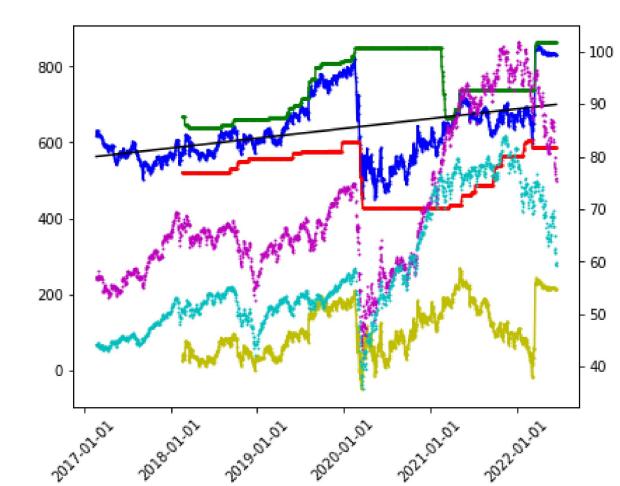
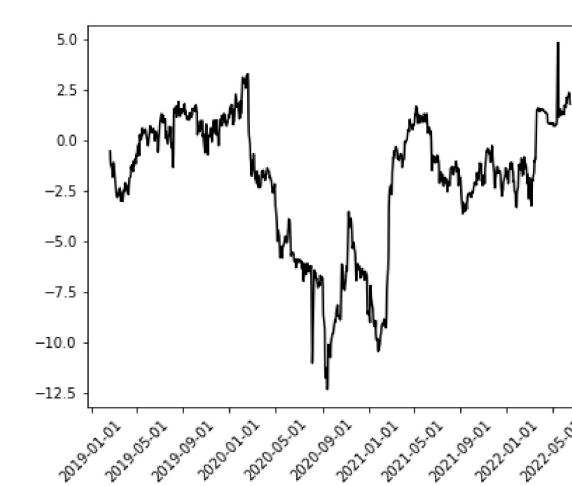
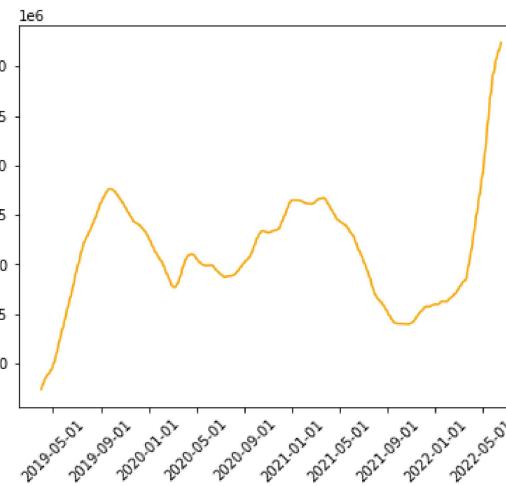
Sector Volume Factor: 1.2707168073107045

Sector Risk Trend Factor: -4.617890709055871

Index 1YMF: -69.05999755859375

Index Volume Factor: 0.5765983741853883

Index Risk Trend Factor: -5.134573474205833



ets next 13 weeks

inner cv scores:

best model: ['add', 'mul', True]

best inner cv score, sdev (11 folds): 6830.83998938945 9059.456308741981

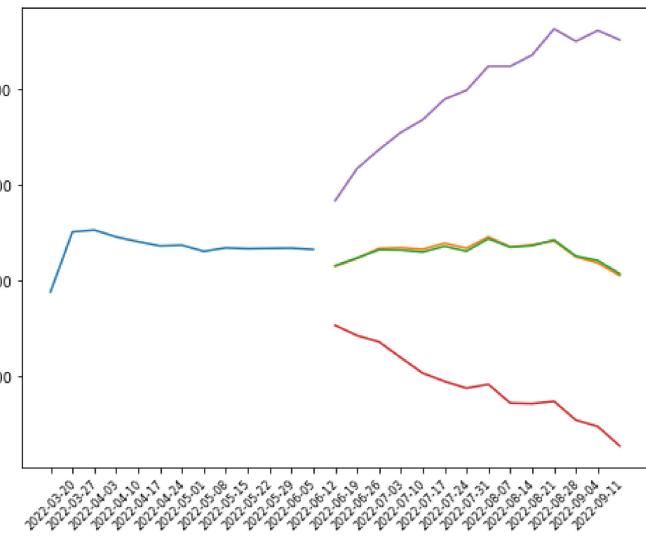
test cv mean error, stdev (10 folds): 7149.575450461864 9442.747716168018

sell date: 2022-08-07

expected return: 0.018482186671808076

discounted return: 0.0003663364200887642

quarter return: 1.0342709463466802



```

['options', ('2022-07-15',)]
['sustainability', Value
2022-5
palmOil      False
controversialWeapons  False
gambling      False
socialScore    8.71
nuclear        False
furLeather    False
alcoholic      False
gmo            False
catholic       False
socialPercentile None
peerCount      96
governanceScore 11.77
environmentPercentile None
animalTesting  False
tobacco        False
totalEsg       21.71
highestControversy 1
esgPerformance AVG_PERF
coal          False
pesticides    False
adult         False
percentile    30.32
peerGroup     Insurance
smallArms     False
environmentScore 1.23
governancePercentile None
militaryContract False]
symbol: SAFM
sector: Consumer Defensive
Index: SP400
vol_30d_2yr: 5061001.171875
Sector 1YMF: 47.44999694824219
1YMF: 47.44999694824219
risk trend factor: 1.7515689687220128
    beta currentRatio debtToEquity dividendRate dividendYield \
SAFM  0.640199      5.529      0.877      1.76      0.0084

    earningsGrowth   ebitda ebitdaMargins forwardPE freeCashflow \
SAFM  2.316  1342139008      0.23866  6.811968  669912512

    grossMargins grossProfits heldPercentInstitutions industry \
SAFM  0.25714  907758000      0.8102  Packaged Foods

    marketCap operatingCashflow operatingMargins payoutRatio pegRatio \
SAFM  4649520640  954787008      0.20787  0.0455  -0.48

    priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
SAFM  1.97168      0.826786      0.15341  3.785

    returnOnAssets returnOnEquity revenueGrowth revenuePerShare \
SAFM  0.30256      0.44602      0.358      255.051

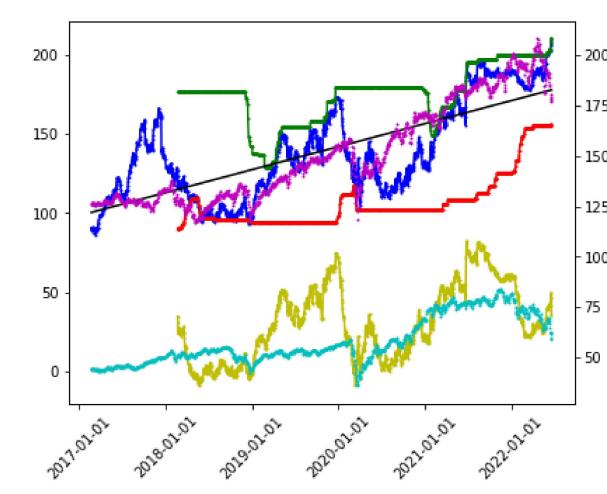
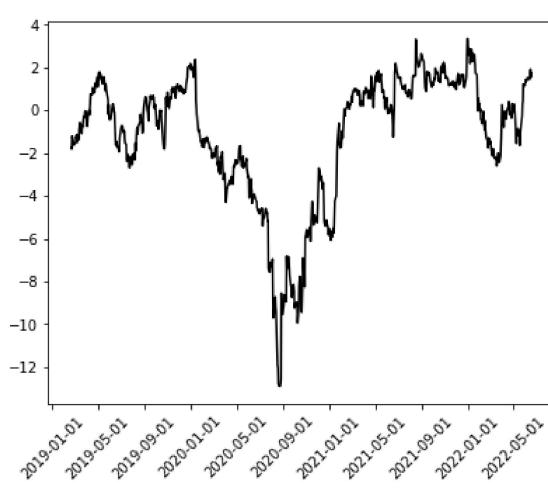
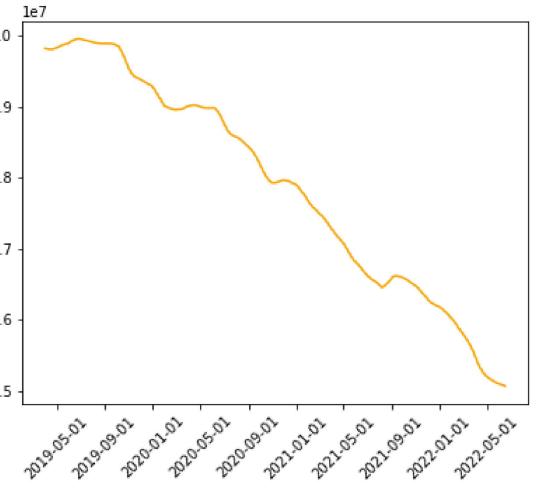
    sector sharesOutstanding shortRatio totalCash \
SAFM  Consumer Defensive  22320200      4.01  829123968

    totalCashPerShare totalDebt totalRevenue trailingPE
SAFM  37.147  20690000  5623608832  5.38993
Adj Close  21dBOLD  21dMA-TP  21dBOLU  90dSMA  90dSDev  90d_lower  90d_upper
2022-06-17 208.309998 186.953267 199.289207 211.625148 191.30127 7.50937 176.282531 206.320009
volume_factor latest_p vol_30d_2yr pct_2yr adf hurst
SAFM  1.334104 208.309998 5061001.171875 0.98121 0.675913 0.476629

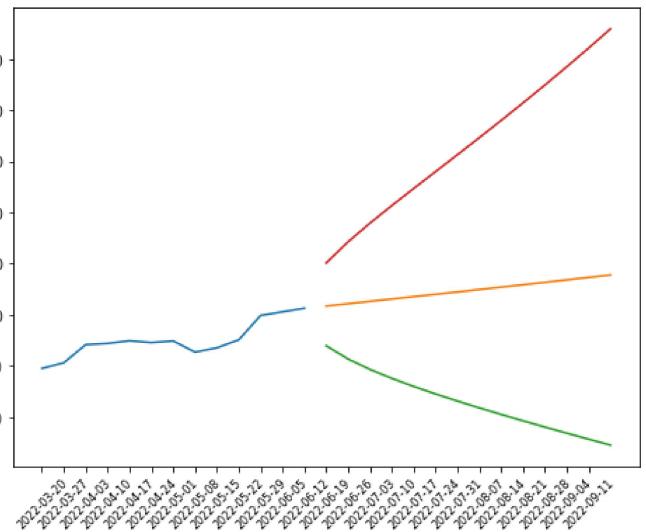
```

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Sector 1YMF: -74.80001831054688
Sector Volume Factor: 1.4135920452708397
Sector Risk Trend Factor: -2.283970024749523
Index 1YMF: -69.05999755859375
Index Volume Factor: 0.5765983741853883
Index Risk Trend Factor: -5.134573474205833



ets next 13 weeks
inner cv scores:
best model: [None, 'add', False]
best inner cv score, sdev (11 folds): 341.8995456857701 406.0401102878622
test cv mean error, stdev (10 folds): 366.1965661087105 418.16467429903594
sell date: 2022-09-18
expected return: 0.03477390905806314
discounted return: 0.00037162292056591717
quarter return: 1.0347739090580612



['options', ('2022-08-19', '2022-12-16')]

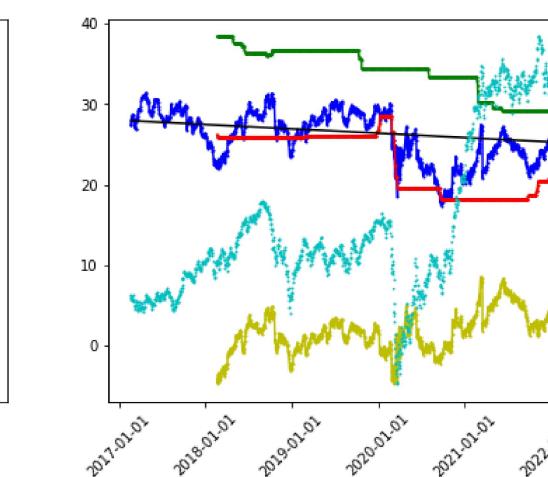
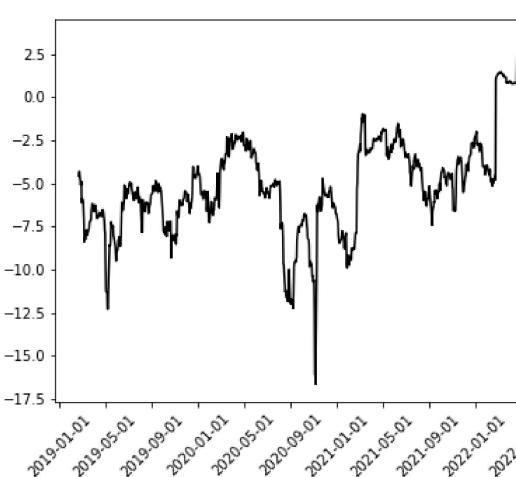
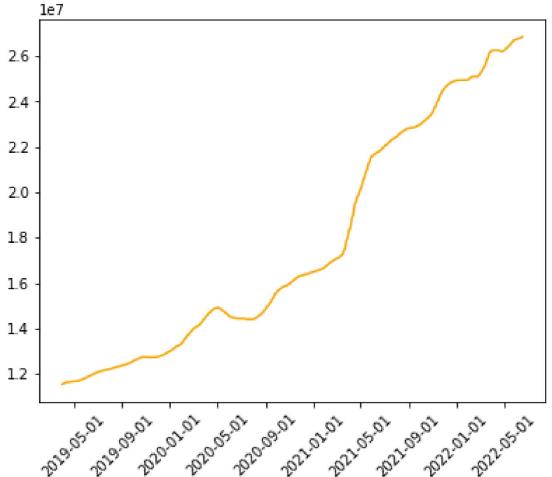
symbol: SJI
sector: error
sector: error
Index: SP600
vol_30d_2yr: 26850614.0625
Sector 1YMF: 2.720003128051758
1YMF: 2.720003128051758
risk trend factor: 1.295238173088975
Empty DataFrame
Columns: []
Index: [SJI]

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	34.200001	33.571564	34.29746	35.023356	34.252857	0.376732	33.499393	35.006321

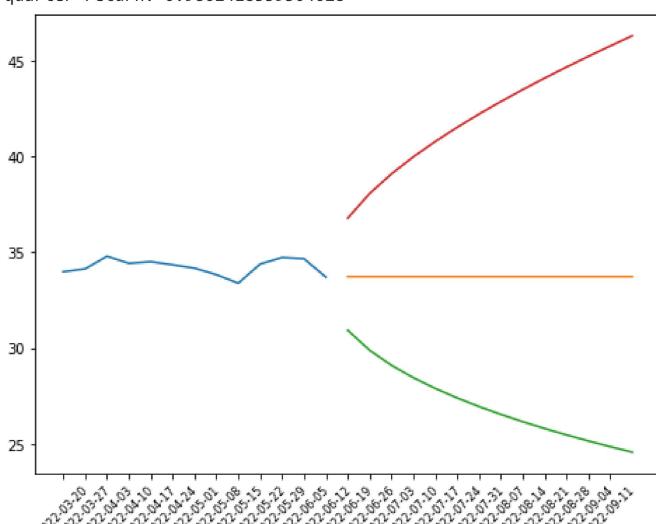
volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
SJI	0.791297	34.200001	26850614.0625	0.934426	0.172286	0.415691

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Index 1YMF: -77.27001953125
 Index Volume Factor: 1.232760496116622
 Index Risk Trend Factor: -5.242200185196592



ets next 13 weeks
 inner cv scores:
 best model: [None, 'add', True]
 best inner cv score, sdev (11 folds): 11.032857893371341 9.065456814726048
 test cv mean error, stdev (10 folds): 12.011302107920269 8.936993711591871
 sell date: 2022-09-18
 expected return: -0.013758166069532271
 discounted return: -0.00015057221476544314
 quarter return: 0.9862418339304628



```
[options, ('2022-07-15',)]
symbol: LNTH
sector: Healthcare
Index: SP600
vol_30d_2yr: 14149384.1796875
Sector 1YMF: 22.491004943847656
1YMF: 22.491004943847656
risk trend factor: 1.1787739665678139
    beta currentRatio debtToEquity earningsGrowth ebitda \
LNTH 0.750453 1.828 36.846 3.692 108329000

    ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
LNTH 0.20002 18.234236 77142872 0.50913 187695000

    heldPercentInstitutions industry marketCap \
LNTH 1.01237 Diagnostics & Research 4167462400

    operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
LNTH 54362000 0.11518 0 0.55 8.071249

    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
LNTH 7.695022 -0.06892 1.563 0.04389

    returnOnEquity revenueGrowth revenuePerShare sector \
LNTH -0.07151 1.258 7.998 Healthcare

    sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
LNTH 68634096 1.86 105355000 1.535 190072992

    totalRevenue
LNTH 541579008
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	60.720001	58.693247	66.262412	73.831578	61.742857	5.236883	51.269091	72.216623

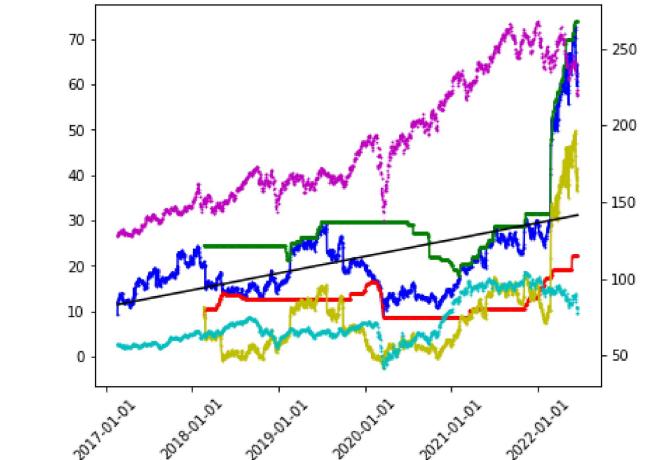
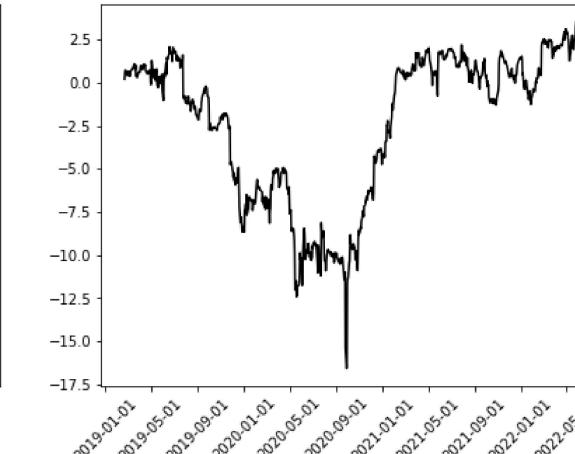
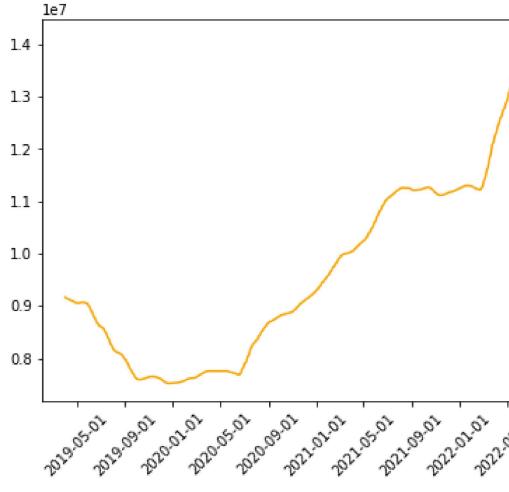
volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
LNTH	1.823238	60.720001	14149384.179688	0.79355	0.965336	0.533209

I axis r axis

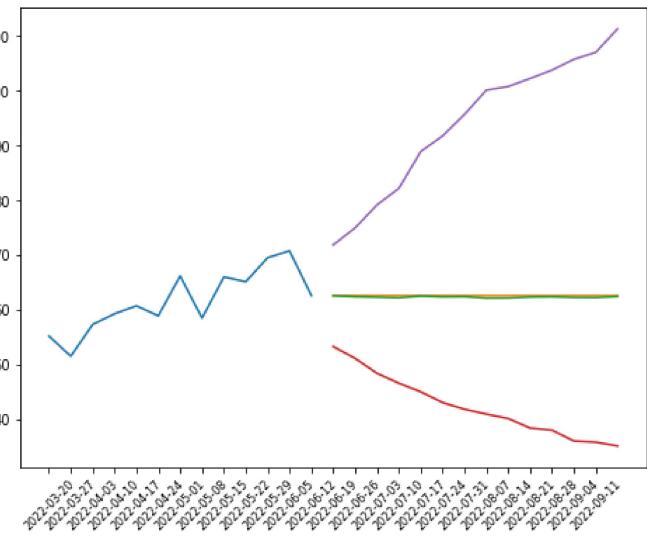
legend legend

blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Sector 1YMF: -122.20997619628906
Sector Volume Factor: 1.2238851152317325
Sector Risk Trend Factor: -3.3236323632363236
Index 1YMF: -77.27001953125
Index Volume Factor: 1.232760496116622
Index Risk Trend Factor: -5.242200185196592



ets next 13 weeks
inner cv scores:
best model: [None, 'mul', True]
best inner cv score, sdev (11 folds): 42.20944812442461 64.78300074110848
test cv mean error, stdev (10 folds): 42.661154437542265 67.92863270301751
sell date: 2022-06-19
expected return: 0.029860428254579387
discounted return: 0.029860428254579352
quarter return: 14.983391569760325



		2022-03-31	2021-12-31	2021-09-30	\
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Intangible Assets	340204000.0	348510000.0	356883000.0		
Capital Surplus	691516000.0	685472000.0	680819000.0		
Total Liab	417316000.0	399345000.0	348472000.0		
Total Stockholder Equity	515850000.0	464439000.0	499344000.0		
Other Current Liab	89178000.0	NaN	NaN		
Total Assets	933166000.0	863784000.0	847816000.0		
Common Stock	686000.0	677000.0	677000.0		
Other Current Assets	12860000.0	2705000.0	12043000.0		
Retained Earnings	-178263000.0	-221225000.0	-181010000.0		
Other Liab	64083000.0	129181000.0	88437000.0		
Good Will	61189000.0	61189000.0	61189000.0		
Treasury Stock	1911000.0	-485000.0	-1142000.0		
Other Assets	78005000.0	92734000.0	103495000.0		
Cash	105355000.0	98508000.0	91475000.0		
Total Current Liabilities	177657000.0	90497000.0	76903000.0		
Deferred Long Term Asset Charges	47868000.0	62764000.0	66493000.0		
Short Long Term Debt	12500000.0	11607000.0	10766000.0		
Other Stockholder Equity	1911000.0	-485000.0	-1142000.0		
Property Plant Equipment	125634000.0	125560000.0	124728000.0		
Total Current Assets	324747000.0	235791000.0	201521000.0		
Long Term Investments	3387000.0	NaN	NaN		
Net Tangible Assets	114457000.0	54740000.0	81272000.0		
Net Receivables	172283000.0	89336000.0	64054000.0		
Long Term Debt	159165000.0	162729000.0	166479000.0		
Inventory	34249000.0	35129000.0	33949000.0		
Accounts Payable	22383000.0	20787000.0	20508000.0		
	2021-06-30				
Intangible Assets	365259000.0				
Capital Surplus	676059000.0				
Total Liab	349662000.0				
Total Stockholder Equity	508140000.0				
Other Current Liab	NaN				
Total Assets	857802000.0				
Common Stock	676000.0				
Other Current Assets	8182000.0				
Retained Earnings	-167595000.0				
Other Liab	106587000.0				
Good Will	61189000.0				
Treasury Stock	-1000000.0				
Other Assets	126648000.0				
Cash	91500000.0				
Total Current Liabilities	73826000.0				
Deferred Long Term Asset Charges	64777000.0				
Short Long Term Debt	11269000.0				
Other Stockholder Equity	-1000000.0				
Property Plant Equipment	118493000.0				
Total Current Assets	186213000.0				
Long Term Investments	NaN				
Net Tangible Assets	81692000.0				
Net Receivables	54892000.0				
Long Term Debt	168514000.0				
Inventory	31719000.0				
Accounts Payable	21471000.0]			
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Change To Liabilities	1506000.0	649000.0	-1112000.0		
Total Cashflows From Investing Activities	-1390000.0	-4544000.0	-2420000.0		
Net Borrowings	-2609000.0	-2591000.0	-2620000.0		
Total Cash From Financing Activities	-2179000.0	-2100000.0	-1726000.0		
Change To Operating Activities	-1674000.0	10133000.0	3754000.0		
Issuance Of Stock	5934000.0	678000.0	961000.0		
Net Income	42962000.0	-40215000.0	-13415000.0		
Change In Cash	6846000.0	7034000.0	-25000.0		
Repurchase Of Stock	-5504000.0	-187000.0	-67000.0		
Effect Of Exchange Rate	151000.0	-211000.0	-219000.0		
Total Cash From Operating Activities	10264000.0	13889000.0	4340000.0		
Depreciation	11786000.0	12200000.0	12339000.0		
Change To Inventory	-1634000.0	-2924000.0	-2513000.0		
Change To Account Receivables	-85155000.0	-25381000.0	-9272000.0		
Change To Netincome	42227000.0	59181000.0	14314000.0		
Capital Expenditures	-3190000.0	-4544000.0	-2420000.0		
	2021-06-30				
Change To Liabilities	1778000.0				
Total Cashflows From Investing Activities	-2656000.0				
Net Borrowings	-2565000.0				
Total Cash From Financing Activities	-715000.0				
Change To Operating Activities	9341000.0				
Issuance Of Stock	2043000.0				
Net Income	-26657000.0				
Change In Cash	22639000.0				
Repurchase Of Stock	-193000.0				
Effect Of Exchange Rate	141000.0				
Total Cash From Operating Activities	25869000.0				
Depreciation	9626000.0				
Change To Inventory	-2001000.0				
Change To Account Receivables	3897000.0				
Change To Netincome	29700000.0				
Capital Expenditures	-2656000.0				
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Quarter					

Q2021 101064000 -26657000
Q2021 102073000 -13415000
4Q2021 129562000 -40215000
1Q2022 208880000 42962000]

[**'quarterly_financials'**,
Research Development 12203000.0 11293000.0 11252000.0
Effect Of Accounting Charges None None None
Income Before Tax 57901000.0 -41007000.0 -19837000.0
Minority Interest None None None
Net Income 42962000.0 -40215000.0 -13415000.0
Selling General Administrative 57942000.0 42593000.0 36205000.0
Gross Profit 129070000.0 57908000.0 42669000.0
Ebit 58925000.0 4022000.0 -4788000.0
Operating Income 58925000.0 4022000.0 -4788000.0
Other Operating Expenses None None None
Interest Expense -15090000.0 -1528000.0 -1569000.0
Extraordinary Items None None None
Non Recurring None None None
Other Items None None None
Income Tax Expense 14939000.0 -792000.0 -6422000.0
Total Revenue 208880000.0 129562000.0 102073000.0
Total Operating Expenses 149955000.0 125540000.0 106861000.0
Cost Of Revenue 79810000.0 71654000.0 59404000.0
Total Other Income Expense Net -1024000.0 -45029000.0 -15049000.0
Discontinued Operations None None None
Net Income From Continuing Ops 42962000.0 -40215000.0 -13415000.0
Net Income Applicable To Common Shares 42962000.0 -40215000.0 -13415000.0

2021-06-30
Research Development 12061000.0
Effect Of Accounting Charges None
Income Before Tax -28536000.0
Minority Interest None
Net Income -26657000.0
Selling General Administrative 60808000.0
Gross Profit 46088000.0
Ebit -26781000.0
Operating Income -26781000.0
Other Operating Expenses None
Interest Expense -1937000.0
Extraordinary Items None
Non Recurring None
Other Items None
Income Tax Expense -1879000.0
Total Revenue 101064000.0
Total Operating Expenses 127845000.0
Cost Of Revenue 54976000.0
Total Other Income Expense Net -1755000.0
Discontinued Operations None
Net Income From Continuing Ops -26657000.0
Net Income Applicable To Common Shares -26657000.0]

[**'mutualfund_holders'**, Holder Shares Date Reported \ 0 iShares Core S&P Smallcap ETF 4760862 2022-01-30 1 Vanguard Total Stock Market Index Fund 1818068 2021-12-30 2 iShares Russell 2000 ETF 1546604 2022-01-30 3 Artisan International Small-Mid Fund 1430335 2021-12-30 4 Thrivent Small Cap Stock Fund 983011 2022-01-30 5 Vanguard Extended Market Index Fund 869393 2021-12-30 6 John Hancock Small Cap Core Fd 846280 2022-01-30 7 Blair (William) Mutual Funds,Inc-Small Cap Val... 724920 2022-02-27 8 Price (T.Rowe) Small-Cap Value Fund 720839 2021-12-30 9 Price (T.Rowe) Health Sciences Fund 720458 2021-12-30

% Out Value
0 0.0694 120973503
1 0.0265 52523984
2 0.0225 39299207
3 0.0208 41322378
4 0.0143 24978309
5 0.0127 25116763
6 0.0123 21503974
7 0.0106 34665674
8 0.0105 20825038
9 0.0105 20814031]

[**'options'**, ('2022-07-15',)]

symbol: ROG

sector: error

sector: error

Index: SP600

vol_30d_2yr: 3248345.8984375

Sector 1YMF: 22.989990234375

1YMF: 22.989990234375

risk trend factor: 1.068804267635208

Empty DataFrame

Columns: []

Index: [ROG]

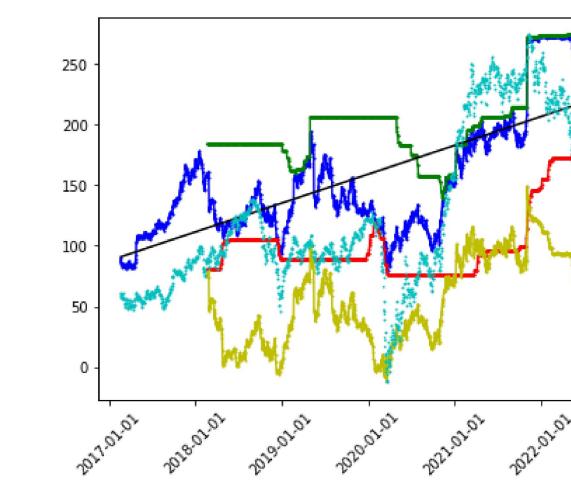
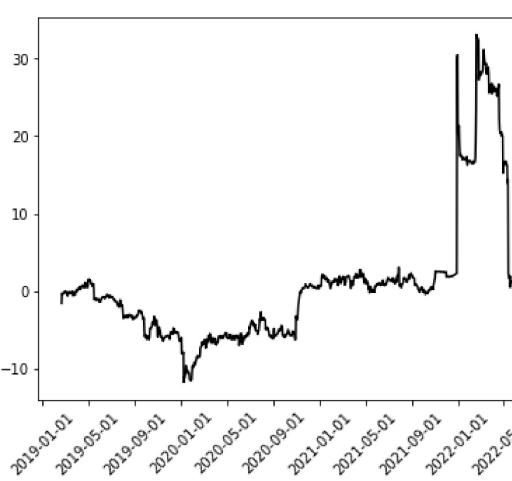
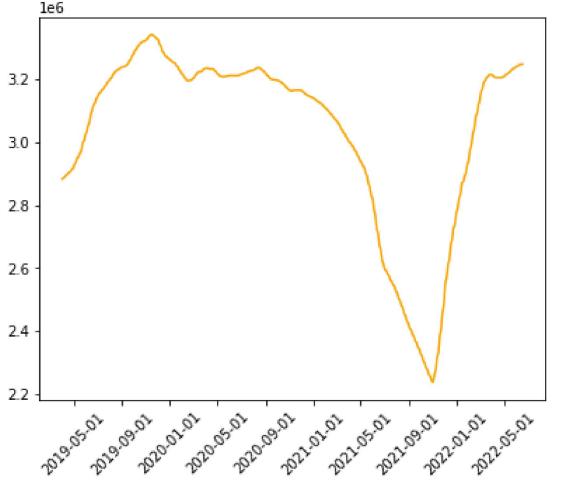
Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDDev 90d_lower 90d_upper

2022-06-17 259.380005 254.172765 260.19492 266.217074 267.576983 6.298768 254.979447 280.17452

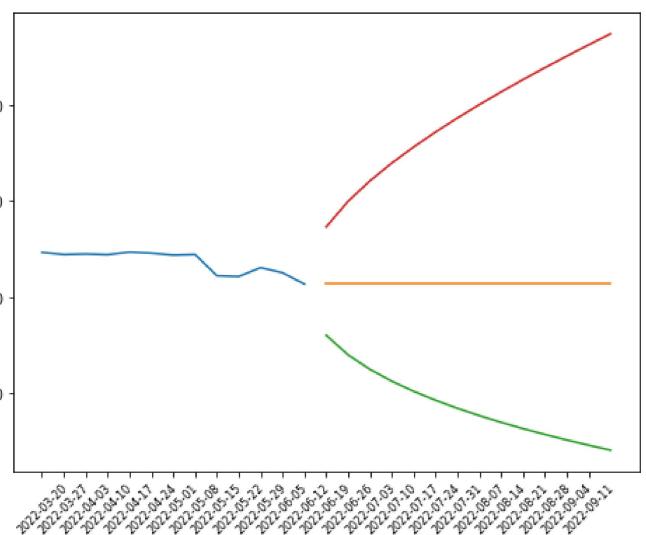
volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
ROG	0.980653	259.380005	3248345.898438	0.91539	0.71811	0.478768

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Index 1YMF: -77.27001953125
Index Volume Factor: 1.232760496116622
Index Risk Trend Factor: -5.242200185196592



ets next 13 weeks
inner cv scores:
best model: [None, None]
best inner cv score, sdev (11 folds): 923.7177242546556 1367.48960810325
test cv mean error, stdev (10 folds): 1005.1315131672602 1408.5880717304296
sell date: 2022-06-19
expected return: -0.009700416122058986
discounted return: -0.009700416122058964
quarter return: 0.4078748091135111



symbol: TWI
sector: Industrials
Index: SP600
vol_30d_2yr: 10530212.5
Sector 1YMF: 6.0800018310546875
1YMF: 6.0800018310546875
risk trend factor: 0.9310876079145333
beta currentRatio debtToEquity earningsGrowth ebitda \
TWI 2.412885 1.853 219.119 0.682 163579008
ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
TWI 0.08464 8.09589 -24455124 0.13457 227051000
heldPercentInstitutions industry marketCap \
TWI 0.77816 Farm & Heavy Construction Machinery 1110906752
operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
TWI 8171000 0.06043 0 0.38 4.470499
priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
TWI 0.574797 0.03101 0.829 0.06237
returnOnEquity revenueGrowth revenuePerShare sector \
TWI 0.28169 0.378 30.825 Industrials
sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
TWI 62656900 2.29 98144000 1.566 538417984
totalRevenue trailingPE
TWI 1932694016 18.801697

Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper

2022-06-17 17.52 16.247353 18.072381 19.897408 15.954921 1.924943 12.105034 19.804807

volume_factor latest_p vol_30d_2yr pct_2yr adf hurst

TWI 1.389288 17.52 10530212.5 0.876816 0.791457 0.500704

I axis r axis

legend legend

blue symbol magenta sector

green trailing_1yr_max cyan index

red trailing_1yr_min

orange 30d_vol_2yr

black risk_trend_factor/linear

yellow supply_trend_1yr

Sector 1YMF: -141.5800018310547

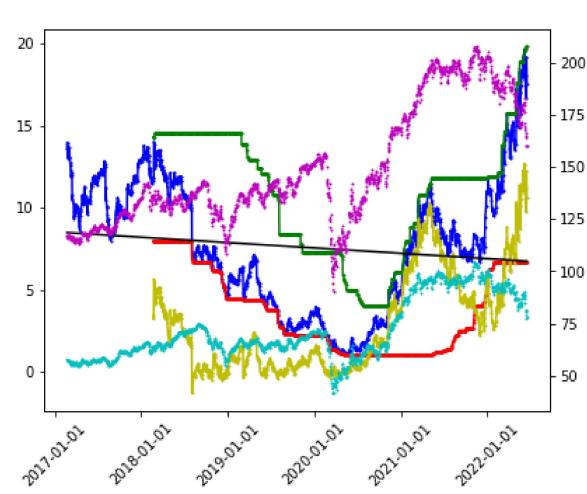
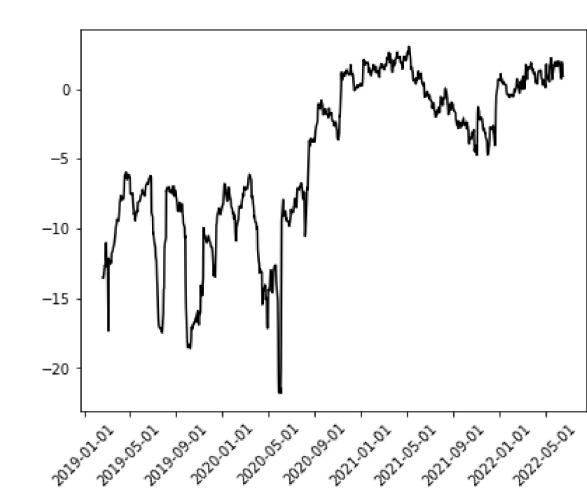
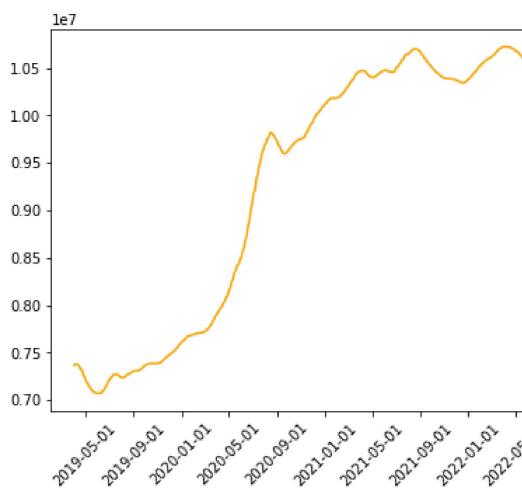
Sector Volume Factor: 0.8696853533786545

Sector Risk Trend Factor: -4.514668337867341

Index 1YMF: -77.27001953125

Index Volume Factor: 1.232760496116622

Index Risk Trend Factor: -5.242200185196592



ets next 13 weeks

inner cv scores:

best model: ['add', 'add', False]

best inner cv score, sdev (11 folds): 3.2805800359921733 4.993652709991219

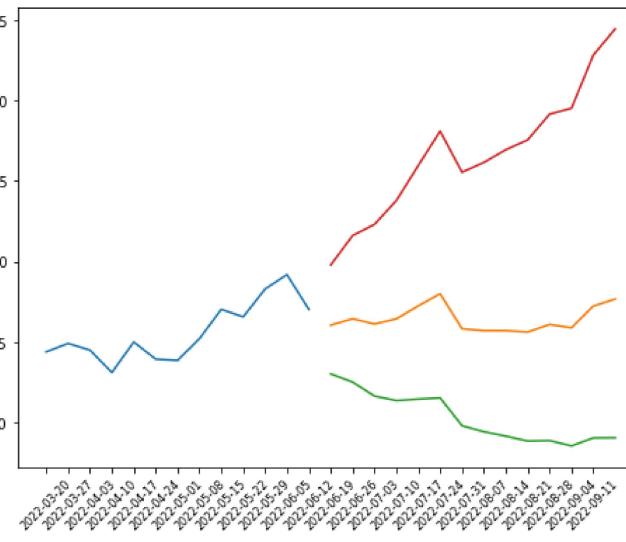
test cv mean error, stdev (10 folds): 3.572171330127623 5.147324164231099

sell date: 2022-07-24

expected return: 0.027649232949760703

discounted return: 0.0007578952721092325

quarter return: 1.0721864295982584



```
[ 'options', ('2022-07-15',) ]
symbol: PBF
sector: Energy
Index: SP600
vol_30d_2yr: 92668774.0234375
Sector 1YMF: 17.619998931884766
1YMF: 17.619998931884766
risk trend factor: 0.8876574451557954
    beta currentRatio debtToEquity      ebitda ebitdaMargins  forwardPE \
PBF  2.259981      1.254     197.914   690400000     0.02194   11.930909
          freeCashflow grossMargins grossProfits heldPercentInstitutions \
PBF  284750016     0.0362    671100000       0.80139
          industry marketCap operatingCashflow \
PBF  Oil & Gas Refining & Marketing 3964366848        803299968
          operatingMargins payoutRatio pegRatio priceToBook \
PBF      0.0135         0     -0.18     2.070946
          priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
PBF      0.125972     0.00798     0.629     0.02192
          returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \
PBF      0.14223      0.856    261.505 Energy        120828000
          shortRatio totalCash totalCashPerShare totalDebt totalRevenue \
PBF      2.81  1434599936      11.873  4999499776  31470299136
          trailingPE
PBF  15.904024
```

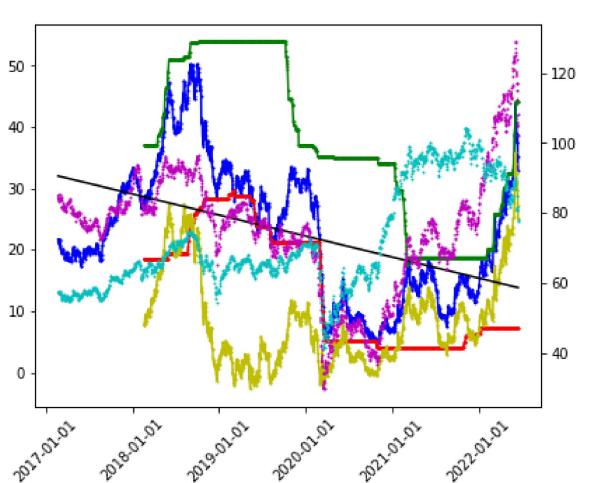
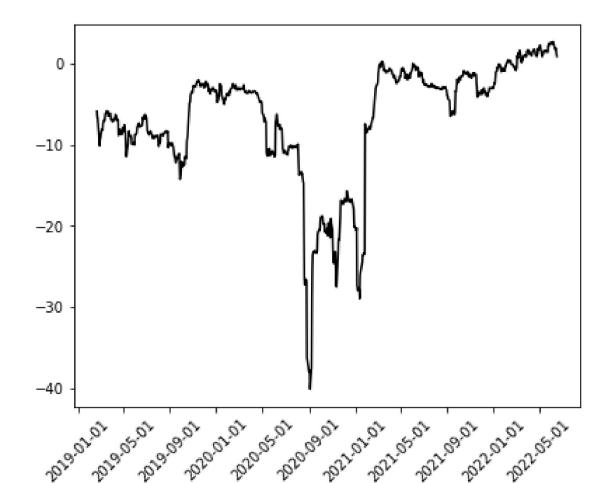
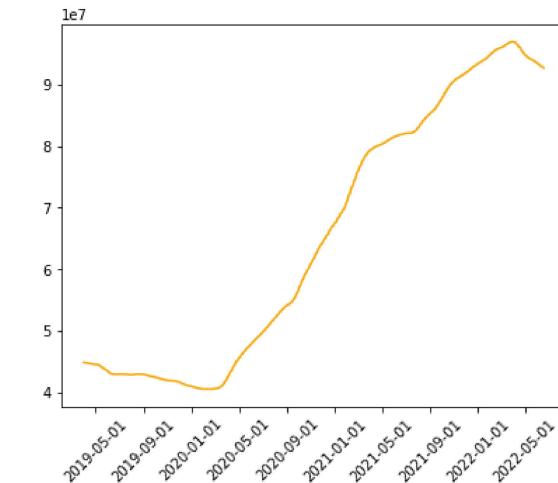
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	32.98	27.175062	35.668889	44.162716	29.964286	5.34115	19.281986	40.646585

volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
PBF	0.835417	32.98	92668774.023438	0.721917	0.581704	0.554972

l axis		r axis	
legend	legend	legend	legend
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		

black	risk_trend_factor/linear
yellow	supply_trend_1yr

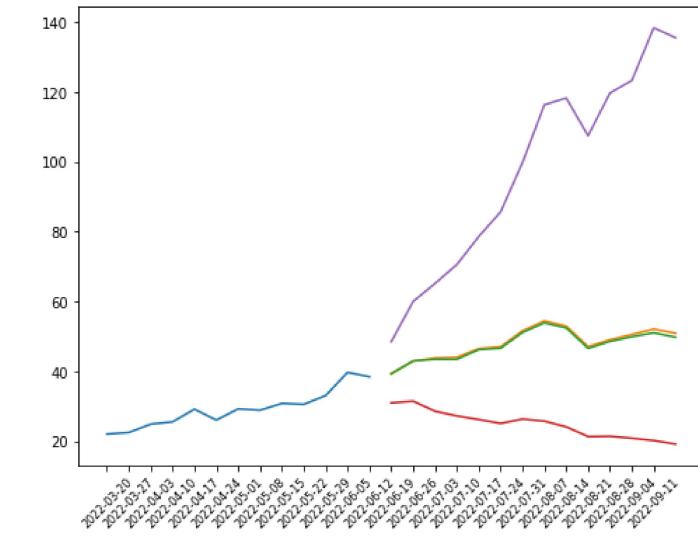
Sector 1YMF: -3.82000732421875
Sector Volume Factor: 0.8966412344901694
Sector Risk Trend Factor: -0.12330558135216596
Index 1YMF: -77.27001953125
Index Volume Factor: 1.232760496116622
Index Risk Trend Factor: -5.242200185196592



```

sets next 13 weeks
inner cv scores:
best model: ['mul', 'mul', False]
best inner cv score, sdev (11 folds): 34.290264563311545 23.68393173963982
test cv mean error, stdev (10 folds): 29.94793293586909 20.238754848688544
sell date: 2022-08-07
expected return: 0.6501301570526777
discounted return: 0.010067422279423255
quarter return: 2.5132372643029206

```



```
['options', ('2022-07-15', '2022-12-16', '2023-01-20', '2024-01-19')]
```

```
symbol: GO
```

```
sector: Consumer Defensive
```

```
Index: SP400
```

```
vol_30d_2yr: 21744971.2890625
```

```
Sector 1YMF: 9.000003967285156
```

```
1YMF: 9.090003967285156
```

```
risk trend factor: 0.8421349867224205
```

```
    beta currentRatio debtToEquity earningsGrowth      ebitda \
GO -0.204778     1.904      144.187      -0.368   158646000
```

```
      ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
GO      0.05023   34.782608     -14480875      0.30639   948786000
```

```
      heldPercentInstitutions      industry      marketCap operatingCashflow \
GO      1.0557   Grocery Stores   3854695936      175503008
```

```
      operatingMargins payoutRatio pegRatio priceToBook \
GO      0.02681        0       3.5      3.760813
```

```
      priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
GO      1.220403      0.01741      0.611      0.02033
```

```
      returnOnEquity revenueGrowth revenuePerShare      sector \
GO      0.05577      0.105      32.914  Consumer Defensive
```

```
      sharesOutstanding shortRatio totalCash totalCashPerShare      totalDebt \
GO      96367400      6.55   137996000      1.432   1476578944
```

```
      totalRevenue trailingPE
GO  3158543104     71.42857
```

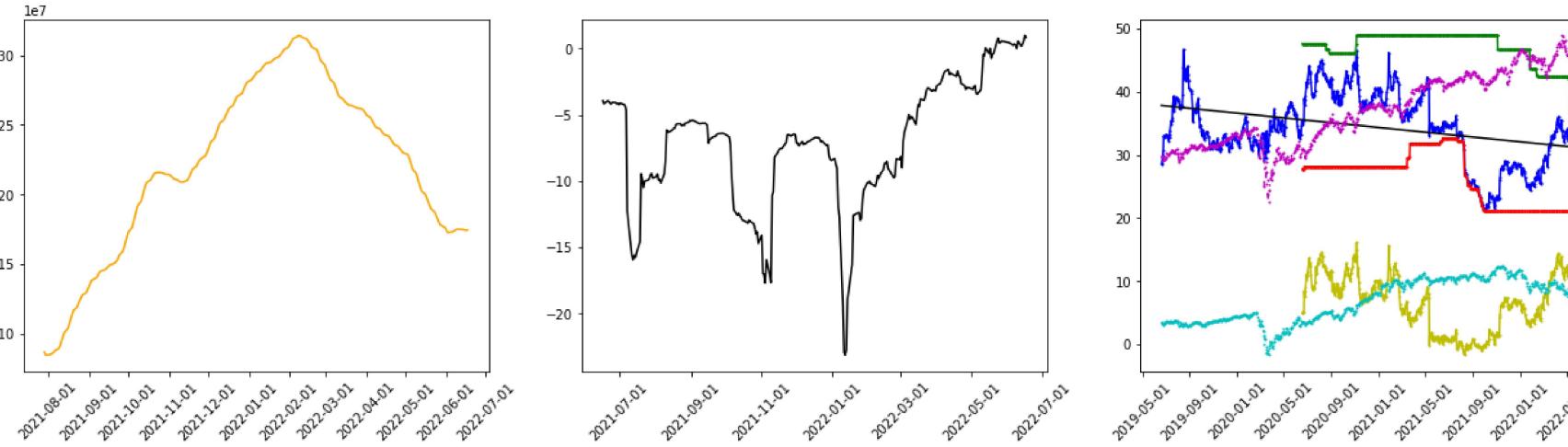
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
--	-----------	---------	----------	---------	--------	---------	-----------	-----------

2022-06-17	40.150002	35.915072	38.024936	40.134801	35.226667	2.439389	30.347888	40.105445
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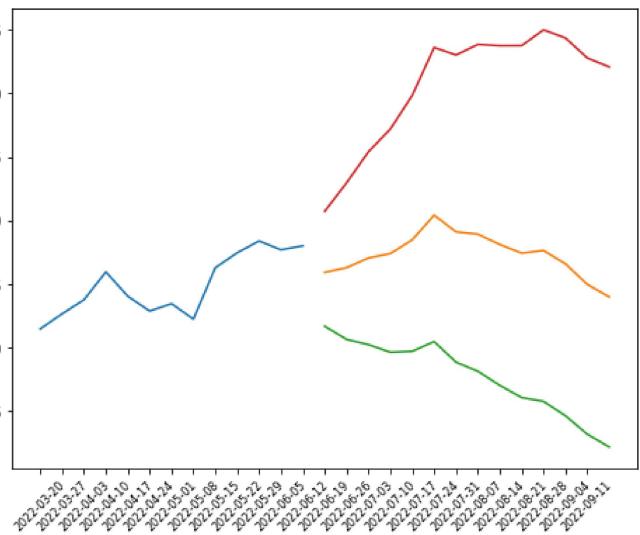
volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
GO	1.191531	40.150002	21744971.289062	0.687007	0.173605	0.403873

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Sector 1YMF: -74.80001831054688
Sector Volume Factor: 1.4135920452708397
Sector Risk Trend Factor: -2.283970024749523
Index 1YMF: -69.05999755859375
Index Volume Factor: 0.5765983741853883
Index Risk Trend Factor: -5.134573474205833



sets next 13 weeks
inner cv scores:
best model: ['add', 'add', True]
best inner cv score, sdev (11 folds): 15.809879339831612 6.829165054824745
test cv mean error, stdev (10 folds): 15.809879339831612 6.829165054824745
sell date: 2022-07-24
expected return: 0.006391410939963005
discounted return: 0.00017698989664149956
quarter return: 1.0164148977153795



```

['options', ('2022-07-15', '2023-01-20', '2024-01-19')]
symbol: HRB
sector: Consumer Cyclical
Index: SP400
vol_30d_2yr: 54249330.46875
Sector 1YMF: 9.64000129699707
1YMF: 9.64000129699707
risk trend factor: 0.73141120475963
    beta currentRatio debtToEquity dividendRate dividendYield \
HRB 0.695099 1.103 5314.905 1.08 0.0327

    earningsGrowth ebitda ebitdaMargins forwardPE grossMargins \
HRB -0.008 806428032 0.30238 8.967391 0.472

    grossProfits heldPercentInstitutions industry marketCap \
HRB 1400058000 0.93136 Personal Services 5266601984

    operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
HRB 80728000 0.25066 0.3344 0.99 117.43773

    priceToSalesTrailing12Months profitMargins quickRatio revenueGrowth \
HRB 1.97476 0.16063 0.971 0.039

    revenuePerShare sector sharesOutstanding shortRatio \
HRB 15.645 Consumer Cyclical 159594000 3.1

    totalCash totalCashPerShare totalDebt totalRevenue trailingPE
HRB 1041740032 6.527 2384054016 2666958080 13.502455

```

	Adj	Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
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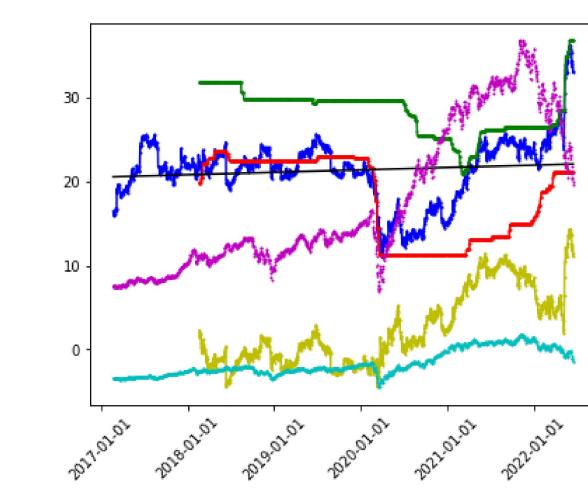
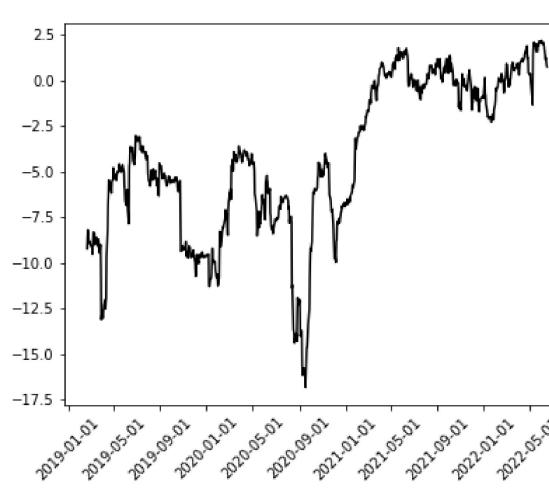
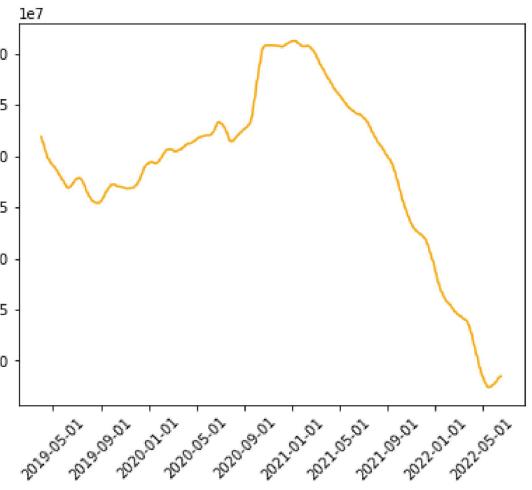
2022-06-17	33.0	32.411108	34.624444	36.837781	29.692222	4.042801	21.60662	37.777824
------------	------	-----------	-----------	-----------	-----------	----------	----------	-----------

volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
---------------	----------	-------------	---------	-----	-------

HRB	0.963511	33.0	54249330.46875	0.83894	0.727369	0.435637
-----	----------	------	----------------	---------	----------	----------

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

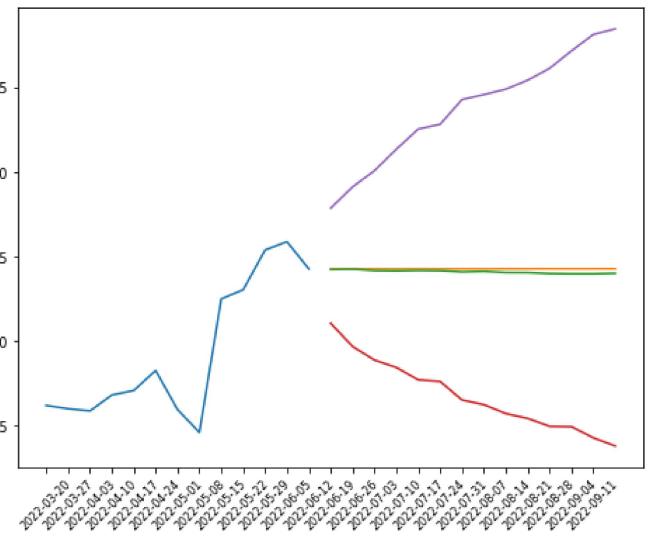
Sector 1YMF: -359.96002197265625
Sector Volume Factor: 1.2928194874233667
Sector Risk Trend Factor: -4.72140697901556
Index 1YMF: -69.05999755859375
Index Volume Factor: 0.5765983741853883
Index Risk Trend Factor: -5.134573474205833



```

ets next 13 weeks
inner cv scores:
best model: [None, 'mul', True]
best inner cv score, sdev (11 folds): 6.810426517709371 7.071435197582785
test cv mean error, stdev (10 folds): 7.190817295452251 7.30849166023054
sell date: 2022-09-18
expected return: 0.03855437643735156
discounted return: 0.00041127719823297326
quarter return: 1.0385543764373528

```



['options', ('2022-07-15', '2023-01-20', '2024-01-19')]

symbol: AZPN

sector: Technology

Index: SP400

vol_30d_2yr: 9413646.875

Sector 1YMF: 44.3599853515625

1YMF: 44.3599853515625

risk trend factor: 0.7193120754472356

```
currentRatio debtToEquity earningsGrowth ebitda ebitdaMargins \
AZPN      1.176     40.561      0.231  27337000      0.08523
```

```
forwardPE grossMargins grossProfits heldPercentInstitutions \
AZPN  34.490196     0.46746    137630000      1.03086
```

```
industry marketCap operatingCashflow operatingMargins \
AZPN Software—Application 12029022208      45755000      -0.08421
```

```
payoutRatio pegRatio priceToBook priceToSalesTrailing12Months \
AZPN      0      4.59     16.632854      37.503967
```

```
profitMargins quickRatio revenueGrowth revenuePerShare sector \
AZPN     -0.07406     1.116      0.154      4.811  Technology
```

```
sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
AZPN      62168700      2.78    285216992      4.282  314292000
```

```
totalRevenue
AZPN      320740000
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDDev	90d_lower	90d_upper
2022-06-17	189.199997	179.517829	194.02619	208.534551	172.712063	17.04983	138.612402	206.811723

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
AZPN	0.677612	189.199997	9413646.875	0.817172	0.799656	0.381343

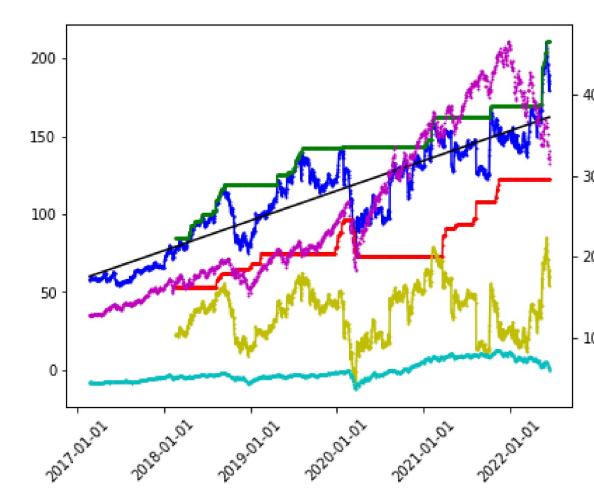
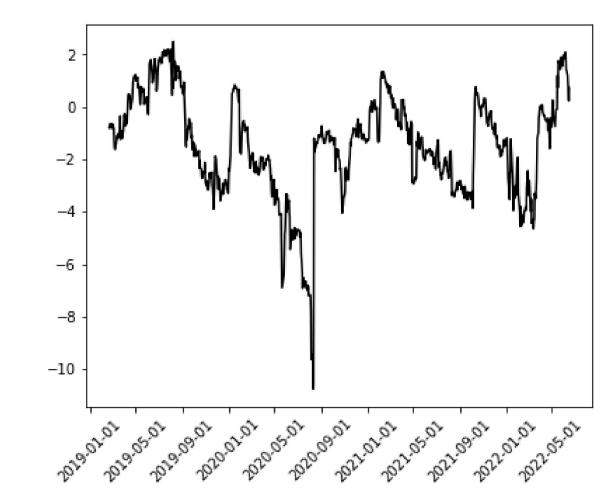
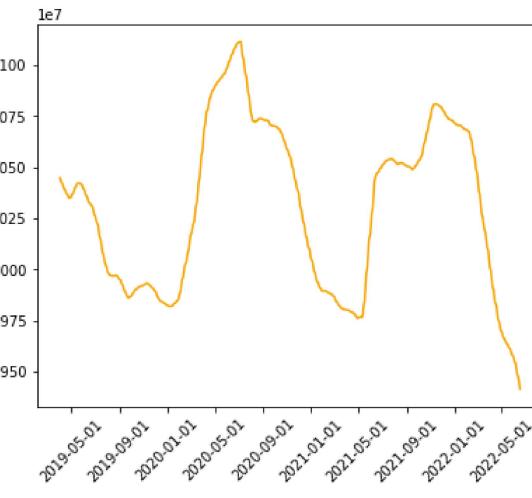
l axis

r axis

legend

blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

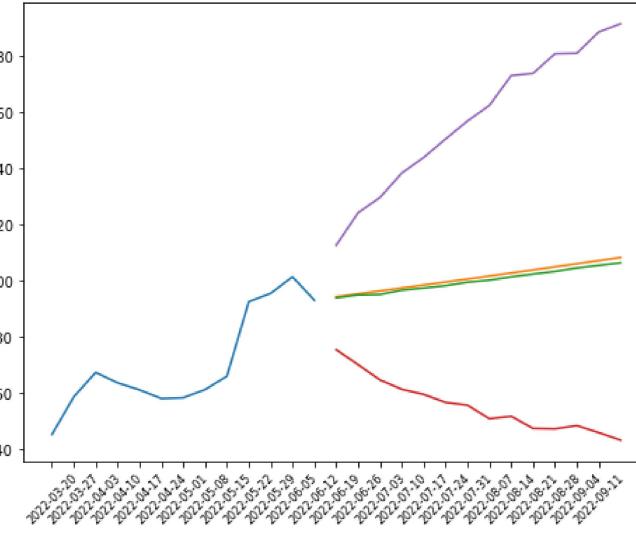
Sector 1YMF: -363.4599914550781
Sector Volume Factor: 1.1528457613891094
Sector Risk Trend Factor: -4.954471974241429
Index 1YMF: -69.05999755859375
Index Volume Factor: 0.5765983741853883
Index Risk Trend Factor: -5.134573474205833



```

sets next 13 weeks
inner cv scores:
best model: [None, 'mul', False]
best inner cv score, sdev (11 folds): 455.88267076129983 541.1075629116453
test cv mean error, stdev (10 folds): 500.50451769770837 547.8829642390989
sell date: 2022-09-18
expected return: 0.10134786512475712
discounted return: 0.0010498415855568766
quarter return: 1.1013478651247464

```



```

['options', ('2022-07-15', '2022-12-16')]
symbol: CEIX
sector: Energy
Index: SP600
vol_30d_2yr: 10292389.84375
Sector 1YMF: 13.870006561279297
1YMF: 13.870006561279297
risk trend factor: 0.677246429262603
    beta currentratio debtToEquity      ebitda ebitdaMargins forwardPE \
CEIX  2.034072        0.842       95.981  241890000        0.16404  2.585434

```

```

    freeCashflow grossMargins grossProfits heldPercentInstitutions \
CEIX   252373632        0.3951     422536000        0.82577

    industry marketCap operatingCashflow operatingMargins payoutRatio \
CEIX  Thermal Coal  1606689280        375780000        0.01441        0

```

```

    priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
CEIX   2.403771        1.089613        0.00221        0.658

```

```

    returnOnAssets returnOnEquity revenueGrowth revenuePerShare sector \
CEIX     0.00507        0.0052        0.616      42.718 Energy

```

```

    sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
CEIX    34814500        2.05  222906000        6.403  641545984

```

```

    totalRevenue trailingPE
CEIX   1474550016      512.7778

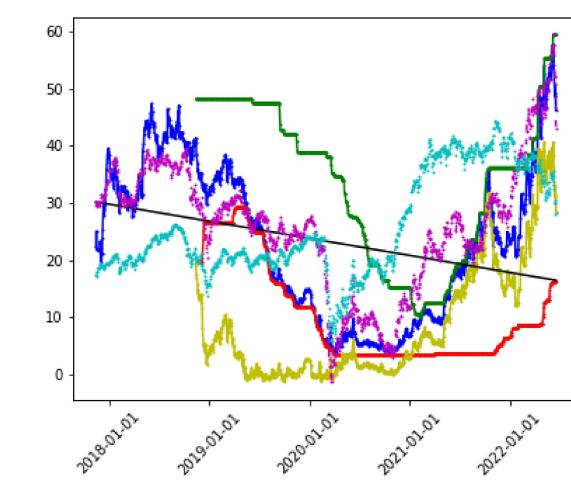
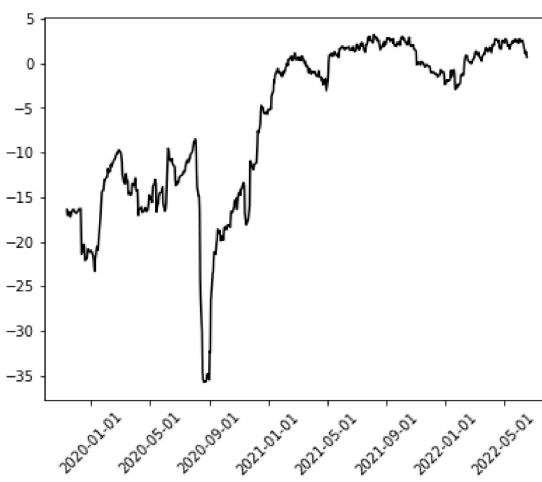
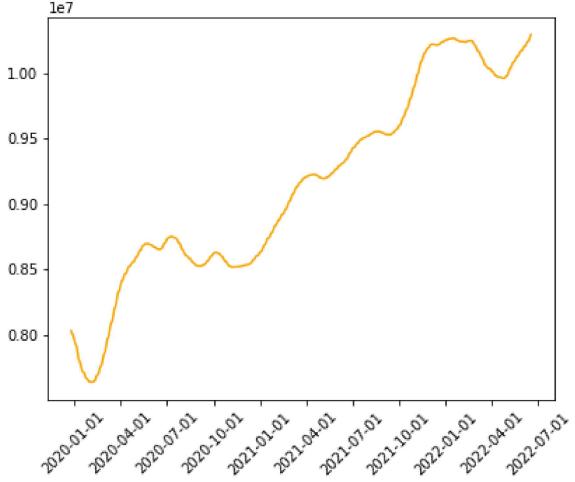
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	46.150002	47.268535	52.341873	57.415211	46.69127	6.413974	33.863321	59.519218

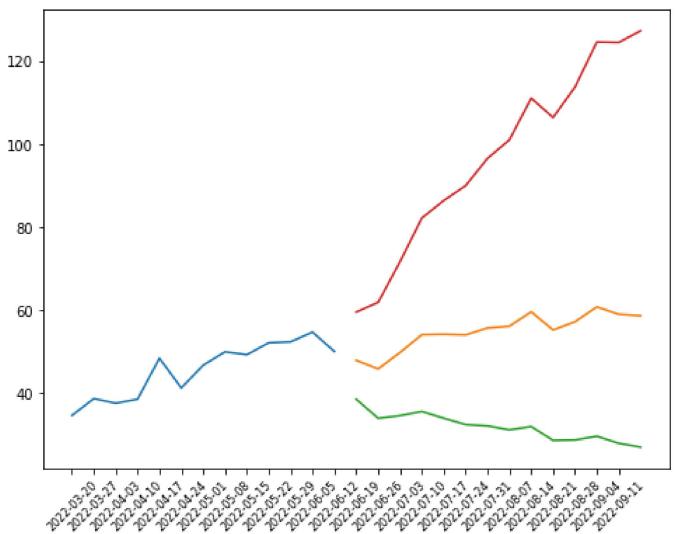
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
CEIX	1.548727	46.150002	10292389.84375	0.762563	0.855686	0.521917

l axis		r axis	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Sector 1YMF: -3.82000732421875
Sector Volume Factor: 0.8966412344901694
Sector Risk Trend Factor: -0.12330558135216596
Index 1YMF: -77.27001953125
Index Volume Factor: 1.232760496116622
Index Risk Trend Factor: -5.242200185196592



sets next 13 weeks
inner cv scores:
best model: ['add', None]
best inner cv score, sdev (11 folds): 36.976322062024906 64.10180894383853
test cv mean error, stdev (10 folds): 36.97632920692045 64.1018197865243
sell date: 2022-09-04
expected return: 0.3179430553154001
discounted return: 0.003545658589680034
quarter return: 1.384894073695398



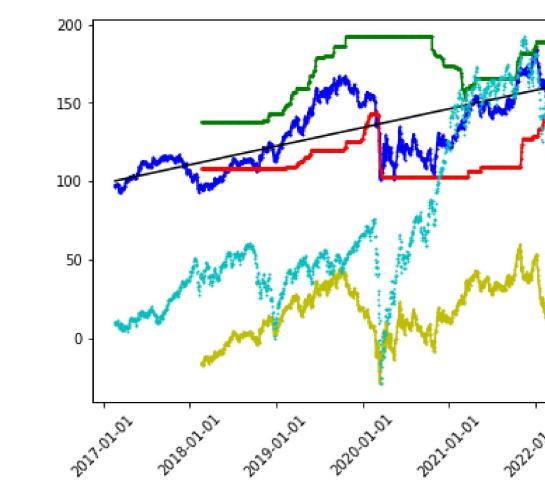
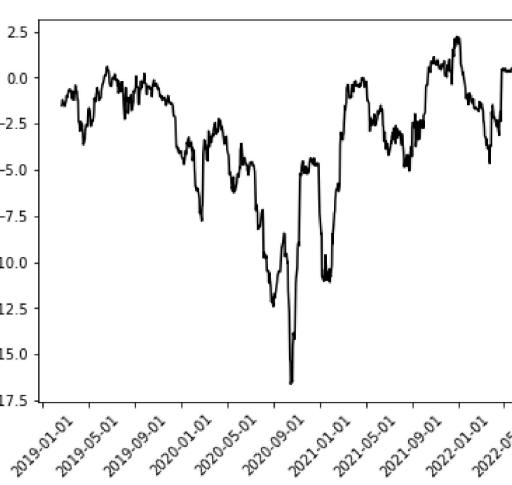
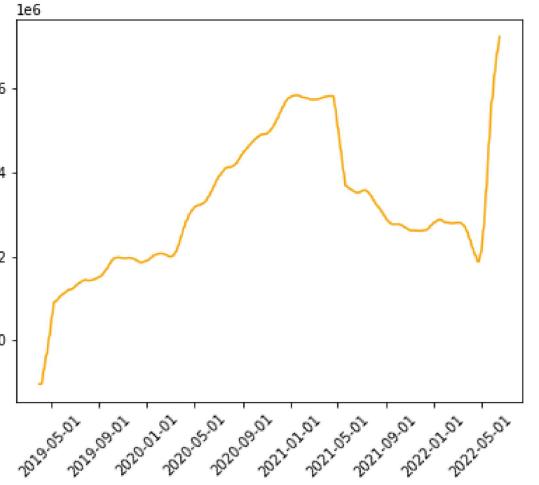
['options', ('2022-08-19',)]
symbol: PSB
sector: error
sector: error
Index: SP400
vol_30d_2yr: 2723370.8984375
Sector 1YMF: 12.849990844726562
1YMF: 12.849990844726562
risk trend factor: 0.576750069513787
Empty DataFrame
Columns: []
Index: [PSB]

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	185.919998	185.696223	186.664367	187.632511	178.031091	10.476157	157.078776	198.983405

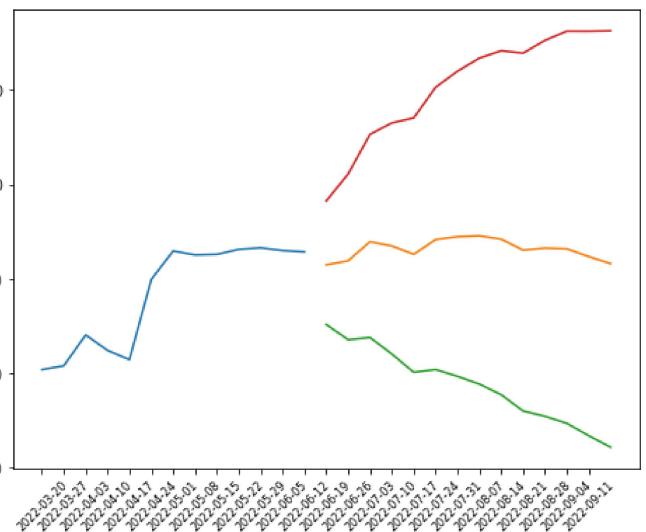
volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
PSB	2.540601	185.919998	2723370.898438	0.951471	0.840486	0.47672

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Index 1YMF: -69.05999755859375
Index Volume Factor: 0.5765983741853883
Index Risk Trend Factor: -5.134573474205833



ets next 13 weeks
inner cv scores:
best model: ['add', 'add', True]
best inner cv score, sdev (11 folds): 338.2036909355542 505.799897507174
test cv mean error, stdev (10 folds): 371.31200528684496 518.9986573566903
sell date: 2022-08-07
expected return: 0.017148258571142442
discounted return: 0.00034011556113511254
quarter return: 1.0317798406686582



symbol: MCK
sector: Healthcare
Index: SP500
vol_30d_2yr: 22868822.0703125
Sector 1YMF: 23.670013427734375
1YMF: 23.670013427734375
risk trend factor: 0.5738185073390152
beta currentRatio dividendRate dividendYield ebitda \
MCK 0.716666 0.98 1.88 0.0058 3516999936
ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
MCK 0.01368 13.643667 2778374912 0.0503 11967000000
heldPercentInstitutions industry marketCap \
MCK 0.898 Medical Distribution 45891629056
operatingCashflow operatingMargins payoutRatio pegRatio \
MCK 4917000192 0.0105 0.2521 1.05
priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
MCK 0.178562 0.00549 0.445 0.02686
returnOnEquity revenueGrowth revenuePerShare sector \
MCK 14.01754 0.096 1655.966 Healthcare
sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
MCK 152682000 2.69 2753999872 18.385 8098999808
totalRevenue
MCK 257005993984

Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSD 90d_lower 90d_upper

2022-06-17 300.570007 299.443248 318.421081 337.398913 317.445859 10.066372 297.313115 337.578604

volume_factor latest_p vol_30d_2yr pct_2yr adf hurst

MCK 1.048139 300.570007 22868822.070312 0.803327 0.997242 0.461301

I axis r axis

legend legend

blue symbol magenta sector

green trailing_1yr_max cyan index

red trailing_1yr_min

orange 30d_vol_2yr

black risk_trend_factor/linear

yellow supply_trend_1yr

Sector 1YMF: -122.20997619628906

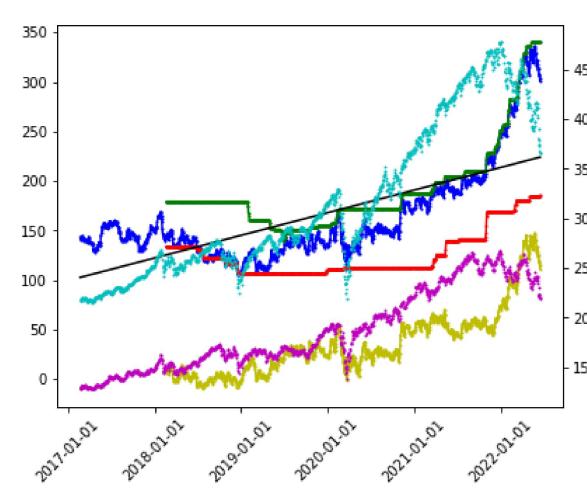
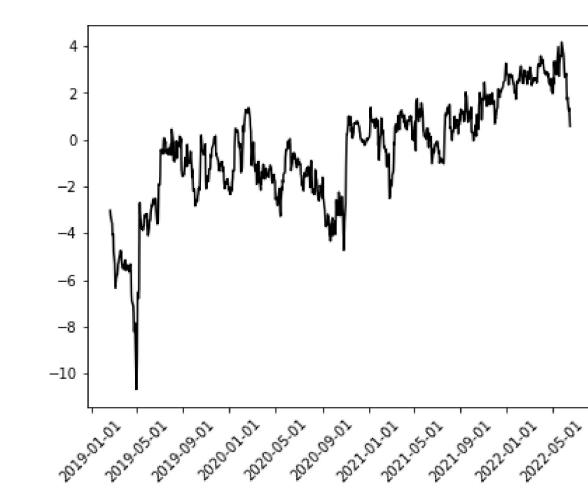
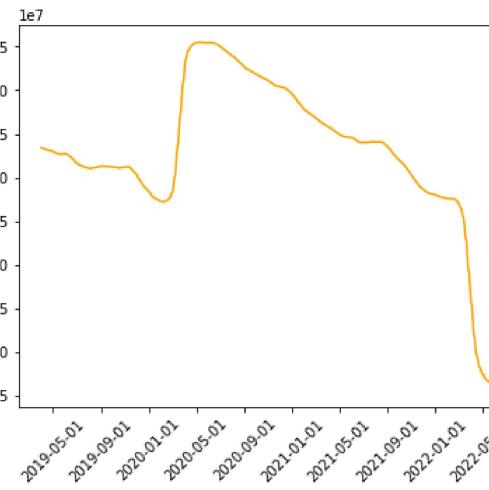
Sector Volume Factor: 1.2238851152317325

Sector Risk Trend Factor: -3.3236323632363236

Index 1YMF: -287.8400573730469

Index Volume Factor: 1.1835166983613057

Index Risk Trend Factor: -3.791860877423899



ets next 13 weeks

inner cv scores:

best model: [None, 'add', True]

best inner cv score, sdev (11 folds): 518.2206827971352 568.7446331297657

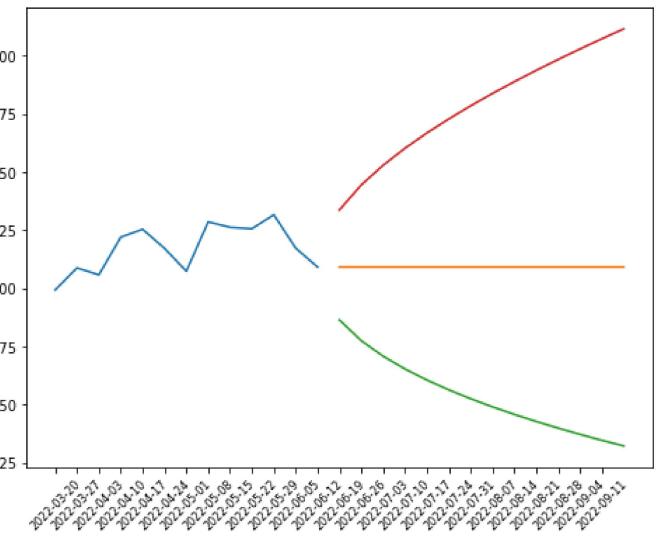
test cv mean error, stdev (10 folds): 542.1495065634238 591.2014883903353

sell date: 2022-06-19

expected return: 0.028401984075183757

discounted return: 0.028401984075183684

quarter return: 13.151864867613655



	2021-12-31	2021-09-30	2021-06-30	\
['quarterly_balance_sheet',				
Intangible Assets	2.130000e+09	2.385000e+09	2.797000e+09	
Capital Surplus	7.411000e+09	7.311000e+09	7.057000e+09	
Total Liab	6.449500e+10	6.368800e+10	6.293200e+10	
Total Stockholder Equity	-1.274000e+09	-5.710000e+08	-5.290000e+08	
Minority Interest	4.870000e+08	4.840000e+08	4.910000e+08	
Other Current Liab	5.975000e+09	3.504000e+09	6.850000e+08	
Total Assets	6.370800e+10	6.360100e+10	6.289400e+10	
Common Stock	2.000000e+06	2.000000e+06	2.000000e+06	
Other Current Assets	5.940000e+09	3.470000e+09	1.230000e+08	
Retained Earnings	8.734000e+09	8.812000e+09	8.618000e+09	
Other Liab	1.007600e+10	9.988000e+09	1.065700e+10	
Good Will	9.462000e+09	9.473000e+09	9.520000e+09	
Treasury Stock	-1.742100e+10	-1.669600e+10	-1.620600e+10	
Other Assets	1.971000e+09	2.173000e+09	2.607000e+09	
Cash	2.754000e+09	2.151000e+09	2.423000e+09	
Total Current Liabilities	4.745200e+10	4.607500e+10	4.383500e+10	
Short Long Term Debt	4.660000e+08	7.500000e+07	8.070000e+08	
Other Stockholder Equity	-1.655000e+09	-1.665000e+09	-1.627000e+09	
Property Plant Equipment	3.645000e+09	3.990000e+09	4.620000e+09	
Total Current Assets	4.649800e+10	4.558000e+10	4.335000e+10	
Long Term Investments	2.000000e+06	Nan	Nan	
Net Tangible Assets	-1.286600e+10	-1.242900e+10	-1.284600e+10	
Net Receivables	1.835500e+10	2.014000e+10	2.019800e+10	
Long Term Debt	5.323000e+09	5.769000e+09	6.282000e+09	
Inventory	1.902400e+10	1.934200e+10	2.001600e+10	
Accounts Payable	3.718300e+10	3.892200e+10	3.838900e+10	

	2021-03-31			
Intangible Assets	3.391000e+09			
Capital Surplus	6.925000e+09			
Total Liab	6.356900e+10			
Total Stockholder Equity	-2.100000e+07			
Minority Interest	1.467000e+09			
Other Current Liab	1.670000e+08			
Total Assets	6.501500e+10			
Common Stock	2.000000e+06			
Other Current Assets	1.340000e+08			
Retained Earnings	8.202000e+09			
Other Liab	1.110100e+10			
Good Will	9.493000e+09			
Treasury Stock	-1.515000e+10			
Other Assets	1.799000e+09			
Cash	6.278000e+09			
Total Current Liabilities	4.410300e+10			
Short Long Term Debt	7.740000e+08			
Other Stockholder Equity	-1.480000e+09			
Property Plant Equipment	4.681000e+09			
Total Current Assets	4.538200e+10			
Long Term Investments	2.690000e+08			
Net Tangible Assets	-1.290500e+10			
Net Receivables	1.918100e+10			
Long Term Debt	6.292000e+09			
Inventory	1.924600e+10			
Accounts Payable	3.897500e+10]		

	2021-12-31	2021-09-30	\
['quarterly_cashflow',			
Change To Liabilities	1.810000e+08	2.040000e+09	
Total Cashflows From Investing Activities	-1.150000e+08	-5.800000e-07	
Net Borrowings	3.620000e+08	-1.136000e+09	
Total Cash From Financing Activities	-4.380000e+08	-1.743000e-09	
Change To Operating Activities	3.300000e+07	1.300000e+08	
Issuance Of Stock	6.300000e+07	4.000000e-07	
Net Income	-7.000000e+06	2.670000e+08	
Change In Cash	6.260000e+08	-2.000000e-06	
Repurchase Of Stock	-7.140000e+08	-2.640000e+08	
Effect Of Exchange Rate	1.700000e+07	7.000000e-06	
Total Cash From Operating Activities	1.377000e+09	1.792000e+09	
Depreciation	1.850000e+08	1.950000e-08	
Other Cashflows From Investing Activities	-3.000000e+07	-3.100000e+07	
Dividends Paid	-7.200000e+07	-6.500000e+07	
Change To Inventory	-4.950000e+08	-2.630000e-08	
Change To Account Receivables	3.860000e+08	-1.266000e+09	
Other Cashflows From Financing Activities	-7.700000e+07	-3.180000e+08	
Change To Netincome	9.580000e+08	5.950000e+08	
Capital Expenditures	-6.700000e+07	-9.300000e+07	

	2021-06-30	2021-03-31	
Change To Liabilities	-6.090000e+08	2.507000e+09	
Total Cashflows From Investing Activities	-9.900000e+07	-2.050000e+08	
Net Borrowings	-2.000000e+06	-1.620000e-08	
Total Cash From Financing Activities	-2.151000e+09	-5.170000e+08	
Change To Operating Activities	-1.650000e+08	3.700000e-07	
Issuance Of Stock	7.100000e+07	3.700000e+07	
Net Income	4.860000e+08	6.660000e-08	
Change In Cash	-3.861000e+09	2.664000e+09	
Repurchase Of Stock	-1.008000e+09	-2.440000e-08	
Effect Of Exchange Rate	1.100000e+07	1.600000e+07	
Total Cash From Operating Activities	-1.622000e+09	3.370000e+09	
Depreciation	2.180000e+08	2.210000e+08	
Other Cashflows From Investing Activities	-2.200000e+07	-6.400000e+07	
Dividends Paid	-6.900000e+07	-6.700000e+07	
Change To Inventory	-9.010000e+08	-2.300000e+08	

```

Change To Account Receivables      -1.045000e+09 -3.550000e+08
Other Cashflows From Financing Activities -1.143000e+09 -8.100000e+07
Change To Netincome                4.480000e+08  8.740000e+08
Capital Expenditures              -9.300000e+07 -1.580000e+08 ]
['quarterly_earnings',           Revenue   Earnings
Quarter
1Q2021    59142000000  666000000
2Q2021    62674000000  486000000
3Q2021    66576000000  267000000
4Q2021    68614000000  -7000000]

```

```

['quarterly_financials',          Revenue   Earnings
2021-12-31  2021-09-30 \
```

	Revenue	Earnings
Research Development	None	None
Effect Of Accounting Charges	None	None
Income Before Tax	277000000.0	442000000.0
Minority Interest	487000000.0	484000000.0
Net Income	-7000000.0	267000000.0
Selling General Administrative	3105000000.0	2669000000.0
Gross Profit	3428000000.0	3352000000.0
Ebit	323000000.0	683000000.0
Operating Income	323000000.0	683000000.0
Other Operating Expenses	None	None
Interest Expense	-41000000.0	-45000000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	238000000.0	132000000.0
Total Revenue	68614000000.0	66576000000.0
Total Operating Expenses	68291000000.0	65893000000.0
Cost Of Revenue	65186000000.0	63224000000.0
Total Other Income Expense Net	-46000000.0	-241000000.0
Discontinued Operations	NaN	NaN
Net Income From Continuing Ops	39000000.0	310000000.0
Net Income Applicable To Common Shares	-7000000.0	267000000.0

	Revenue	Earnings
Research Development	None	None
Effect Of Accounting Charges	None	None
Income Before Tax	562000000.0	1029000000.0
Minority Interest	491000000.0	1467000000.0
Net Income	486000000.0	666000000.0
Selling General Administrative	2232000000.0	2224000000.0
Gross Profit	3032000000.0	3116000000.0
Ebit	800000000.0	892000000.0
Operating Income	800000000.0	892000000.0
Other Operating Expenses	None	None
Interest Expense	-49000000.0	-52000000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	26000000.0	316000000.0
Total Revenue	62674000000.0	59142000000.0
Total Operating Expenses	61874000000.0	58250000000.0
Cost Of Revenue	59642000000.0	56026000000.0
Total Other Income Expense Net	-238000000.0	137000000.0
Discontinued Operations	-3000000.0	-3000000.0
Net Income From Continuing Ops	536000000.0	713000000.0
Net Income Applicable To Common Shares	486000000.0	666000000.0]

```

['mutualfund_holders',           Holder   Shares Date Reported % Out \
0  Vanguard Total Stock Market Index Fund 4329453 2021-12-30 0.0298
1  Vanguard 500 Index Fund 3233507 2021-12-30 0.0222
2  MFS Series Trust I-MFS Value Fund 2893200 2022-02-27 0.0199
3  JP Morgan Large Cap Growth Fund 2293009 2021-12-30 0.0158
4  Vanguard Mid-Cap Index Fund 1726299 2021-12-30 0.0119
5  SPDR S&P 500 ETF Trust 1640864 2022-01-30 0.0113
6  Fidelity 500 Index Fund 1563585 2022-02-27 0.0108
7  iShares Core S&P 500 ETF 1269846 2022-01-30 0.0087
8  Putnam Large Cap Value Fund 1220237 2022-01-30 0.0084
9  Vanguard Index-Value Index Fund 1166709 2021-12-30 0.0080

```

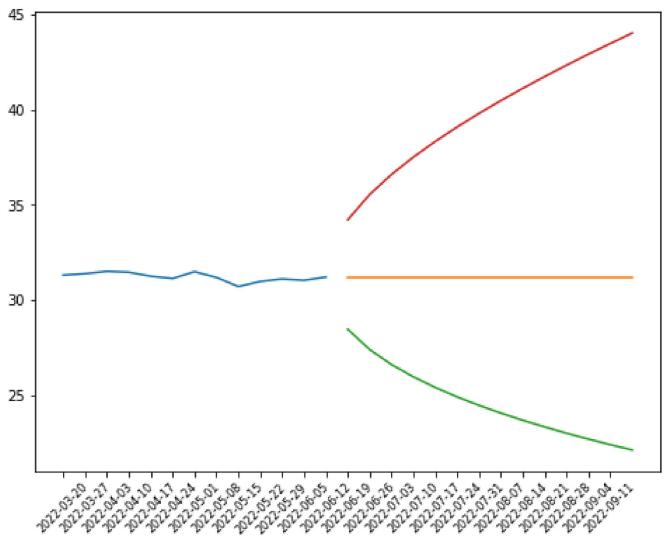
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Value
0 1076172132
1 803752834
2 795514272
3 569973247
4 429106142
5 421242606
6 429923331
7 325994865
8 313259242
9 290008856 ]
```

```

['options', ('2022-08-19', '2023-01-20', '2024-01-19')]
['sustainability',           Value
2022-5
```

	Value
palmOil	False
controversialWeapons	False
gambling	False
socialScore	7.37
nuclear	False
furLeather	False
alcoholic	False
gmo	False
catholic	False



['options', ('2022-08-19', '2022-12-16')]

symbol: WRB

sector: Financial Services

Index: SP500

vol_30d_2yr: 24741280.6640625

Sector 1YMF: 2.7066688537597656

1YMF: 2.7066688537597656

risk trend factor: 0.37488481940951457

beta currentRatio debtToEquity dividendRate dividendYield \

WRB 0.741517 0.453 44.413 0.35 0.0049

earningsGrowth ebitda ebitdaMargins forwardPE freeCashflow \

WRB 1.585 1969144064 0.19279 15.017057 2491864832

grossMargins grossProfits heldPercentInstitutions \

WRB 0.44661 4029355000 0.69611

industry marketCap operatingCashflow \

WRB Insurance—Property & Casualty 18677542912 2350679040

operatingMargins payoutRatio pegRatio priceToBook \

WRB 0.18096 0.07 1.94 2.720776

priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \

WRB 1.828621 0.13546 0.278 0.03724

returnOnEquity revenueGrowth revenuePerShare sector \

WRB 0.20909 0.352 36.85 Financial Services

sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \

WRB 265192992 1.22 3303750912 12.458 3059073024

totalRevenue trailingPE

WRB 10214005760 14.222536

Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper

2022-06-17 66.82 65.019435 68.896032 72.772628 67.946191 1.725853 64.494485 71.397896

volume_factor latest_p vol_30d_2yr pct_2yr adf hurst

WRB 1.220256 66.82 24741280.664062 0.845794 0.942554 0.452599

| axis

r axis

legend

legend

blue symbol

magenta sector

green trailing_1yr_max

cyan index

red trailing_1yr_min

orange 30d_vol_2yr

black risk_trend_factor/linear

yellow supply_trend_1yr

Sector 1YMF: -72.2699966430664

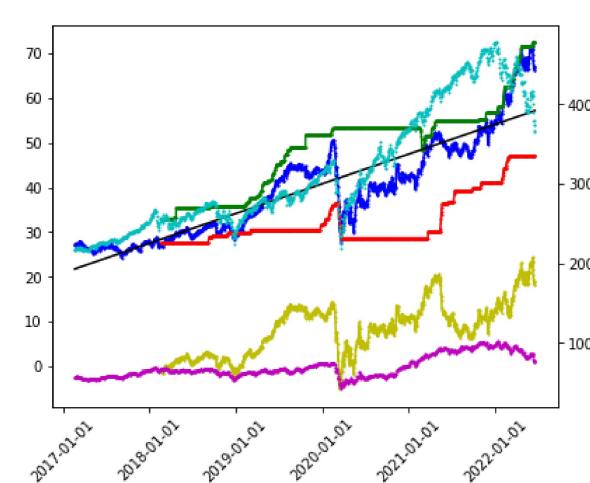
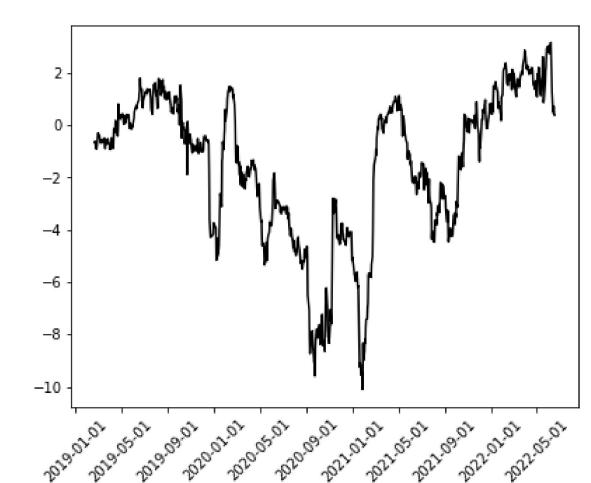
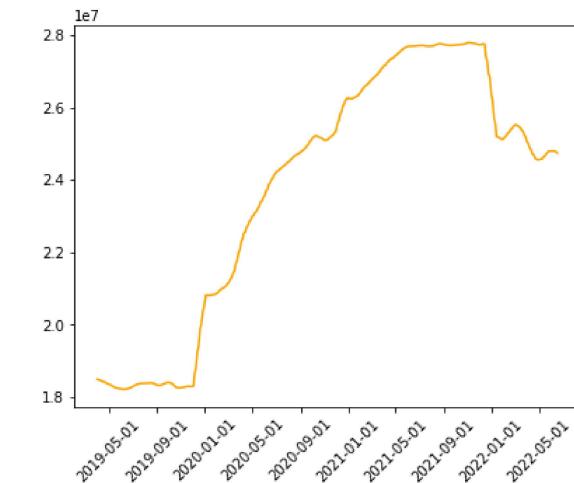
Sector Volume Factor: 1.2707168073107045

Sector Risk Trend Factor: -4.617890709055871

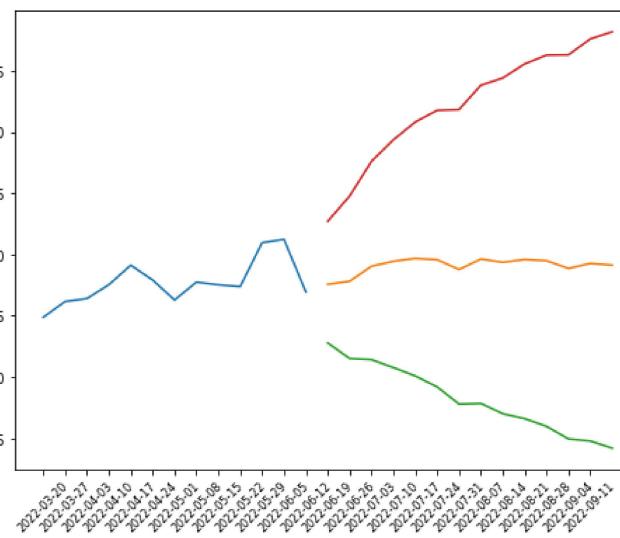
Index 1YMF: -287.8400573730469

Index Volume Factor: 1.1835166983613057

Index Risk Trend Factor: -3.791860877423899



```
ets next 13 weeks
inner cv scores:
best model: ['add', None]
best inner cv score, sdev (11 folds): 36.39137190779945 68.87309451333526
test cv mean error, stdev (10 folds): 39.758058374202825 71.36647055436109
sell date: 2022-07-17
expected return: 0.04292055199189668
discounted return: 0.0014501884571076484
quarter return: 1.142616366753765
```



```

['options', ('2022-07-15',),
['sustainability'],
Value
2022-5
palmOil False
controversialWeapons False
gambling False
socialScore 7.83
nuclear False
furLeather False
alcoholic False
gmo False
catholic False
socialPercentile None
peerCount 96
governanceScore 12.16
environmentPercentile None
animalTesting False
tobacco False
totalEsg 21.95
highestControversy 1
esgPerformance AVG_PERF
coal False
pesticides False
adult False
percentile 31.22
peerGroup Insurance
smallArms False
environmentScore 1.95
governancePercentile None
militaryContract False]
symbol: FCN
sector: error
sector: error
Index: SP400
vol_30d_2yr: 6853053.3203125
Sector 1YMF: 6.7500152587890625
1YMF: 6.7500152587890625
risk trend factor: 0.3590433065465876
Empty DataFrame
Columns: []
Index: [FCN]

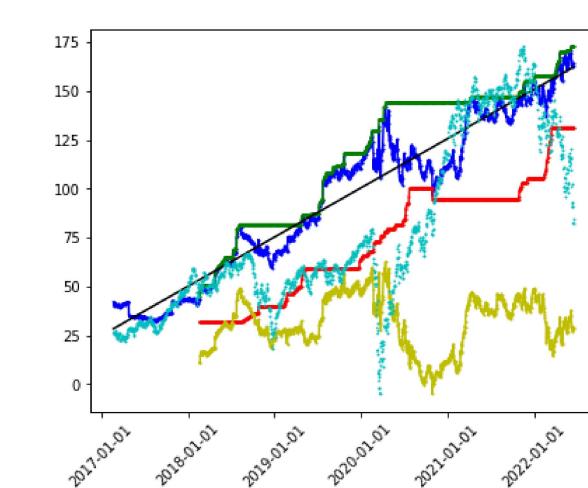
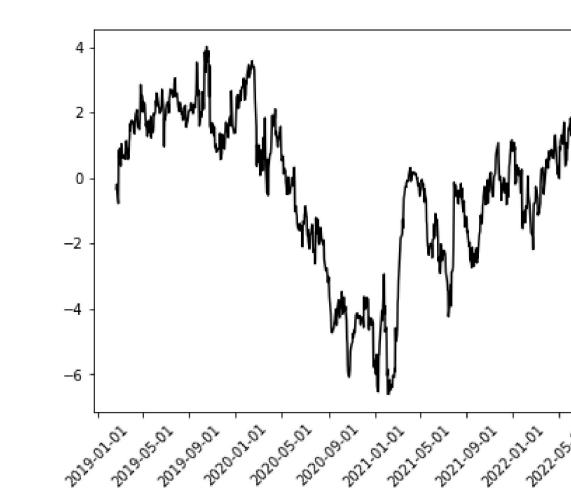
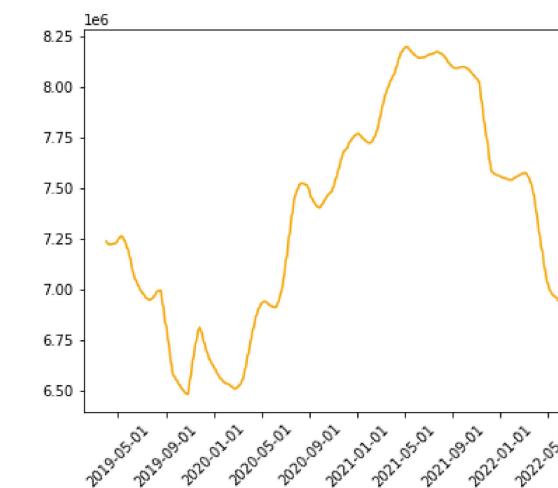
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	164.020004	159.077845	165.278412	171.47898	162.282857	5.027495	152.227867	172.337847

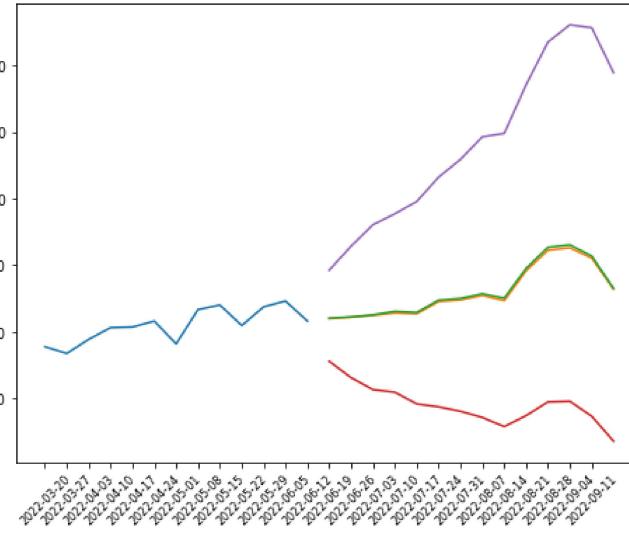
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
FCN	0.694756	164.020004	6853053.320312	0.888589	0.922824	0.404937

	l axis	r axis
blue	symbol	legend
green	trailing_1yr_max	magenta sector
red	trailing_1yr_min	cyan index
orange	30d_vol_2yr	
black	risk_trend_factor/linear	
yellow	supply_trend_1yr	

Index 1YMF: -69.05999755859375
Index Volume Factor: 0.5765983741853883
Index Risk Trend Factor: -5.134573474205833



ets next 13 weeks
 inner cv scores:
 best model: ['mul', 'add', True]
 best inner cv score, sdev (11 folds): 221.9363996832125 99.19003381369951
 test cv mean error, stdev (10 folds): 216.74437087831566 102.59621043317205
 sell date: 2022-09-04
 expected return: 0.12937876716759217
 discounted return: 0.0015610597253727931
 quarter return: 1.154313175112898



symbol: XOM
 sector: Energy
 Index: SP500
 vol_30d_2yr: 552640281.25
 Sector 1YMF: 9.1300048828125
 1YMF: 9.1300048828125
 risk trend factor: 0.34741268291096833
 beta currentRatio debtToEquity dividendRate dividendYield \

	XOM	1.040834	1.072	26.929	3.52	0.0409	
earningsGrowth	XOM	1.003	53895000064	0.17427	9.558269	31484874752	
grossMargins	XOM	0.31806	90045000000	0.56863	Oil & Gas Integrated		
marketCap	XOM	362840784896	53653000192	0.10859	0.5804	0.32	
priceToBook	XOM	2.143942	1.173221	0.08339	0.739		
returnOnAssets	XOM	0.06097	0.1559	0.525	72.369	Energy	
sharesOutstanding	XOM	4213199872	1.61	11073999872	2.629	47537000448	
totalRevenue	XOM	309269004288	14.281923				
Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper

2022-06-17 86.120003 88.433461 96.553809 104.674158 88.917204 6.448671 76.019861 101.814547

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
XOM	1.153813	86.120003	552640281.25	0.738786	0.784328	0.530974

I axis r axis

	legend	legend
--	--------	--------

blue	symbol	magenta	sector
------	--------	---------	--------

green	trailing_1yr_max	cyan	index
-------	------------------	------	-------

red	trailing_1yr_min		
-----	------------------	--	--

orange	30d_vol_2yr		
--------	-------------	--	--

black	risk_trend_factor/linear		
-------	--------------------------	--	--

yellow	supply_trend_1yr		
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Sector 1YMF: -3.82000732421875

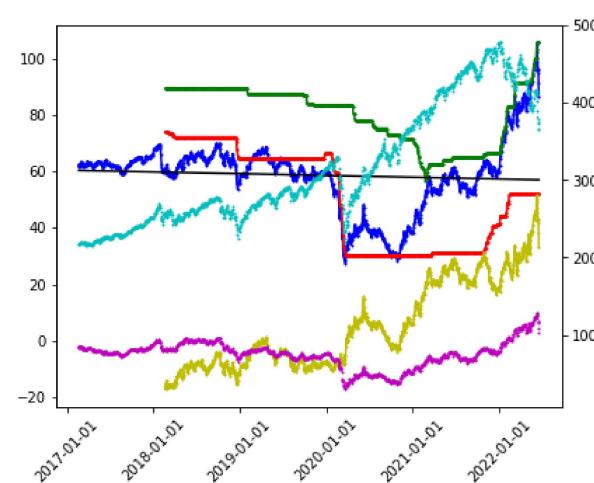
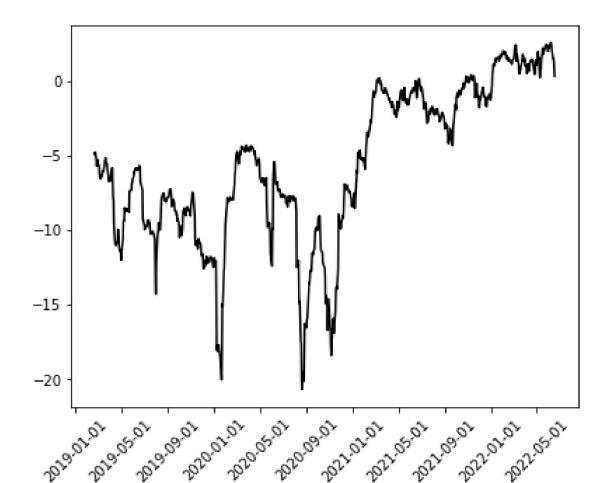
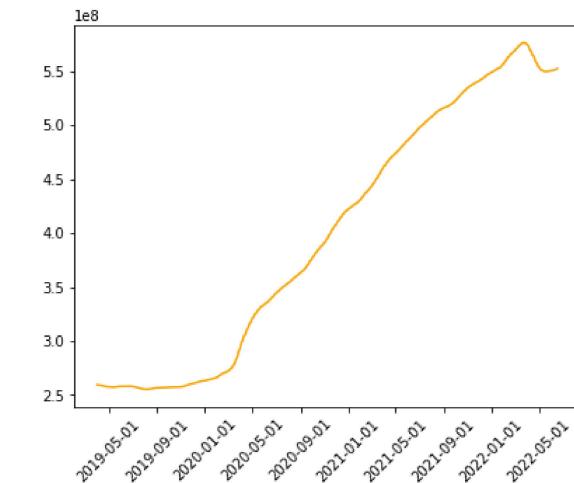
Sector Volume Factor: 0.8966412344901694

Sector Risk Trend Factor: -0.12330558135216596

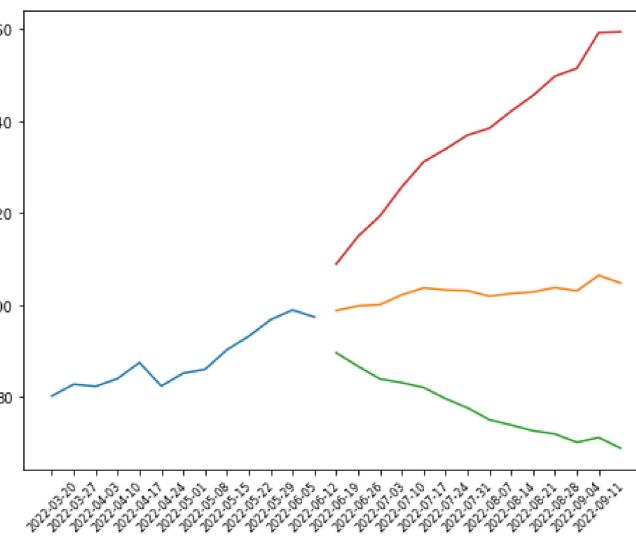
Index 1YMF: -287.8400573730469

Index Volume Factor: 1.1835166983613057

Index Risk Trend Factor: -3.791860877423899



```
ets next 13 weeks
inner cv scores:
best model: ['add', 'add', True]
best inner cv score, sdev (11 folds): 91.49524534369253 82.24235842155166
test cv mean error, stdev (10 folds): 100.12742404067721 81.36662053659578
sell date: 2022-09-11
expected return: 0.2361151748872659
discounted return: 0.0024969184539533895
quarter return: 1.2578830420178908
```



```

['options', ('2022-07-15', '2023-01-20', '2024-01-19', '2026-02-21')]
[sustainability', Value
2022-5
palmOil False
controversialWeapons False
gambling False
socialScore 9.82
nuclear False
furLeather False
alcoholic False
gmo False
catholic False
socialPercentile None
peerCount 66
governanceScore 8.14
environmentPercentile None
animalTesting True
tobacco False
totalEsg 36.46
highestControversy 3
esgPerformance OUT_PERF
coal False
pesticides False
adult False
percentile 81.8
peerGroup Oil & Gas Producers
smallArms False
environmentScore 18.51
governancePercentile None
militaryContract False]
symbol: MANT
sector: Technology
Index: SP600
vol_30d_2yr: 4428022.265625
Sector 1YMF: 5.6399993896484375
1YMF: 5.6399993896484375
risk trend factor: 0.32063661839633545
    beta currentRatio debtToEquity dividendRate dividendYield \
MANT 0.737745 1.584 23.665 1.64 0.02

    earningsGrowth ebitda ebitdaMargins forwardPE freeCashflow \
MANT -0.07 264191008 0.10344 25.047745 89507376

    grossMargins grossProfits heldPercentInstitutions industry \
MANT 0.14856 379411000 0.71066 Software—Application

    marketCap operatingCashflow operatingMargins payoutRatio pegRatio \
MANT 3867116288 212171008 0.07374 0.4669 4.97

    priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
MANT 2.299301 1.514167 0.05365 1.462

    returnOnAssets returnOnEquity revenueGrowth revenuePerShare sector \
MANT 0.0485 0.08419 -0.007 62.85 Technology

    sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
MANT 39355500 2.93 53374000 1.308 396480000

    totalRevenue trailingPE
MANT 2553956096 28.230194

Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper


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2022-06-17 94.790001 94.21236 94.956032 95.699705 88.233333 5.546632 77.140069 99.326598

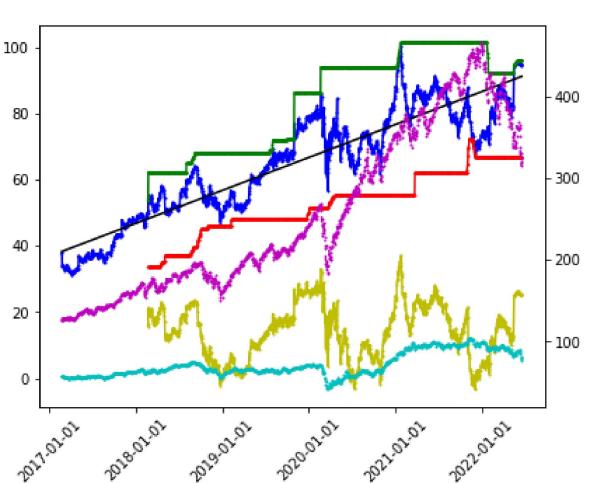
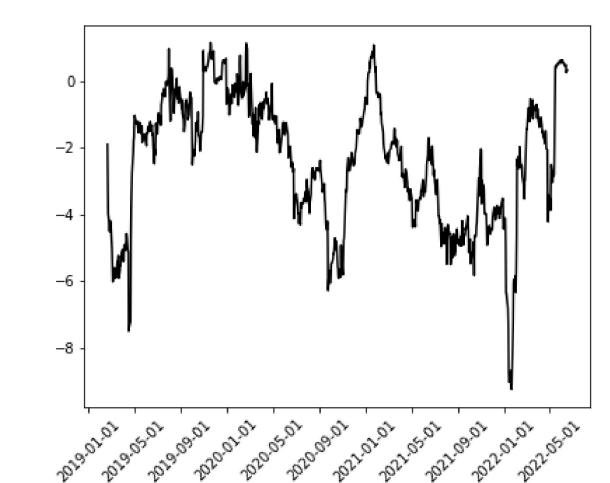
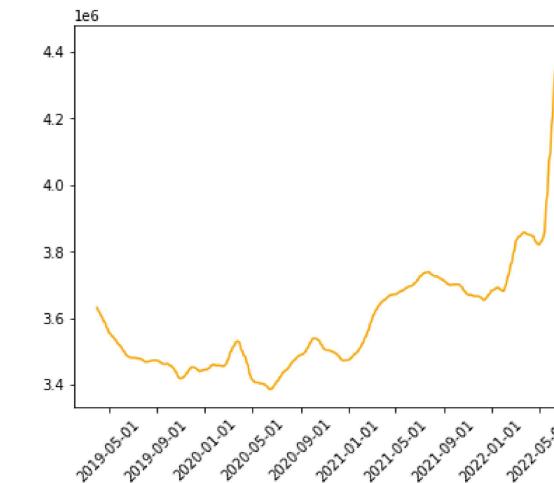
volume_factor latest_p vol_30d_2yr pct_2yr adf hurst


---


MANT 2.782348 94.790001 4428022.265625 0.833671 0.571232 0.363702

l axis r axis
legend legend
blue symbol magenta sector
green trailing_1yr_max cyan index
red trailing_1yr_min
orange 30d_vol_2yr
black risk_trend_factor/linear
yellow supply_trend_1yr
Sector 1YMF: -363.4599914550781
Sector Volume Factor: 1.1528457613891094
Sector Risk Trend Factor: -4.954471974241429
Index 1YMF: -77.27001953125
Index Volume Factor: 1.232760496116622
Index Risk Trend Factor: -5.242200185196592

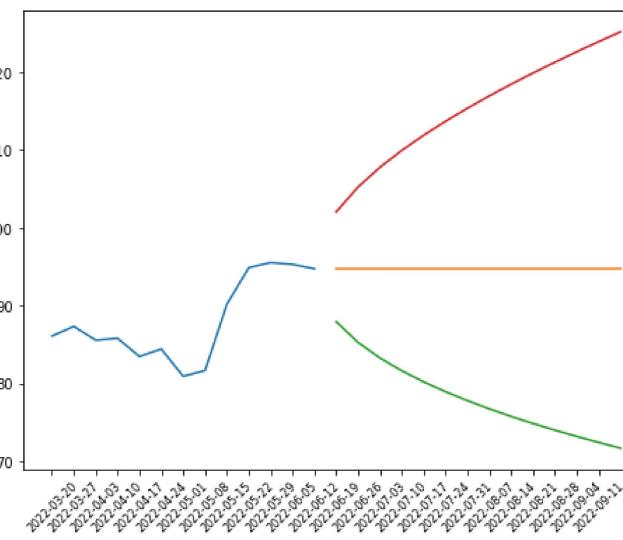
```



```

sets next 13 weeks
inner cv scores:
best model: [None, 'add', True]
best inner cv score, sdev (11 folds): 60.3856226320546 35.3162792997746
test cv mean error, stdev (10 folds): 57.005995059868496 35.30329432505976
sell date: 2022-09-18
expected return: -0.0006459376271060396
discounted return: -7.0233050614154635e-06
quarter return: 0.9993540623728944

```



```

['options', ('2022-08-19',)]
symbol: SM
sector: Energy
Index: SP600
vol_30d_2yr: 85332599.609375
Sector 1YMF: 6.969999313354492
1YMF: 6.969999313354492
risk trend factor: 0.3050327621527311
    beta currentRatio debtToEquity dividendRate dividendYield      ebitda \
SM  5.488235     0.717     93.916     0.02      0.0006  1315937024

    ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
SM      0.45427   8.413136   570353344     0.8671   2136878000

    heldPercentInstitutions      industry marketCap operatingCashflow \
SM      0.88028  Oil & Gas E&P   4823732224   1396240000

    operatingMargins payoutRatio pegRatio priceToBook \
SM      0.18012     0.007     0.12   2.946938

    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
SM      1.66518     0.11608     0.7     0.06264

    returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \
SM      0.17312     0.931     23.974   Energy     121474000

    shortRatio totalCash totalCashPerShare totalDebt totalRevenue
SM      2.26  419887008     3.446  1986428032  2896824064

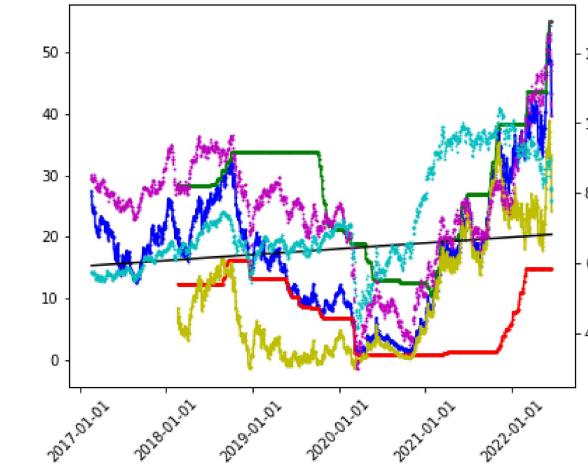
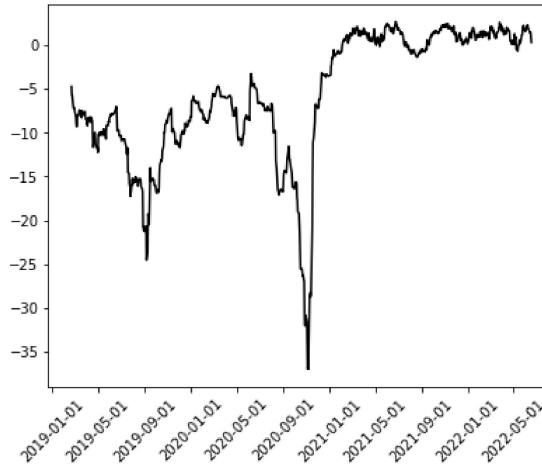
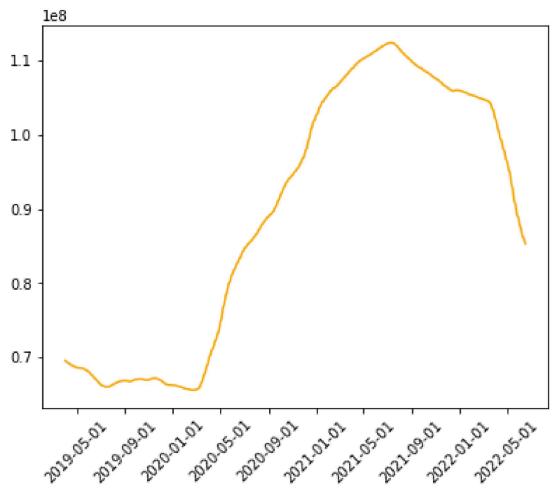
```

	Adj	Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	39.709999	36.543497	46.618254	56.693011	41.080159	5.405133	30.269893	51.890424	

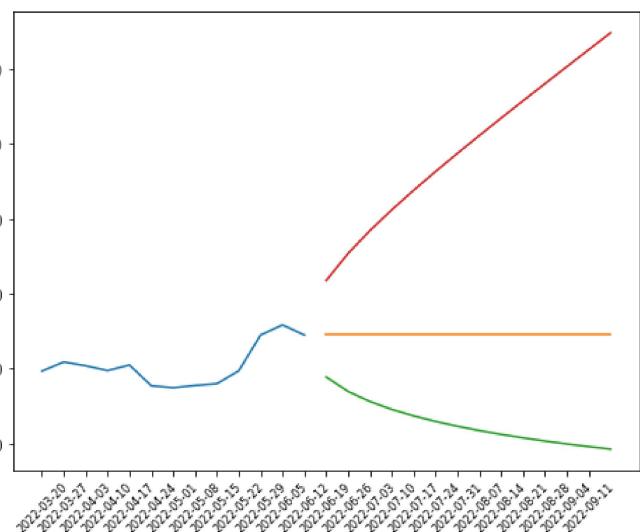
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
SM	0.640686	39.709999	85332599.609375	0.715458	0.803847	0.471215

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Sector 1YMF: -3.82000732421875
Sector Volume Factor: 0.8966412344901694
Sector Risk Trend Factor: -0.12330558135216596
Index 1YMF: -77.27001953125
Index Volume Factor: 1.232760496116622
Index Risk Trend Factor: -5.242200185196592



ets next 13 weeks
inner cv scores:
best model: [None, None]
best inner cv score, sdev (11 folds): 42.376101369640985 58.106739019848455
test cv mean error, stdev (10 folds): 46.45057636670336 59.42573196818282
sell date: 2022-06-19
expected return: 0.23344907668740075
discounted return: 0.23344907668740067
quarter return: 241630987.13855398



	2022-03-31	2021-12-31	2021-09-30	\
['quarterly_balance_sheet',				
Capital Surplus	1.844478e+09	1.840228e+09	1.838620e+09	
Total Liab	3.280672e+09	3.170846e+09	3.425061e+09	
Total Stockholder Equity	2.115109e+09	2.063131e+09	1.636899e+09	
Deferred Long Term Liab	2.300000e+06	2.700000e+06	3.100000e+06	
Other Current Liab	5.381270e+08	4.047460e+08	5.520440e+08	
Total Assets	5.395781e+09	5.233977e+09	5.061960e+09	
Common Stock	1.219000e+06	1.219000e+06	1.215000e+06	
Other Current Assets	9.649000e+06	2.409500e+07	2.451400e+07	
Retained Earnings	2.820790e+08	2.345330e+08	-1.903670e+08	
Other Liab	2.415590e+08	1.889150e+08	2.438640e+08	
Treasury Stock	-1.266700e+07	-1.284900e+07	-1.256900e+07	
Other Assets	5.397300e+07	2.576600e+07	6.020700e+07	
Cash	4.198870e+08	3.327160e+08	2.980000e+07	
Total Current Liabilities	1.058721e+09	8.893270e+08	1.103567e+09	
Other Stockholder Equity	-1.266700e+07	-1.284900e+07	-1.256900e+07	
Property Plant Equipment	4.582973e+09	4.595024e+09	4.665483e+09	
Total Current Assets	7.588350e+08	6.131870e+08	3.362700e+08	
Net Tangible Assets	2.115109e+09	2.063131e+09	1.636899e+09	
Net Receivables	3.210760e+08	2.472010e+08	2.722480e+08	
Long Term Debt	1.980392e+09	2.081164e+09	2.077630e+09	
Accounts Payable	5.145580e+08	2.507200e+07	5.424740e+08	

	2021-06-30			
Capital Surplus	1.838859e+09			
Total Liab	3.500489e+09			
Total Stockholder Equity	1.552509e+09			
Deferred Long Term Liab	3.500000e+06			
Other Current Liab	5.450620e+08			
Total Assets	5.052998e+09			
Common Stock	1.210000e+06			
Other Current Assets	3.130300e+07			
Retained Earnings	-2.747450e+08			
Other Liab	2.566960e+08			
Treasury Stock	-1.281500e+07			
Other Assets	6.877900e+07			
Cash	NaN			
Total Current Liabilities	1.051668e+09			
Other Stockholder Equity	-1.281500e+07			
Property Plant Equipment	4.714809e+09			
Total Current Assets	2.694100e+08			
Net Tangible Assets	1.552509e+09			
Net Receivables	2.295120e+08			
Long Term Debt	2.192125e+09			
Accounts Payable	4.962850e+08]		

	2022-03-31	2021-12-31	\
['quarterly_cashflow',			
Change To Liabilities	0.0	218238000.0	
Total Cashflows From Investing Activities	-150127000.0	-122484000.0	
Net Borrowings	-104770000.0	-104770000.0	
Total Cash From Financing Activities	-104794000.0	-4230000.0	
Change To Operating Activities	-137962000.0	-51950000.0	
Net Income	48764000.0	424900000.0	
Change In Cash	87171000.0	302916000.0	
Total Cash From Operating Activities	342092000.0	429630000.0	
Depreciation	160481000.0	208761000.0	
Other Cashflows From Financing Activities	-24000.0	-4339000.0	
Change To Netincome	266799000.0	-273197000.0	
Capital Expenditures	-150127000.0	-124576000.0	
Issuance Of Stock	NaN	1324000.0	
Dividends Paid	NaN	-1215000.0	
Change To Account Receivables	NaN	-101047000.0	
Other Cashflows From Investing Activities	NaN	NaN	

	2021-09-30	2021-06-30	
Change To Liabilities	0.0	0.0	
Total Cashflows From Investing Activities	-174795000.0	-222322000.0	
Net Borrowings	-118792000.0	-74213000.0	
Total Cash From Financing Activities	-123524000.0	-74077000.0	
Change To Operating Activities	21078000.0	82529000.0	
Net Income	85593000.0	-222995000.0	
Change In Cash	29800000.0	29800000.0	
Total Cash From Operating Activities	328119000.0	296399000.0	
Depreciation	211451000.0	213464000.0	
Other Cashflows From Financing Activities	-4732000.0	-1000.0	
Change To Netincome	6092000.0	218679000.0	
Capital Expenditures	-183409000.0	-222614000.0	
Issuance Of Stock	1324000.0	1315000.0	
Dividends Paid	-1215000.0	-1178000.0	
Change To Account Receivables	-101047000.0	-101047000.0	
Other Cashflows From Investing Activities	-221000.0	292000.0]
['quarterly_earnings',	Revenue	Earnings	
Quarter			

2Q2021	538649000	-222995000	
3Q2021	724539000	85593000	
4Q2021	814260000	424900000	
1Q2022	819376000	48764000]

	2022-03-31	2021-12-31	2021-09-30	\
['quarterly_financials',				
Research Development	None	None	None	
Effect Of Accounting Charges	None	None	None	
Income Before Tax	61625000.0	434933000.0	85554000.0	
Minority Interest	None	None	None	
Net Income	48764000.0	424900000.0	85593000.0	

Selling General Administrative	24996000.0	37062000.0	25530000.0
Gross Profit	723085000.0	714875000.0	629894000.0
Ebit	101736000.0	474411000.0	126257000.0
Operating Income	101736000.0	474411000.0	126257000.0
Other Operating Expenses	426826000.0	-17909000.0	257947000.0
Interest Expense	-39387000.0	-40085000.0	-40861000.0
Extraordinary Items	None	None	None
Non Recurring	None	None	None
Other Items	None	None	None
Income Tax Expense	12861000.0	10033000.0	-39000.0
Total Revenue	819376000.0	814260000.0	724539000.0
Total Operating Expenses	717640000.0	339849000.0	598282000.0
Cost Of Revenue	96291000.0	99385000.0	94645000.0
Total Other Income Expense Net	-40111000.0	-39478000.0	-40703000.0
Discontinued Operations	None	None	None
Net Income From Continuing Ops	48764000.0	424900000.0	85593000.0
Net Income Applicable To Common Shares	48764000.0	424900000.0	85593000.0

2021-06-30

Research Development	None
Effect Of Accounting Charges	None
Income Before Tax	-223157000.0
Minority Interest	None
Net Income	-222995000.0
Selling General Administrative	24639000.0
Gross Profit	443993000.0
Ebit	-180624000.0
Operating Income	-180624000.0
Other Operating Expenses	377800000.0
Interest Expense	-39536000.0
Extraordinary Items	None
Non Recurring	None
Other Items	None
Income Tax Expense	-162000.0
Total Revenue	538649000.0
Total Operating Expenses	719273000.0
Cost Of Revenue	94656000.0
Total Other Income Expense Net	-42533000.0
Discontinued Operations	None
Net Income From Continuing Ops	-222995000.0
Net Income Applicable To Common Shares	-222995000.0

```
[ 'mutualfund_holders', ]
Holder Shares Date Reported \
0 iShares Core S&P Smallcap ETF 8545223 2022-01-30
1 Vanguard Total Stock Market Index Fund 3454105 2021-12-30
2 Vanguard Small-Cap Index Fund 3058030 2021-12-30
3 iShares Russell 2000 ETF 2729906 2022-01-30
4 SPDR (R) Ser Tr-SPDR (R) S&P (R) Oil & Gas Exp... 2729590 2022-01-30
5 Vanguard Small Cap Value Index Fund 1938357 2021-12-30
6 Vanguard Extended Market Index Fund 1597503 2021-12-30
7 iShares S&P Small-Cap 600 Growth ETF 1404764 2022-01-30
8 First Trust NASDAQ Oil & Gas ETF 1361871 2022-02-27
9 iShares Russell 2000 Value ETF 1284094 2022-01-30
```

% Out	Value
0 0.0701	280368766
1 0.0283	101827015
2 0.0251	90150724
3 0.0224	89568215
4 0.0224	89557847
5 0.0159	57142764
6 0.0131	47094388
7 0.0115	46090306
8 0.0112	48360039
9 0.0105	42131124

['options', ('2022-08-19', '2023-01-20', '2024-01-19')]

symbol: DINO
sector: Energy
Index: SP400
vol_30d_2yr: 51433534.1796875
Sector 1YMF: 6.369998931884766
1YMF: 6.369998931884766
risk trend factor: 0.2699152264297761
beta currentRatio debtToEquity dividendRate dividendYield \
DINO 1.54401 1.728 43.018 1.6 0.0278

earningsGrowth	ebitda	ebitdaMargins	forwardPE	freeCashflow	\
DINO 0	1260462976	0.05641	10.206038	-1079519232	
grossMargins	grossProfits	heldPercentInstitutions			
DINO 0.0784	1615735000	0.62669			
industry	marketCap	operatingCashflow			
DINO Oil & Gas Refining & Marketing	12826910720	805392000			
operatingMargins	payoutRatio	pegRatio	priceToBook		\
DINO 0.03909	0.1032	0.35	1.580395		
priceToSalesTrailing12Months	profitMargins	quickRatio	returnOnAssets		\
DINO 0.574075	0.02551	0.791	0.03679		
returnOnEquity	revenueGrowth	revenuePerShare	sector	sharesOutstanding	\
DINO 0.09048	1.128	134.828	Energy	223232000	

```
shortRatio totalCash totalCashPerShare totalDebt totalRevenue \
DINO      3.27  592278016           2.653 3818710016 22343598080
```

trailingPE

DINO 16.929876

Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper

2022-06-17 45.0 43.432974 51.035714 58.638454 43.785397 6.19363 31.398138 56.172656

volume_factor latest_p vol_30d_2yr pct_2yr adf hurst

DINO 1.094012 45.0 51433534.179688 0.676181 0.488602 0.560442

l axis r axis

legend legend

blue symbol magenta sector

green trailing_1yr_max cyan index

red trailing_1yr_min

orange 30d_vol_2yr

black risk_trend_factor/linear

yellow supply_trend_1yr

Sector 1YMF: -3.82000732421875

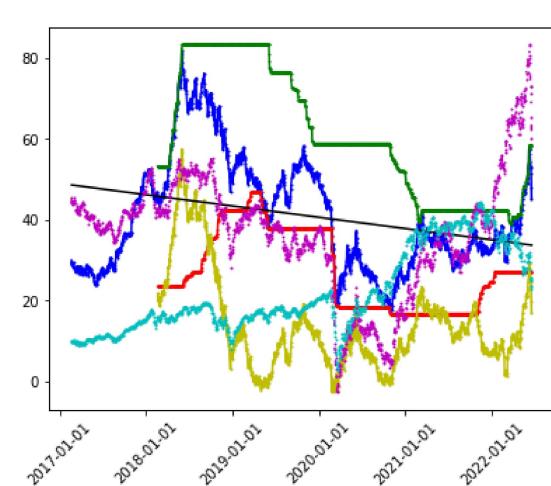
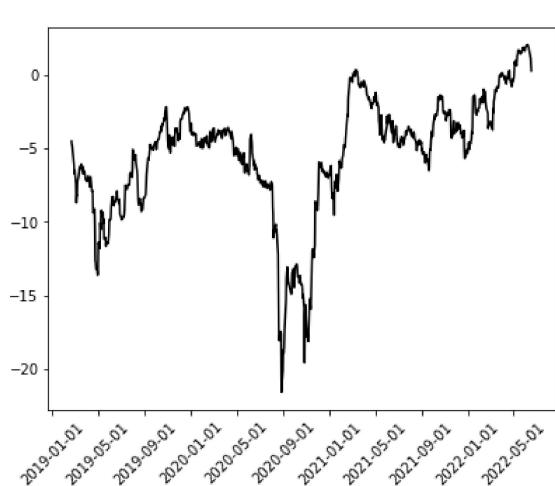
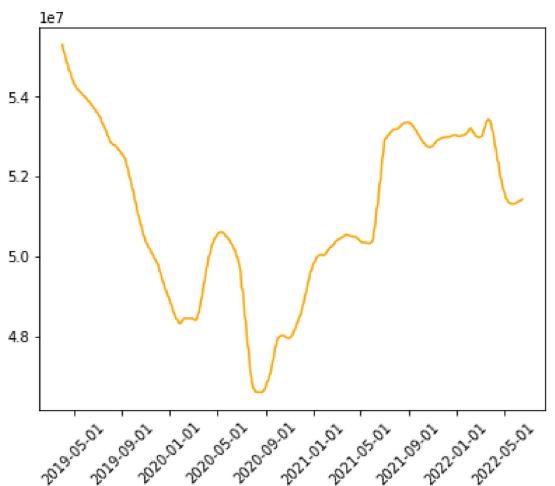
Sector Volume Factor: 0.8966412344901694

Sector Risk Trend Factor: -0.12330558135216596

Index 1YMF: -69.05999755859375

Index Volume Factor: 0.5765983741853883

Index Risk Trend Factor: -5.134573474205833



ets next 13 weeks

inner cv scores:

best model: [None, 'add', True]

best inner cv score, sdev (11 folds): 68.74363593556068 61.18345174913362

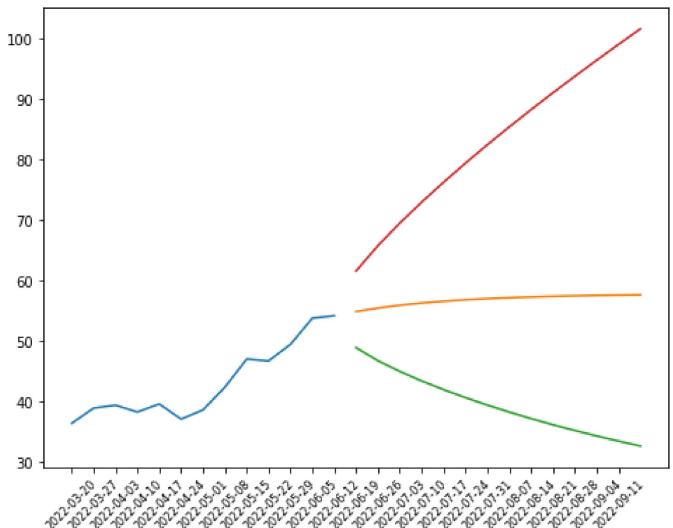
test cv mean error, stdev (10 folds): 74.39993247179872 61.366318003884665

sell date: 2022-09-18

expected return: 0.2808344011369161

discounted return: 0.0026939672414314497

quarter return: 1.2808344011369226



symbol: PLAB
sector: Technology
Index: SP600
vol_30d_2yr: 10786618.9453125
Sector 1YMF: 2.2899999618530273
1YMF: 2.2899999618530273
risk trend factor: 0.26412914530661946
beta currentRatio debtToEquity earningsGrowth ebitda \
PLAB 0.980357 3.417 7.842 1.889 233440992
ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
PLAB 0.31281 10.108109 90646496 0.30828 167044000
heldPercentInstitutions industry marketCap \
PLAB 0.90554 Semiconductor Equipment & Materials 1385207808
operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
PLAB 195842000 0.19934 0 1.19 1.62538
priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
PLAB 1.856183 0.12032 2.814 0.07156
returnOnEquity revenueGrowth revenuePerShare sector \
PLAB 0.12739 0.28 12.342 Technology
sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
PLAB 61729400 3.37 329281984 5.433 82548000
totalRevenue trailingPE
PLAB 746267008 15.338346

Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper

2022-06-17 19.15 14.678059 19.802381 24.926703 17.249841 2.549321 12.151199 22.348483

volume_factor latest_p vol_30d_2yr pct_2yr adf hurst

PLAB 2.163783 19.15 10786618.945312 0.729861 0.736899 0.332818

I axis r axis

legend legend

blue symbol magenta sector

green trailing_1yr_max cyan index

red trailing_1yr_min

orange 30d_vol_2yr

black risk_trend_factor/linear

yellow supply_trend_1yr

Sector 1YMF: -363.4599914550781

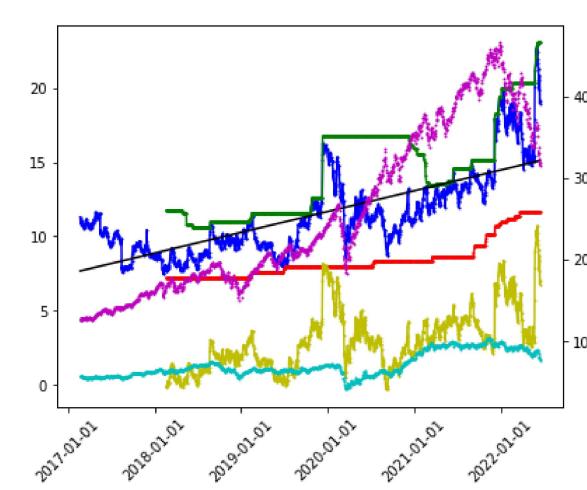
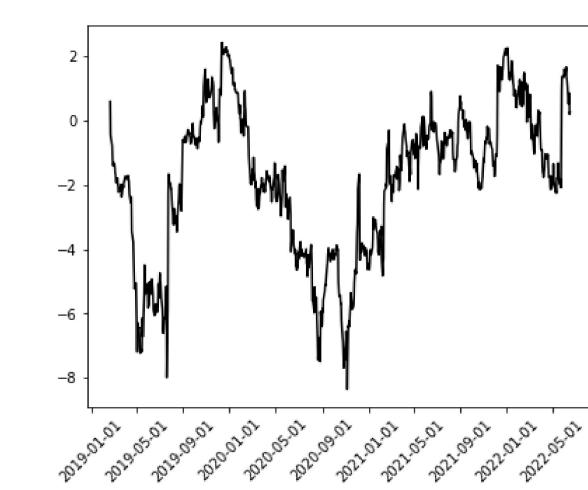
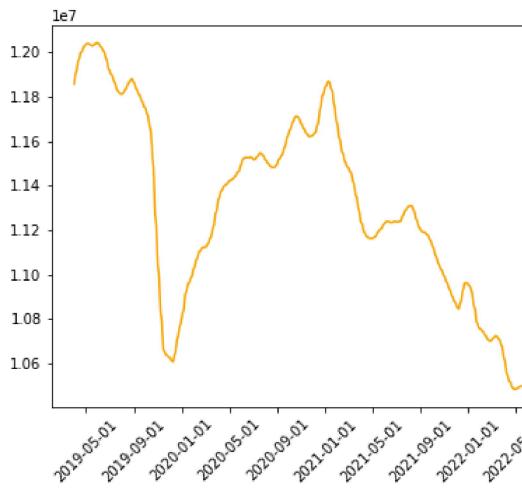
Sector Volume Factor: 1.1528457613891094

Sector Risk Trend Factor: -4.954471974241429

Index 1YMF: -77.27001953125

Index Volume Factor: 1.232760496116622

Index Risk Trend Factor: -5.242200185196592



ets next 13 weeks

inner cv scores:

best model: ['add', 'add', True]

best inner cv score, sdev (11 folds): 3.3346583318115752 2.7550716521280796

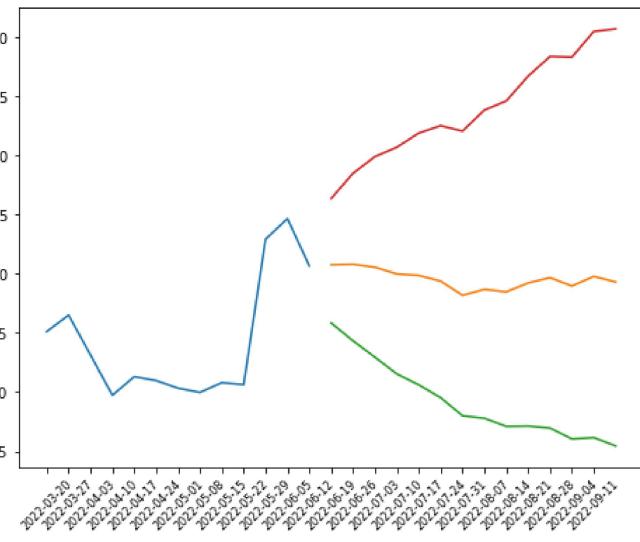
test cv mean error, stdev (10 folds): 3.3074930603752497 2.8881385568789124

sell date: 2022-06-26

expected return: 0.06532945727658211

discounted return: 0.00794188337970958

quarter return: 2.070452453781259



```
['options', ('2022-12-16',)]
symbol: MPC
sector: Energy
Index: SP500
vol_30d_2yr: 141817662.109375
Sector 1YMF: 6.860008239746094
1YMF: 6.860008239746094
risk trend factor: 0.20927420668724137
    beta currentRatio debtToEquity dividendRate dividendYield      ebitda \
MPC  1.75499     1.449     89.568     2.32      0.0266  8572000256
```

```
ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
MPC      0.06306  11.191026  18097874944      0.08778  10443000000

heldPercentInstitutions           industry      marketCap \
MPC      0.79745  Oil & Gas Refining & Marketing  47223455744

operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
MPC      6418999808      0.0386     0.5472     0.35    1.98454

priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
MPC      0.347428      0.07964     1.045     0.03693

returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \
MPC      0.12817     0.679     222.006  Energy      540995008

shortRatio totalCash totalCashPerShare totalDebt totalRevenue \
MPC      2.78  10597000192      19.588  28034000896  135922999296
```

```
trailingPE
MPC  4.97776

Adj Close  21dBOLD  21dMA-TP  21dBOLU  90dSMA  90dSD  90d_lower  90d_upper
2022-06-17 87.290001 89.493723 102.090159 114.686595 92.392331 8.807067 74.778196 110.006465
```

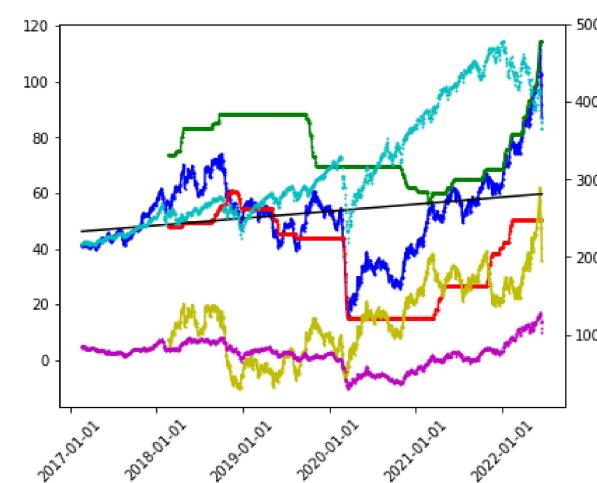
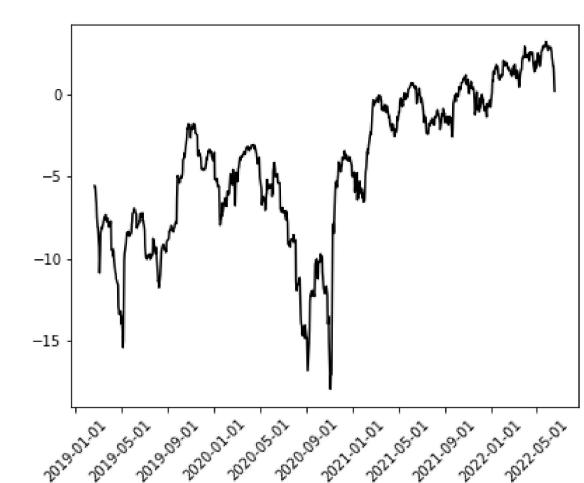
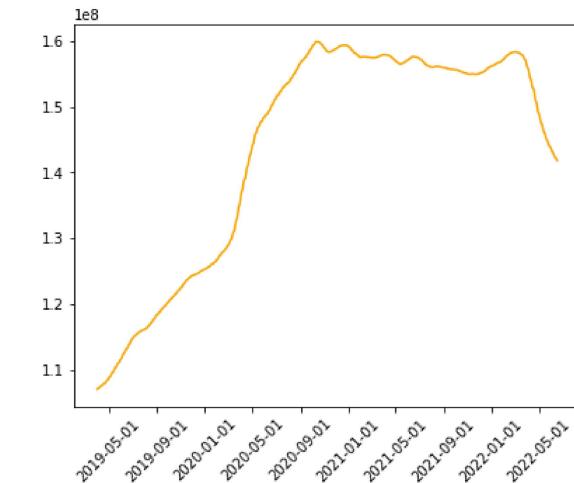
volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
---------------	----------	-------------	---------	-----	-------

```
MPC      1.221452  87.290001  141817662.109375  0.691764  0.549549  0.514371
```

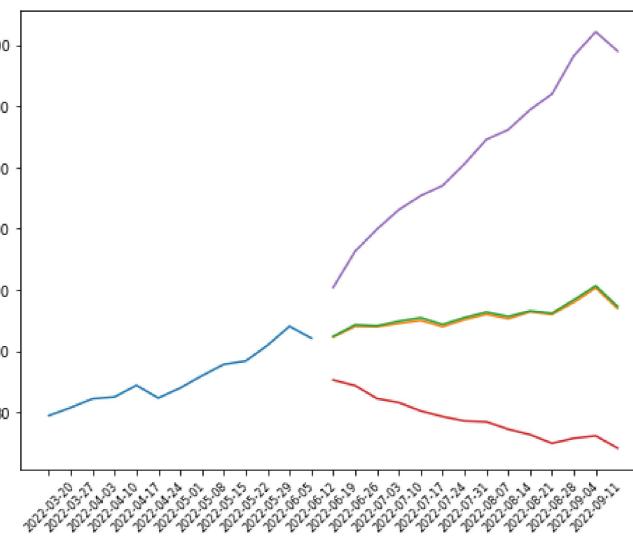
l axis r axis

legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

```
Sector 1YMF: -3.82000732421875
Sector Volume Factor: 0.8966412344901694
Sector Risk Trend Factor: -0.12330558135216596
Index 1YMF: -287.8400573730469
Index Volume Factor: 1.1835166983613057
Index Risk Trend Factor: -3.791860877423899
```



```
sets next 13 weeks
inner cv scores:
best model: ['mul', 'mul', False]
best inner cv score, sdev (11 folds): 140.02382788023675 139.69178702403212
test cv mean error, stdev (10 folds): 136.3540993080901 146.00360280846877
sell date: 2022-09-11
expected return: 0.38235983545152613
discounted return: 0.003816583079964575
quarter return: 1.419716627023713
```



```

['options', ('2022-07-15', '2022-09-16', '2023-01-20', '2024-01-19')]
['sustainability', Value
2022-5
palmOil False
controversialWeapons False
gambling False
socialScore 7.01
nuclear False
furLeather False
alcoholic False
gmo False
catholic False
socialPercentile None
peerCount 39
governanceScore 5.87
environmentPercentile None
animalTesting False
tobacco False
totalEsg 28.78
highestControversy 3
esgPerformance AVG_PERF
coal False
pesticides False
adult False
percentile 57.14
peerGroup Refiners & Pipelines
smallArms False
environmentScore 15.91
governancePercentile None
militaryContract False]
symbol: LLY
sector: Healthcare
Index: SP500
vol_30d_2yr: 70977344.3359375
Sector 1YMF: 8.8499755859375
1YMF: 8.8499755859375
risk trend factor: 0.18730107060185186
    beta currentRatio debtToEquity dividendRate dividendYield \
LLY 0.430392 1.267 174.931 3.92 0.0134

    earningsGrowth ebitda ebitdaMargins forwardPE freeCashflow \
LLY 0.409 10721399808 0.36563 38.83845 4736287744

    grossMargins grossProfits heldPercentInstitutions \
LLY 0.7556 21345300000 0.84303

    industry marketCap operatingCashflow \
LLY Drug Manufacturers-General 278272606208 8062499840

    operatingMargins payoutRatio pegRatio priceToBook \
LLY 0.30994 0.5245 5.44 34.015434

    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
LLY 9.489974 0.20903 0.772 0.12117

    returnOnEquity revenueGrowth revenuePerShare sector \
LLY 0.74019 0.148 32.376 Healthcare

    sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
LLY 956592000 1.74 2571599872 2.857 16551999488

    totalRevenue trailingPE
LLY 29322799104 44.412212

    Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDDev 90d_lower 90d_upper

```

2022-06-17 290.899994 284.096885 302.232381 320.367877 296.315556 9.524706 277.266144 315.364968

volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
LLY	0.967658	290.899994	70977344.335938	0.829733	0.979741	0.407173

I axis r axis

legend	legend
blue symbol	magenta sector
green trailing_1yr_max	cyan index

red trailing_1yr_min

orange 30d_vol_2yr

black risk_trend_factor/linear

yellow supply_trend_1yr

Sector 1YMF: -122.20997619628906

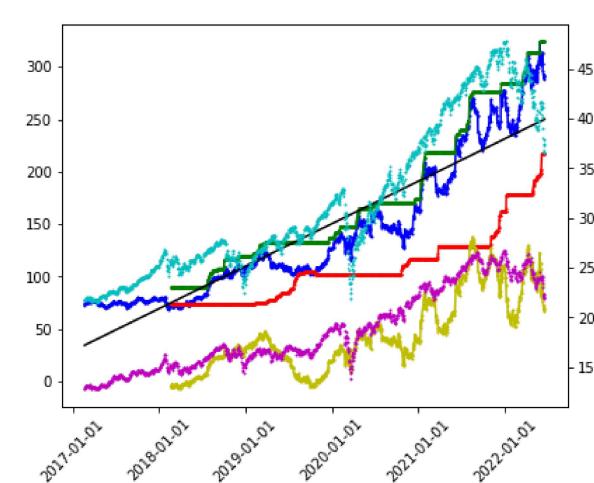
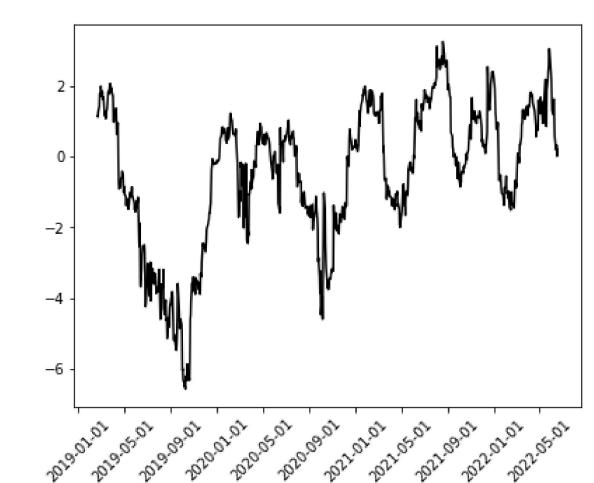
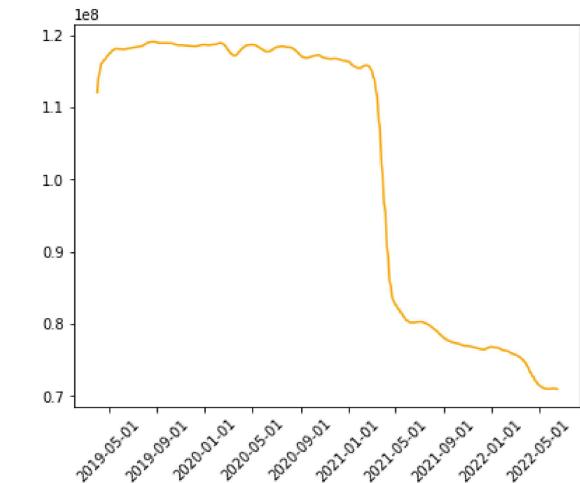
Sector Volume Factor: 1.2238851152317325

Sector Risk Trend Factor: -3.3236323632363236

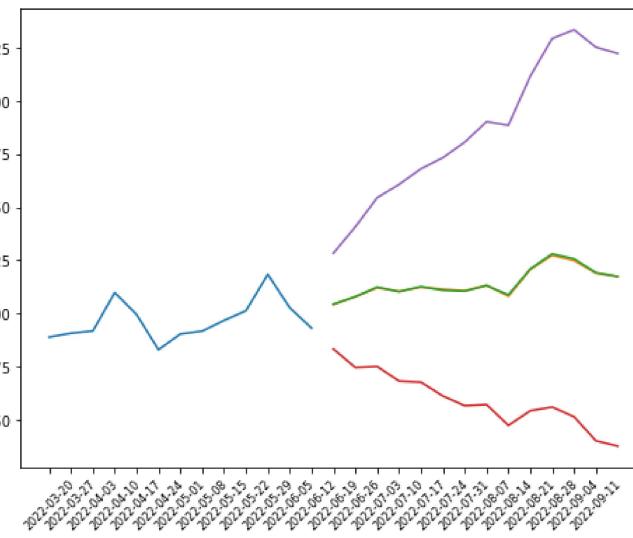
Index 1YMF: -287.8400573730469

Index Volume Factor: 1.1835166983613057

Index Risk Trend Factor: -3.791860877423899



```
ets next 13 weeks
inner cv scores:
best model: ['mul', 'add', True]
best inner cv score, sdev (11 folds): 459.63043627228745 543.8838721179123
test cv mean error, stdev (10 folds): 480.5259051560421 566.2048035395488
sell date: 2022-08-28
expected return: 0.12533084380836684
discounted return: 0.0016644410526294173
quarter return: 1.165326472107341
```



	2022-03-31	2021-12-31	2021-09-30	\
['quarterly_balance_sheet',				
Intangible Assets	7.482400e+09	7.691900e+09	7.887700e+09	
Capital Surplus	6.656300e+09	6.833400e+09	6.758000e+09	
Total Liab	3.745730e+10	3.965120e+10	4.023290e+10	
Total Stockholder Equity	9.330800e+09	8.979200e+09	7.757000e+09	
Minority Interest	1.312000e+08	1.756000e+08	1.971000e+08	
Other Current Liab	3.135000e+09	3.814100e+09	2.513000e+09	
Total Assets	4.691930e+10	4.880600e+10	4.818700e+10	
Common Stock	5.941000e+08	5.963000e+08	5.982000e+08	
Other Current Assets	3.880000e+07	9.000000e+06	5.500000e+06	
Retained Earnings	9.369400e+09	8.958500e+09	9.639400e+09	
Other Liab	8.875200e+09	8.674200e+09	1.099380e+10	
Good Will	3.892000e+09	3.892000e+09	3.884100e+09	
Treasury Stock	-7.289000e+09	-7.409000e+09	-9.238600e+09	
Other Assets	6.506600e+09	6.380000e+09	6.122000e+09	
Cash	2.459200e+09	3.818500e+09	3.788200e+09	
Total Current Liabilities	1.338600e+10	1.505270e+10	1.368200e+10	
Deferred Long Term Asset Charges	2.464900e+09	2.489300e+09	2.625600e+09	
Short Long Term Debt	1.355900e+09	1.539500e+09	1.580000e+09	
Other Stockholder Equity	-7.238500e+09	-7.356300e+09	-9.185900e+09	
Property Plant Equipment	9.102700e+09	8.985100e+09	8.920400e+09	
Total Current Assets	1.696478e+10	1.845240e+10	1.780830e+10	
Long Term Investments	2.970900e+09	3.404600e+09	3.564500e+09	
Net Tangible Assets	-2.043600e+09	-2.604700e+09	-4.014800e+09	
Short Term Investments	1.091000e+08	9.010000e+07	3.710000e+07	
Net Receivables	7.763600e+09	8.112500e+09	6.992300e+09	
Long Term Debt	1.519610e+10	1.538700e+10	1.555710e+10	
Inventory	3.893000e+09	3.886000e+09	3.907400e+09	
Accounts Payable	1.433300e+09	1.670600e+09	1.566800e+09	

	2021-06-30			
Intangible Assets	7.985400e+09			
Capital Surplus	6.669200e+09			
Total Liab	4.114550e+10			
Total Stockholder Equity	6.444400e+09			
Minority Interest	2.191000e+08			
Other Current Liab	3.878400e+09			
Total Assets	4.780900e+10			
Common Stock	5.981000e+08			
Other Current Assets	5.400000e+06			
Retained Earnings	8.538100e+09			
Other Liab	1.127500e+10			
Good Will	3.884200e+09			
Treasury Stock	-9.353000e+09			
Other Assets	6.104000e+09			
Cash	3.220000e+09			
Total Current Liabilities	1.509320e+10			
Deferred Long Term Asset Charges	2.674900e+09			
Short Long Term Debt	1.625700e+09			
Other Stockholder Equity	-9.300300e+09			
Property Plant Equipment	8.855500e+09			
Total Current Assets	1.729550e+10			
Long Term Investments	3.684400e+09			
Net Tangible Assets	-5.425200e+09			
Short Term Investments	5.120000e+07			
Net Receivables	6.869700e+09			
Long Term Debt	1.477730e+10			
Inventory	3.824900e+09			
Accounts Payable	1.597800e+09]

	2022-03-31	2021-12-31	\
--	------------	------------	---

['quarterly_cashflow',			
Investments	-2.320000e+07	-1.180000e+07	
Change To Liabilities	0.000000e+00	-6.641000e+08	
Total Cashflows From Investing Activities	-1.013800e+09	-3.790000e+08	
Net Borrowings	-2.104000e+08	-2.600000e+06	
Total Cash From Financing Activities	-2.878300e+09	-1.526500e+09	
Change To Operating Activities	-4.550000e+07	2.063500e+09	
Net Income	1.902900e+09	1.726100e+09	
Change In Cash	-1.359300e+09	3.030000e+07	
Repurchase Of Stock	-1.500000e+09	-7.500000e+08	
Effect Of Exchange Rate	3.360000e+07	-2.207000e+08	
Total Cash From Operating Activities	2.499200e+09	2.156500e+09	
Depreciation	4.357000e+08	4.457000e+08	
Other Cashflows From Investing Activities	-1.334000e+08	2.700000e+07	
Dividends Paid	-8.855000e+08	-7.733000e+08	
Other Cashflows From Financing Activities	-2.824000e+08	-6.000000e+05	
Change To Netincome	2.061000e+08	4.592000e+08	
Capital Expenditures	-3.654000e+08	-2.914000e+08	
Change To Inventory	Nan	-2.359000e+08	
Change To Account Receivables	Nan	-1.278300e+09	

	2021-09-30	2021-06-30	
Investments	-1.077000e+08	-2.440000e+07	
Change To Liabilities	0.000000e+00	0.000000e+00	
Total Cashflows From Investing Activities	-6.165000e+08	-4.833000e+08	
Net Borrowings	3.077000e+08	2.000000e+08	
Total Cash From Financing Activities	-4.632000e+08	-1.083200e+09	
Change To Operating Activities	-6.665000e+08	2.212000e+08	
Net Income	1.110100e+09	1.390200e+09	
Change In Cash	5.682000e+08	2.176000e+08	
Repurchase Of Stock	-7.500000e+08	-5.000000e+08	
Effect Of Exchange Rate	1.660000e+07	8.600000e+06	
Total Cash From Operating Activities	1.631300e+09	1.775500e+09	

```

Depreciation 3.823000e+08 3.693000e+08
Other Cashflows From Investing Activities -5.320000e+07 7.240000e+07
Dividends Paid -7.704000e+08 -7.683000e+08
Other Cashflows From Financing Activities -5.000000e+05 -1.490000e+07
Change To Netincome 8.054000e+08 -2.052000e+08
Capital Expenditures -3.368000e+08 -3.813000e+08
Change To Inventory -2.359000e+08 -2.359000e+08
Change To Account Receivables -1.278300e+09 -1.278300e+09 ]
['quarterly_earnings', Revenue Earnings
Quarter
2Q2021 6740100000 1390200000
3Q2021 6772800000 1110100000
4Q2021 7999900000 1726100000
1Q2022 7810000000 1902900000]

```

```
['quarterly_financials', 2022-03-31 2021-12-31 \
```

	2022-03-31	2021-12-31
Research Development	1610100000.0	1959400000.0
Effect Of Accounting Charges	None	None
Income Before Tax	2053600000.0	1839900000.0
Minority Interest	131200000.0	175600000.0
Net Income	1902900000.0	1726100000.0
Selling General Administrative	1464600000.0	1519400000.0
Gross Profit	5737900000.0	5854300000.0
Ebit	2663200000.0	2375500000.0
Operating Income	2663200000.0	2375500000.0
Other Operating Expenses	None	None
Interest Expense	-84900000.0	-81400000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	1507000000.0	1138000000.0
Total Revenue	7810000000.0	7999900000.0
Total Operating Expenses	5146800000.0	5624400000.0
Cost Of Revenue	2072100000.0	2145600000.0
Total Other Income Expense Net	-609600000.0	-535600000.0
Discontinued Operations	None	None
Net Income From Continuing Ops	1902900000.0	1726100000.0
Net Income Applicable To Common Shares	1902900000.0	1726100000.0

```
2021-09-30 2021-06-30
```

	2021-09-30	2021-06-30
Research Development	1708900000.0	1672800000.0
Effect Of Accounting Charges	None	None
Income Before Tax	1245300000.0	1593900000.0
Minority Interest	197100000.0	219100000.0
Net Income	1110100000.0	1390200000.0
Selling General Administrative	1505300000.0	1614600000.0
Gross Profit	5342000000.0	5209900000.0
Ebit	2127800000.0	1922500000.0
Operating Income	2127800000.0	1922500000.0
Other Operating Expenses	None	None
Interest Expense	-83600000.0	-86900000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	135200000.0	203700000.0
Total Revenue	6772800000.0	6740100000.0
Total Operating Expenses	4645000000.0	4817600000.0
Cost Of Revenue	1430800000.0	1530200000.0
Total Other Income Expense Net	-882500000.0	-328600000.0
Discontinued Operations	None	None
Net Income From Continuing Ops	1110100000.0	1390200000.0
Net Income Applicable To Common Shares	1110100000.0	1390200000.0

```
['mutualfund_holders', Holder Shares Date Reported \
```

	Holder	Shares	Date Reported
0	Vanguard Total Stock Market Index Fund	24466874	2021-12-30
1	Vanguard 500 Index Fund	16814257	2021-12-30
2	Vanguard/Primecap Fund	16263808	2021-12-30
3	Vanguard Specialized-Health Care Fund	10213125	2022-01-30
4	SPDR S&P 500 ETF Trust	8436788	2022-01-30
5	Fidelity 500 Index Fund	8130898	2022-02-27
6	iShares Core S&P 500 ETF	6602520	2022-01-30
7	Vanguard Index-Value Index Fund	6578581	2021-12-30
8	Fidelity Contrafund Inc	6465969	2022-02-27
9	Vanguard Institutional Index Fund-Institutiona...	5982359	2021-12-30

% Out	Value
0 0.0258	6758239936
1 0.0177	4644434068
2 0.0171	4492389045
3 0.0107	2506198743
4 0.0089	2070303407
5 0.0086	2032317955
6 0.0069	1620192382
7 0.0069	1817135643
8 0.0068	1616168951
9 0.0063	1652447202

```
['options', ('2022-07-15', '2023-01-20', '2024-01-19')]
```

```
['sustainability', Value
```

2022-5

palmOil	False
controversialWeapons	False
gambling	False
socialScore	17.4
nuclear	False

```

furLeather      False
alcoholic       False
gmo             True
catholic        0
socialPercentile 83
peerCount       11.56
environmentPercentile 0
animalTesting   True
tobacco         False
totalEsg        32.4
highestControversy 2
esgPerformance LEAD_PERF
coal            False
pesticides      False
adult           False
percentile     70.21
peerGroup       Pharmaceuticals
smallArms       False
environmentScore 3.43
governancePercentile 0
militaryContract False]
symbol: VLO
sector: Energy
Index: SP500
vol_30d_2yr: 90552079.1015625
Sector 1YMF: 9.160011291503906
1YMF: 9.160011291503906
risk trend factor: 0.1828345622851758
          beta currentRatio debtToEquity dividendRate dividendYield \
VLO  1.762704      1.178      64.483      3.92      0.0349

          ebitda ebitdaMargins forwardPE freeCashflow grossMargins \
VLO  6672999936      0.05306    9.871818    4647625216      0.05998

          grossProfits heldPercentInstitutions industry \
VLO  5487000000      0.80514      Oil & Gas Refining & Marketing

          marketCap operatingCashflow operatingMargins payoutRatio pegRatio \
VLO  45886316544      6498999808      0.0341      0.6312      0.36

          priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
VLO  2.438094      0.364858      0.02019      0.7

          returnOnAssets returnOnEquity revenueGrowth revenuePerShare sector \
VLO      0.04701      0.14702      0.886      308.815 Energy

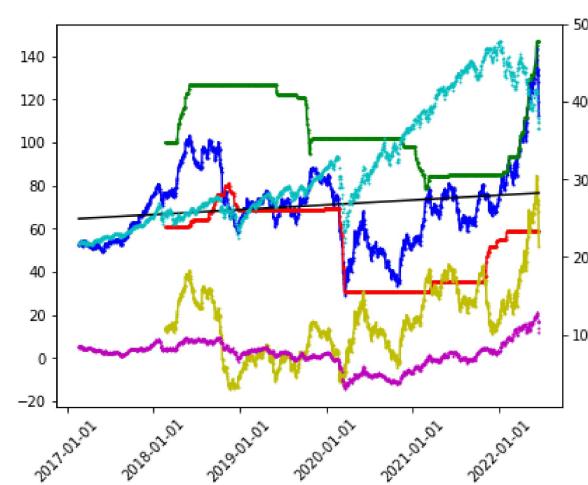
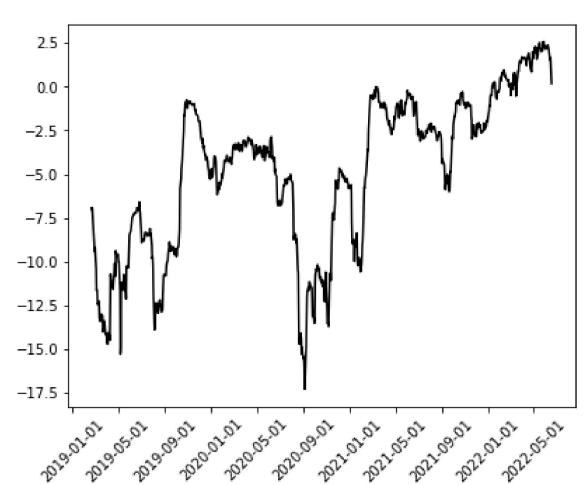
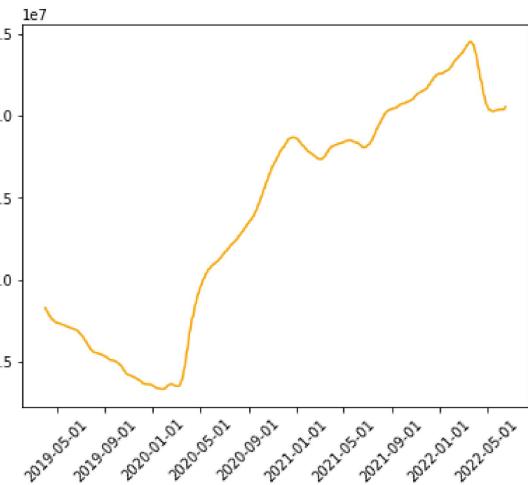
          sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
VLO      408096000      1.46      2638000128      6.464      13160999936

          totalRevenue trailingPE
VLO  125765001216      18.10045

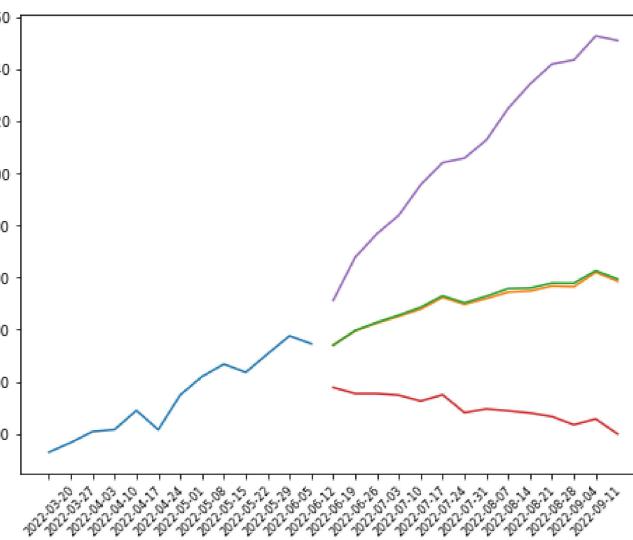
          Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper

```

volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
VLO	1.3872	112.440002	90552079.101562	0.691389	0.569718	0.530999
l axis			r axis			
blue	symbol	magenta	sector	cyan	index	
green	trailing_1yr_max					
red	trailing_1yr_min					
orange	30d_vol_2yr					
black	risk_trend_factor/linear					
yellow	supply_trend_1yr					
Sector 1YMF: -3.82000732421875						
Sector Volume Factor: 0.8966412344901694						
Sector Risk Trend Factor: -0.12330558135216596						
Index 1YMF: -287.8400573730469						
Index Volume Factor: 1.1835166983613057						
Index Risk Trend Factor: -2.791820877422900						



```
ets next 13 weeks
inner cv scores:
best model: ['mul', 'mul', False]
best inner cv score, sdev (11 folds): 298.2473901768996 228.50628816714766
test cv mean error, stdev (10 folds): 310.91454801965676 235.94980352018624
sell date: 2022-09-11
expected return: 0.44081876494495903
discounted return: 0.004305849985525967
quarter return: 1.4848114331385551
```



```

['options', ('2023-01-20', '2024-01-19')]
['sustainability', Value
2022-5
palmOil False
controversialWeapons False
gambling False
socialScore 7.23
nuclear False
furLeather False
alcoholic False
gmo False
catholic False
socialPercentile None
peerCount 39
governanceScore 4.98
environmentPercentile None
animalTesting False
tobacco False
totalEsg 30.94
highestControversy 3
esgPerformance OUT_PERF
coal False
pesticides False
adult False
percentile 65.34
peerGroup Refiners & Pipelines
smallArms False
environmentScore 18.74
governancePercentile None
militaryContract False]
symbol: APA
sector: Energy
Index: SP500
vol_30d_2yr: 204531248.4375
Sector 1YMF: 2.8700027465820312
1YMF: 2.8700027465820312
risk trend factor: 0.1813014791288129
    beta currentRatio dividendRate dividendYield earningsGrowth \
APA 4.42549 1.124 0.5 0.0122 38.999

    ebitda ebitdaMargins freeCashflow grossMargins grossProfits \
APA 4470000128 0.55701 2259500032 0.63302 5080000000

    heldPercentInstitutions industry operatingCashflow operatingMargins \
APA 0.92629 Oil & Gas E&P 3496000000 0.3696

    payoutRatio pegRatio profitMargins quickRatio returnOnAssets \
APA 0.0339 0.16 0.12125 0.801 0.14233

    returnOnEquity revenueGrowth revenuePerShare sector shortRatio \
APA 27.07216 0.905 21.457 Energy 1.45

    totalCash totalCashPerShare totalDebt totalRevenue
APA 302000000 0.871 7760999936 8024999936

```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDDev	90d_lower	90d_upper
2022-06-17	39.220001	39.703868	46.051746	52.399625	42.946032	3.294685	36.356662	49.535402

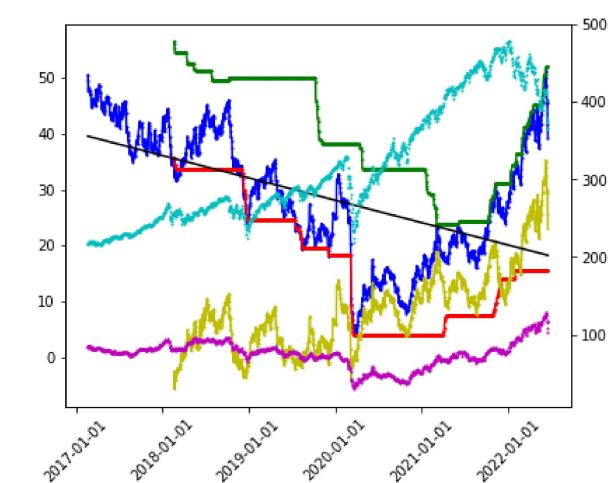
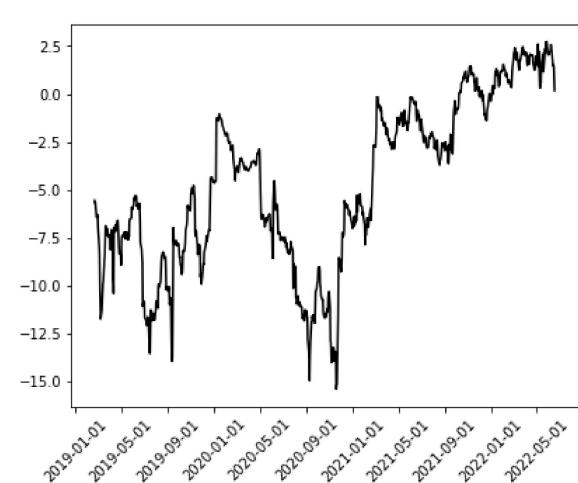
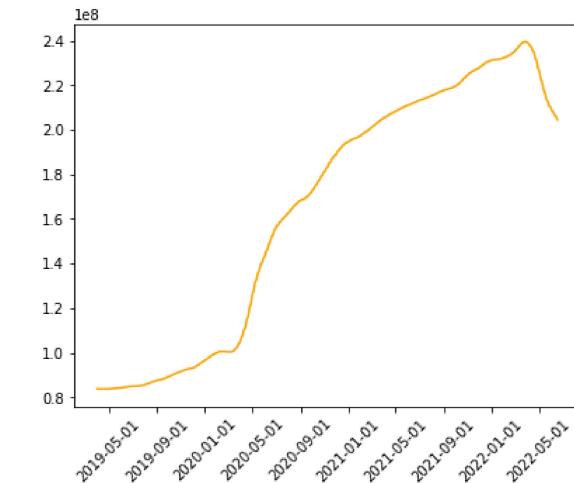
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
APA	0.999608	39.220001	204531248.4375	0.713933	0.302651	0.445144

l axis r axis

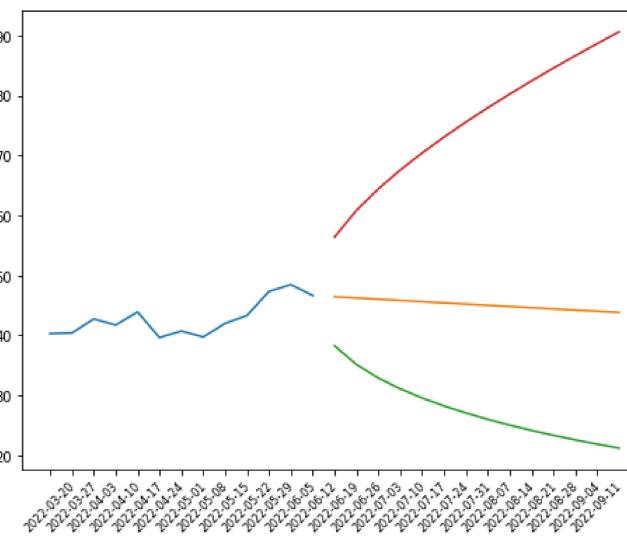
	legend	legend
--	--------	--------

blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Sector 1YMF: -3.82000732421875
Sector Volume Factor: 0.8966412344901694
Sector Risk Trend Factor: -0.12330558135216596
Index 1YMF: -287.8400573730469
Index Volume Factor: 1.1835166983613057
Index Risk Trend Factor: -3.791860877423899



```
ets next 13 weeks
inner cv scores:
best model: [None, 'add', False]
best inner cv score, sdev (11 folds): 46.85248669350492 42.246404781358315
test cv mean error, stdev (10 folds): 51.13206818418586 41.97346296601979
sell date: 2022-06-19
expected return: 0.18413822832352542
discounted return: 0.18413822832352533
quarter return: 5662666.440975121
```



	2021-12-31	2021-09-30	2021-06-30	\
['quarterly_balance_sheet',				
Capital Surplus	1.164500e+10	1.168600e+10	1.170400e+10	
Total Liab	1.330800e+10	1.270500e+10	1.281900e+10	
Total Stockholder Equity	-1.595000e+09	-1.095000e+09	-9.640000e+08	
Minority Interest	1.590000e+09	1.580000e+09	1.657000e+09	
Deferred Long Term Liab	5.700000e+08	5.150000e+08	5.120000e+08	
Other Current Liab	3.370000e+08	2.760000e+08	2.990000e+08	
Total Assets	1.338300e+10	1.331000e+10	1.351200e+10	
Common Stock	2.620000e+08	2.620000e+08	2.620000e+08	
Other Current Assets	1.550000e+08	1.020000e+08	7.600000e+07	
Retained Earnings	-9.488000e+09	-9.870000e+09	-9.757000e+09	
Other Liab	3.744000e+09	3.673000e+09	2.626000e+09	
Treasury Stock	-4.014000e+09	-3.173000e+09	-3.173000e+09	
Other Assets	1.223000e+09	1.255000e+09	5.120000e+08	
Cash	3.020000e+08	3.770000e+08	1.249000e+09	
Total Current Liabilities	2.117000e+09	1.839000e+09	1.773000e+09	
Deferred Long Term Asset Charges	1.300000e+07	NaN	NaN	
Other Stockholder Equity	2.200000e+07	1.500000e+07	1.500000e+07	
Property Plant Equipment	8.335000e+09	8.336000e+09	8.501000e+09	
Total Current Assets	2.380000e+09	2.181000e+09	2.945000e+09	
Long Term Investments	1.365000e+09	1.538000e+09	1.554000e+09	
Net Tangible Assets	-1.595000e+09	-1.095000e+09	-9.640000e+08	
Net Receivables	1.394000e+09	1.170000e+09	1.068000e+09	
Long Term Debt	7.261000e+09	7.159000e+09	8.386000e+09	
Inventory	4.730000e+08	4.760000e+08	4.790000e+08	
Accounts Payable	7.310000e+08	6.870000e+08	6.030000e+08	
Short Long Term Debt	NaN	2.130000e+08	2.130000e+08	

	2021-03-31			
Capital Surplus	1.172700e+10			
Total Liab	1.278300e+10			
Total Stockholder Equity	-1.258000e+09			
Minority Interest	1.602000e+09			
Deferred Long Term Liab	4.930000e+08			
Other Current Liab	2.000000e+08			
Total Assets	1.312700e+10			
Common Stock	2.620000e+08			
Other Current Assets	1.450000e+08			
Retained Earnings	-1.007300e+10			
Other Liab	2.732000e+09			
Treasury Stock	-3.174000e+09			
Other Assets	4.970000e+08			
Cash	5.380000e+08			
Total Current Liabilities	1.338000e+09			
Deferred Long Term Asset Charges	NaN			
Other Stockholder Equity	1.500000e+07			
Property Plant Equipment	8.718000e+09			
Total Current Assets	2.345000e+09			
Long Term Investments	1.567000e+09			
Net Tangible Assets	-1.258000e+09			
Net Receivables	1.071000e+09			
Long Term Debt	8.678000e+09			
Inventory	5.020000e+08			
Accounts Payable	5.240000e+08			
Short Long Term Debt	NaN]		

	2021-12-31	2021-09-30	\
['quarterly_cashflow',			
Investments	-1.000000e+06	-3.000000e+06	
Change To Liabilities	2.600000e+07	6.200000e+07	
Total Cashflows From Investing Activities	-2.910000e+08	-1.490000e+08	
Net Borrowings	1.020000e+08	-1.335000e+09	
Total Cash From Financing Activities	-8.690000e+08	-1.494000e+09	
Change To Operating Activities	1.800000e+08	-1.800000e+07	
Net Income	3.820000e+08	-1.130000e+08	
Change In Cash	-7.500000e+07	-8.720000e+08	
Repurchase Of Stock	-8.470000e+08	-8.470000e+08	
Total Cash From Operating Activities	1.085000e+09	7.710000e+08	
Depreciation	3.650000e+08	3.690000e+08	
Other Cashflows From Investing Activities	8.000000e+06	3.200000e+07	
Dividends Paid	-2.400000e+07	-9.000000e+06	
Change To Inventory	1.000000e+07	-3.900000e+07	
Change To Account Receivables	-1.210000e+08	-1.000000e+08	
Other Cashflows From Financing Activities	-1.000000e+08	-1.500000e+08	
Change To Netincome	2.430000e+08	6.100000e+08	
Capital Expenditures	-3.150000e+08	-2.360000e+08	

	2021-06-30	2021-03-31	
Investments	-3000000.0	-2100000.0	
Change To Liabilities	8200000.0	7500000.0	
Total Cashflows From Investing Activities	-12600000.0	-26700000.0	
Net Borrowings	-7900000.0	-5800000.0	
Total Cash From Financing Activities	-13200000.0	-12800000.0	
Change To Operating Activities	18400000.0	-7900000.0	
Net Income	31600000.0	38800000.0	
Change In Cash	71100000.0	27600000.0	
Repurchase Of Stock	-84700000.0	-84700000.0	
Total Cash From Operating Activities	96900000.0	67100000.0	
Depreciation	38200000.0	38800000.0	
Other Cashflows From Investing Activities	5000000.0	7000000.0	
Dividends Paid	-1000000.0	-9000000.0	
Change To Inventory	2300000.0	-3000000.0	
Change To Account Receivables	3000000.0	-16800000.0	
Other Cashflows From Financing Activities	-4300000.0	-6100000.0	

```

Change To Netincome 59000000.0 70000000.0
Capital Expenditures -30600000.0 -25600000.0 ]
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Quarter
1Q2021 1932000000 388000000
2Q2021 1830000000 316000000
3Q2021 2099000000 -113000000
4Q2021 2164000000 382000000]
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Research Development None None
Effect Of Accounting Charges None None
Income Before Tax 654000000.0 122000000.0
Minority Interest 1590000000.0 1580000000.0
Net Income 382000000.0 -113000000.0
Selling General Administrative 137000000.0 70000000.0
Gross Profit 1467000000.0 1301000000.0
Ebit 937000000.0 774000000.0
Operating Income 937000000.0 774000000.0
Other Operating Expenses 15000000.0 88000000.0
Interest Expense -94000000.0 -101000000.0
Extraordinary Items None None
Non Recurring None None
Other Items None None
Income Tax Expense 169000000.0 152000000.0
Total Revenue 2164000000.0 2099000000.0
Total Operating Expenses 1227000000.0 1325000000.0
Cost Of Revenue 697000000.0 798000000.0
Total Other Income Expense Net -283000000.0 -652000000.0
Discontinued Operations None None
Net Income From Continuing Ops 485000000.0 -30000000.0
Net Income Applicable To Common Shares 382000000.0 -113000000.0

2021-06-30 2021-03-31
Research Development None None
Effect Of Accounting Charges None None
Income Before Tax 495000000.0 620000000.0
Minority Interest 1657000000.0 1602000000.0
Net Income 316000000.0 388000000.0
Selling General Administrative 86000000.0 83000000.0
Gross Profit 1196000000.0 1116000000.0
Ebit 510000000.0 745000000.0
Operating Income 510000000.0 745000000.0
Other Operating Expenses 223000000.0 -103000000.0
Interest Expense -111000000.0 -112000000.0
Extraordinary Items None None
Non Recurring None None
Other Items None None
Income Tax Expense 87000000.0 170000000.0
Total Revenue 1830000000.0 1932000000.0
Total Operating Expenses 1320000000.0 1187000000.0
Cost Of Revenue 634000000.0 816000000.0
Total Other Income Expense Net -15000000.0 -125000000.0
Discontinued Operations None None
Net Income From Continuing Ops 408000000.0 450000000.0
Net Income Applicable To Common Shares 316000000.0 388000000.0 ]
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Holder Shares Date Reported % Out \
0 Oakmark Fund 12743809 2021-12-30 0.0377
1 Select Sector SPDR Fund-Energy Select 10683025 2022-01-30 0.0316
2 Vanguard Total Stock Market Index Fund 10325855 2021-12-30 0.0305
3 Vanguard Small-Cap Index Fund 9149341 2021-12-30 0.0271
4 Vanguard/Windsor II 8002477 2022-01-30 0.0237
5 Vanguard 500 Index Fund 7693595 2021-12-30 0.0227
6 Vanguard Small Cap Value Index Fund 5800585 2021-12-30 0.0171
7 Oakmark Select Fund 5500000 2021-12-30 0.0163
8 SPDR S&P 500 ETF Trust 4043068 2022-01-30 0.0120
9 Fidelity 500 Index Fund 3720217 2022-02-27 0.0110

Value
0 342681024
1 354783260
2 277662240
3 246025779
4 265762261
5 206880769
6 155977730
7 147895000
8 134270288
9 132551331 ]
['options', ('2022-07-15', '2023-01-20', '2024-01-19')]
symbol: PPC
sector: Consumer Defensive
Index: SP400
vol_30d_2yr: 17241312.5
Sector 1YMF: 1.4799995422363281
1YMF: 1.4799995422363281
risk trend factor: 0.1778845668897103
    beta currentRatio debtToEquity earningsGrowth ebitda \
PPC 1.12745 1.532 134.448 1.805 1548861056
    ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
PPC 0.09838 11.328186 873572608 0.10458 1365827000

```

```

heldPercentInstitutions           industry   marketCap operatingCashflow \
PPC                      0.19334  Packaged Foods  7149453824          697006016

operatingMargins payoutRatio pegRatio priceToBook \
PPC            0.0732           0       0.59    2.745392

priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
PPC            0.454094        0.01342      0.724     0.08575

returnOnEquity revenueGrowth revenuePerShare           sector \
PPC            0.07645         0.295       64.613  Consumer Defensive

sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
PPC            243676000      2.43    725539968          3.019  3755959040

totalRevenue
PPC            15744428032

Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d lower 90

```

	Adj Close	21d BOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	29.34	28.165931	31.419048	34.672164	28.426667	2.86898	22.688707	34.164626

volume_factor latest_p vol_30d_2yr pct_2yr adf hurst

PPC 1.275425 29.34 17241312.5 0.741748 0.282386 0.556574

legend **legend**

blue symbol

green trailing_1yr_max

red trailing_1yr_min

orange 30d_vol_2yr

black risk_trend_factor/linear

yellow supply_trend_1yr

Sector 1YMF: -74.80001831054688

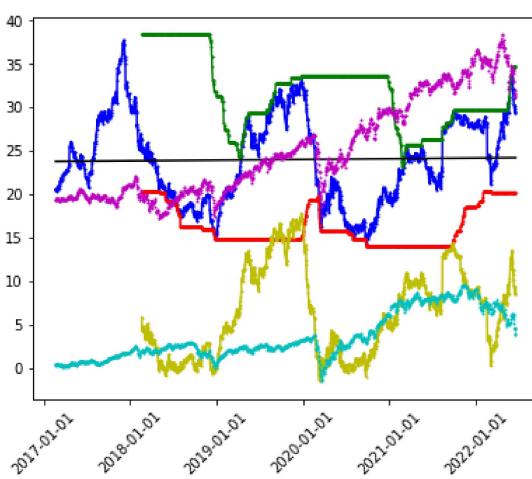
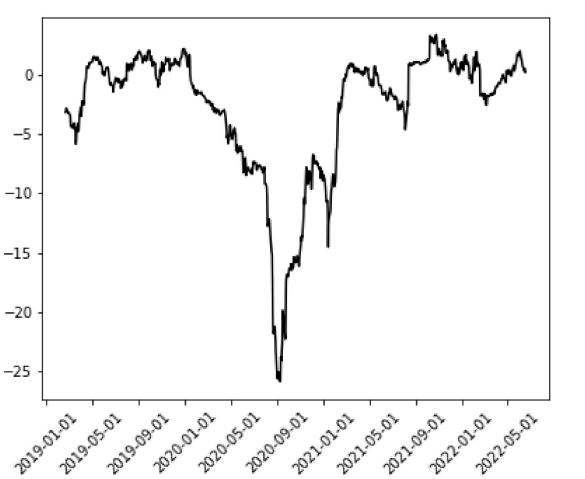
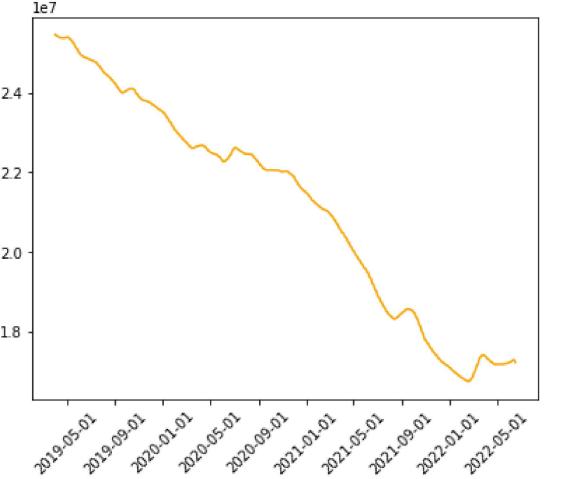
Sector Volume Factor: 1.4135920452708397

Sector Risk Trend Factor: -2.28397002474952

Index 1YMF: -69.05999755859375

Index Volume Factor: 0.5765983741853883
Index Risk Trend Factor: -5.124573474205822

Index Risk Trend Factor: -5.1345/34/4205833



ets next 13 weeks

inner cv scores:

best model: ['add', 'mul', False]

best inner cv score, sdev (11 fold)

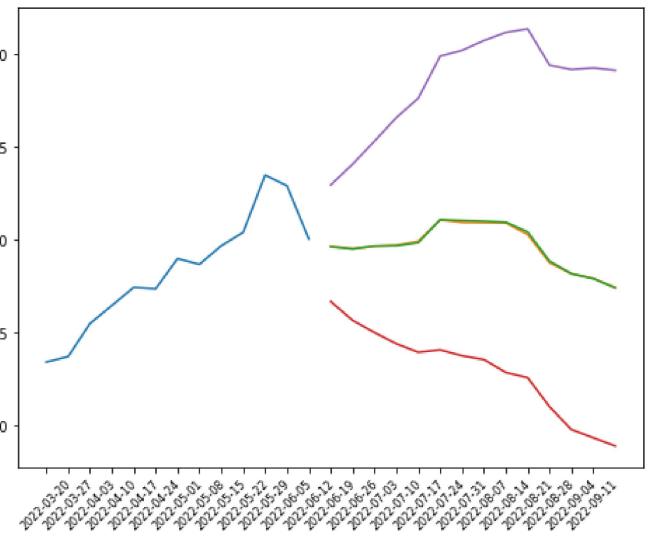
test cv mean error, stdev (10 folds): 27.983158956889138 36.09188747556151

sell date: 2022-07-24

expected return: 0.0580

discounted return: 0.00

quarter return: 1.1551033820495453



	2022-03-27	2021-12-26	2021-09-26	\
['quarterly_balance_sheet',				
Intangible Assets	9.385640e+08	9.632430e+08	1.028664e+09	
Capital Surplus	1.966066e+09	1.964028e+09	1.962750e+09	
Total Liab	6.524261e+09	6.324271e+09	6.216460e+09	
Total Stockholder Equity	2.781630e+09	2.577080e+09	2.604243e+09	
Minority Interest	1.197600e+07	1.185400e+07	1.214000e+07	
Other Current Liab	3.009220e+08	3.085060e+08	4.109530e+08	
Total Assets	9.317867e+09	8.913205e+09	8.832843e+09	
Common Stock	2.616000e+06	2.614000e+06	2.614000e+06	
Other Current Assets	6.858900e+07	4.054500e+07	6.656900e+07	
Retained Earnings	1.284007e+09	1.003569e+09	9.668150e+08	
Other Liab	4.077630e+08	4.709210e+08	5.265940e+08	
Good Will	1.320100e+09	1.337252e+09	1.381872e+09	
Treasury Stock	-4.710590e+08	-3.931310e+08	-3.279360e+08	
Other Assets	3.726000e+07	3.772400e+07	3.165500e+07	
Cash	7.255400e+08	4.276610e+08	5.110840e+08	
Total Current Liabilities	2.475775e+09	2.390823e+09	2.270929e+09	
Deferred Long Term Asset Charges	5.191000e+06	5.314000e+06	5.465000e+06	
Short Long Term Debt	3.616200e+07	2.541400e+07	2.023000e+07	
Other Stockholder Equity	-9.890200e+07	-4.799700e+07	1.719800e+07	
Property Plant Equipment	3.229118e+09	3.269032e+09	3.148945e+09	
Total Current Assets	3.792825e+09	3.305954e+09	3.241707e+09	
Net Tangible Assets	5.229660e+08	2.765850e+08	1.937070e+08	
Net Receivables	1.086588e+09	1.042610e+09	9.425350e+08	
Long Term Debt	3.373573e+09	3.187543e+09	3.191270e+09	
Inventory	1.708995e+09	1.575658e+09	1.556821e+09	
Accounts Payable	1.448846e+09	1.400394e+09	1.183460e+09	

	2021-06-27			
Intangible Assets	5.895360e+08			
Capital Surplus	1.959558e+09			
Total Liab	5.154333e+09			
Total Stockholder Equity	2.582482e+09			
Minority Interest	1.203000e+07			
Other Current Liab	5.448970e+08			
Total Assets	7.748845e+09			
Common Stock	2.614000e+06			
Other Current Assets	1.300070e+08			
Retained Earnings	9.068900e+08			
Other Liab	4.179760e+08			
Good Will	1.024900e+09			
Treasury Stock	-2.857800e+08			
Other Assets	3.233100e+07			
Cash	3.918050e+08			
Total Current Liabilities	2.244714e+09			
Deferred Long Term Asset Charges	5.494000e+06			
Short Long Term Debt	2.593100e+07			
Other Stockholder Equity	5.935400e+07			
Property Plant Equipment	2.972778e+09			
Total Current Assets	3.129300e+09			
Net Tangible Assets	9.680460e+08			
Net Receivables	9.186950e+08			
Long Term Debt	2.268842e+09			
Inventory	1.530014e+09			
Accounts Payable	1.100759e+09]		

	2022-03-27	2021-12-26	\
['quarterly_cashflow',			
Change To Liabilities	-2454000.0	84657000.0	
Total Cashflows From Investing Activities	-85576000.0	-111842000.0	
Net Borrowings	196412000.0	-235000.0	
Total Cash From Financing Activities	166330000.0	-235000.0	
Change To Operating Activities	-8946000.0	-75981000.0	
Net Income	280438000.0	36754000.0	
Change In Cash	305677000.0	-115074000.0	
Repurchase Of Stock	-28984000.0	-28984000.0	
Effect Of Exchange Rate	-2073000.0	-1961000.0	
Total Cash From Operating Activities	226996000.0	-1036000.0	
Depreciation	102142000.0	106488000.0	
Change To Inventory	-146035000.0	-28211000.0	
Change To Account Receivables	-66669000.0	-120429000.0	
Other Cashflows From Financing Activities	-1098000.0	-1098000.0	
Change To Netincome	-17969000.0	-54879000.0	
Capital Expenditures	-81578000.0	-100851000.0	

	2021-09-26	2021-06-27	
Change To Liabilities	8.445000e+06	506670000.0	
Total Cashflows From Investing Activities	-1.049512e+09	-73266000.0	
Net Borrowings	9.280300e+08	-97181000.0	
Total Cash From Financing Activities	9.143870e+08	-105831000.0	
Change To Operating Activities	1.507300e+07	-25391000.0	
Net Income	6.072500e+07	-166687000.0	
Change In Cash	7.517800e+07	79777000.0	
Repurchase Of Stock	-2.898400e+07	-28984000.0	
Effect Of Exchange Rate	-2.240000e+06	371000.0	
Total Cash From Operating Activities	2.125430e+08	258503000.0	
Depreciation	9.207600e+07	95728000.0	
Change To Inventory	2.429400e+07	-91397000.0	
Change To Account Receivables	-2.133800e+07	-62718000.0	
Other Cashflows From Financing Activities	-1.364300e+07	-8650000.0	
Change To Netincome	1.158100e+07	-20393000.0	
Capital Expenditures	-9.707600e+07	-81577000.0]
['quarterly_earnings',	Revenue	Earnings	
Quarter			

2Q2021 3637698000 -166687000
3Q2021 3827566000 60725000
4Q2021 4038769000 36754000
1Q2022 4240395000 280438000]

['quarterly_financials', 2022-03-27 2021-12-26 \]

	None	None
Research Development	None	None
Effect Of Accounting Charges	None	None
Income Before Tax	355779000.0	41659000.0
Minority Interest	11976000.0	11854000.0
Net Income	280438000.0	36754000.0
Selling General Administrative	120323000.0	35329000.0
Gross Profit	541980000.0	352500000.0
Ebit	421657000.0	317171000.0
Operating Income	421657000.0	317171000.0
Other Operating Expenses	None	None
Interest Expense	-36296000.0	-34974000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	75219000.0	5191000.0
Total Revenue	4240395000.0	4038769000.0
Total Operating Expenses	3818738000.0	3721598000.0
Cost Of Revenue	3698415000.0	3686269000.0
Total Other Income Expense Net	-65878000.0	-275512000.0
Discontinued Operations	None	None
Net Income From Continuing Ops	280560000.0	36468000.0
Net Income Applicable To Common Shares	280438000.0	36754000.0

	2021-09-26	2021-06-27
Research Development	None	None
Effect Of Accounting Charges	None	None
Income Before Tax	91220000.0	-176315000.0
Minority Interest	12140000.0	12030000.0
Net Income	60725000.0	-166687000.0
Selling General Administrative	250844000.0	102959000.0
Gross Profit	371843000.0	380241000.0
Ebit	120999000.0	277282000.0
Operating Income	120999000.0	277282000.0
Other Operating Expenses	None	None
Interest Expense	-29833000.0	-50651000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	30385000.0	-9812000.0
Total Revenue	3827566000.0	3637698000.0
Total Operating Expenses	3706567000.0	3360416000.0
Cost Of Revenue	3455723000.0	3257457000.0
Total Other Income Expense Net	-29779000.0	-453597000.0
Discontinued Operations	None	None
Net Income From Continuing Ops	60835000.0	-1666503000.0
Net Income Applicable To Common Shares	60725000.0	-166687000.0

['mutualfund_holders', Holder Shares Date Reported \]

0	Vanguard Total Stock Market Index Fund	1391177	2021-12-30
1	iShares Core S&P Midcap ETF	1354194	2022-01-30
2	Vanguard Small-Cap Index Fund	1226527	2021-12-30
3	Vanguard Small Cap Value Index Fund	778076	2021-12-30
4	Vanguard Extended Market Index Fund	647608	2021-12-30
5	DFA U.S. Small Cap Value Series	494751	2022-01-30
6	First Tr Exchg Tr AlphaDEX Fd-FT Consumer Stap...	488488	2022-02-27
7	SPDR S&P Mid Cap 400 ETF Trust	418251	2022-01-30
8	iShares S&P Midcap 400 Value ETF	353867	2022-01-30
9	Vanguard Consumer Staples Index Fund	342523	2022-02-27

% Out	Value
0 0.0058	39231191
1 0.0056	37876806
2 0.0051	34588061
3 0.0032	21941743
4 0.0027	18262545
5 0.0021	13838185
6 0.0020	11518547
7 0.0017	11698480
8 0.0015	9897659
9 0.0014	8076692

['options', ('2023-01-20',)]

symbol: MRO

sector: Energy

Index: SP500

vol_30d_2yr: 490057840.234375

Sector 1YMF: 1.5699996948242188

1YMF: 1.5699996948242188

risk trend factor: 0.15110678525882204

beta currentRatio debtToEquity dividendRate dividendYield \

MRO 2.766666 1.112 38.48 0.32 0.0119

ebitda ebitdaMargins forwardPE freeCashflow grossMargins \

MRO 3308999936 0.58921 12.321428 1785500032 0.77546

grossProfits heldPercentInstitutions industry marketCap \

MRO 435500000 0.802 Oil & Gas E&P 18801668096

operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \

```

MRO      3239000064      0.20495      0.0769      0.59      1.764964
MRO      priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
MRO          3.347875      0.16845      1.052      0.04117

MRO      returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \
MRO      0.08905      1.091      7.136 Energy      778537024

MRO      shortRatio totalCash totalCashPerShare totalDebt totalRevenue
MRO      0.93 58000000      0.794 4112000000 5616000000

Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper
2022-06-17    24.15 25.128986 29.471905 33.814823 26.957624 2.372893 22.211838 31.70341

```

volume_factor latest_p vol_30d_2yr pct_2yr adf hurst

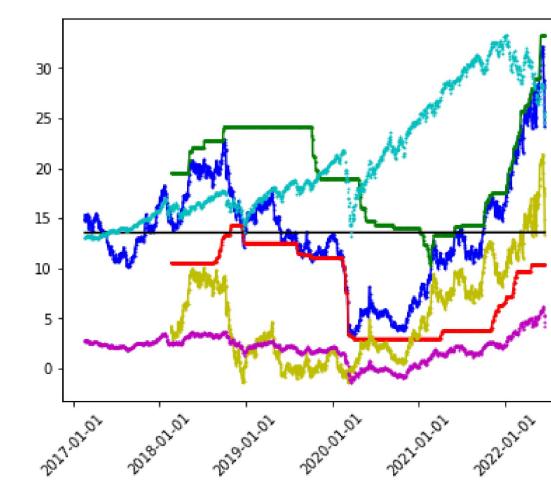
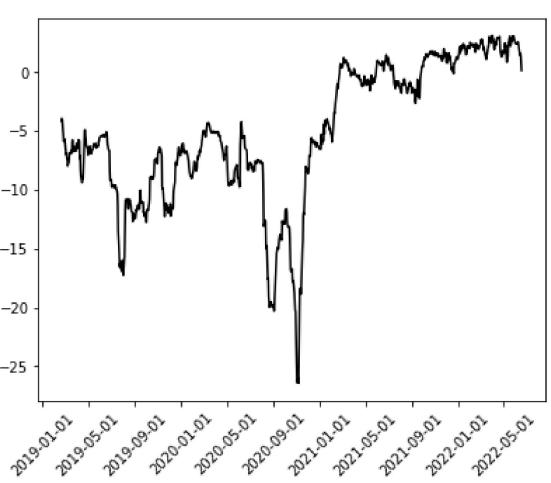
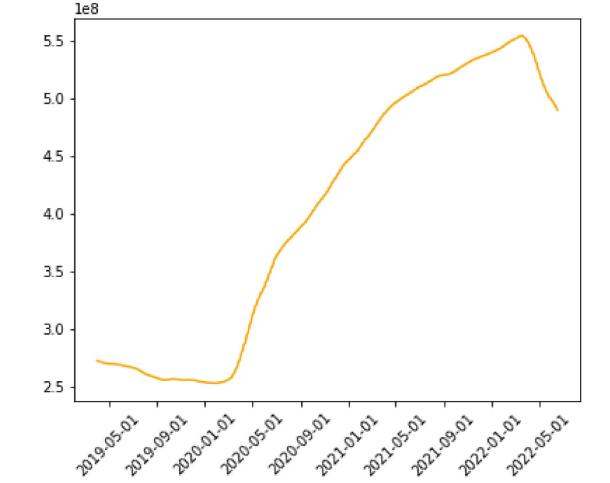
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MRO      1.000459    24.15 490057840.234375 0.691969 0.80545 0.53536
```

l axis r axis

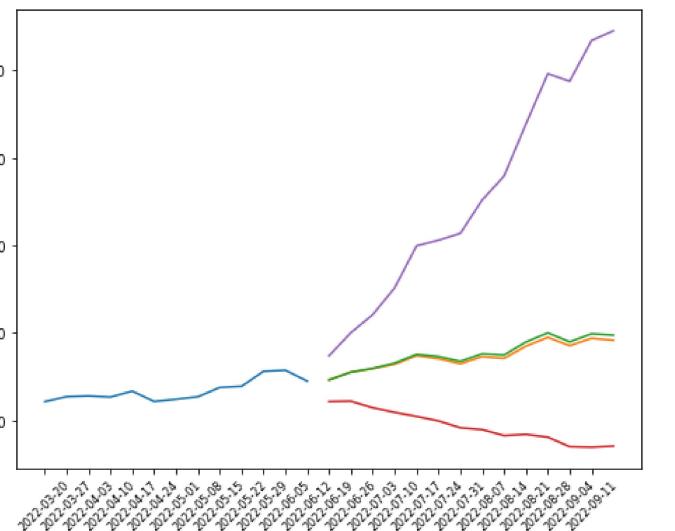
legend legend

blue	symbol
green	trailing_1yr_max
red	trailing_1yr_min
orange	30d_vol_2yr
black	risk_trend_factor/linear
yellow	supply_trend_1yr

Sector 1YMF: -3.82000732421875
Sector Volume Factor: 0.8966412344901694
Sector Risk Trend Factor: -0.12330558135216596
Index 1YMF: -287.8400573730469
Index Volume Factor: 1.1835166983613057
Index Risk Trend Factor: -3.791860877423899



ets next 13 weeks
inner cv scores:
best model: ['mul', 'mul', True]
best inner cv score, sdev (11 folds): 11.75784441657806 12.667631416131938
test cv mean error, stdev (10 folds): 12.772815210119978 12.852390886741173
sell date: 2022-08-28
expected return: 0.6156287892172689
discounted return: 0.006779557066307396
quarter return: 1.8619316819986207



	2021-12-31	2021-09-30	2021-06-30	\
['quarterly_balance_sheet',				
Capital Surplus	7.221000e+09	7.213000e+09	7.201000e+09	
Total Liab	6.308000e+09	6.365000e+09	7.166000e+09	
Total Stockholder Equity	1.068600e+10	1.079600e+10	1.063400e+10	
Other Current Liab	3.680000e+08	4.960000e+08	5.020000e+08	
Total Assets	1.699400e+10	1.716100e+10	1.780000e+10	
Common Stock	9.370000e+08	9.370000e+08	9.370000e+08	
Other Current Assets	2.200000e+07	2.500000e+07	1.900000e+07	
Retained Earnings	7.271000e+09	6.669000e+09	6.524000e+09	
Other Liab	6.440000e+08	6.420000e+08	6.650000e+08	
Treasury Stock	-4.743000e+09	-4.023000e+09	-4.028000e+09	
Other Assets	1.100000e+08	1.040000e+08	9.300000e+07	
Cash	5.800000e+08	4.850000e+08	9.700000e+08	
Total Current Liabilities	1.637000e+09	1.676000e+09	1.575000e+09	
Short Long Term Debt	3.900000e+07	3.900000e+07	3.500000e+07	
Other Stockholder Equity	8.200000e+07	8.200000e+07	7.700000e+07	
Property Plant Equipment	1.458600e+10	1.484300e+10	1.511100e+10	
Total Current Assets	1.821000e+09	1.655000e+09	2.075000e+09	
Long Term Investments	4.770000e+08	5.590000e+08	5.210000e+08	
Net Tangible Assets	1.068600e+10	1.079600e+10	1.063400e+10	
Net Receivables	1.142000e+09	1.068000e+09	1.008000e+09	
Long Term Debt	3.980000e+09	3.983000e+09	4.882000e+09	
Inventory	7.700000e+07	7.700000e+07	7.800000e+07	
Accounts Payable	1.110000e+09	1.028000e+09	9.370000e+08	

2021-03-31

Capital Surplus	7.195000e+09
Total Liab	7.562000e+09
Total Stockholder Equity	1.067100e+10
Other Current Liab	3.810000e+08
Total Assets	1.823300e+10
Common Stock	9.370000e+08
Other Current Assets	2.600000e+07
Retained Earnings	6.540000e+09
Other Liab	6.950000e+08
Treasury Stock	-4.001000e+09
Other Assets	9.600000e+07
Cash	1.125000e+09
Total Current Liabilities	1.899000e+09
Short Long Term Debt	5.010000e+08
Other Stockholder Equity	1.120000e+08
Property Plant Equipment	1.542500e+10
Total Current Assets	2.150000e+09
Long Term Investments	5.620000e+08
Net Tangible Assets	1.067100e+10
Net Receivables	9.210000e+08
Long Term Debt	4.910000e+09
Inventory	7.800000e+07
Accounts Payable	9.180000e+08

]

2021-12-31 2021-09-30 \

['quarterly_cashflow',			
Investments	4.600000e+07	9.000000e+06	
Change To Liabilities	1.410000e+08	1.070000e+08	
Total Cashflows From Investing Activities	-2.820000e+08	-2.650000e+08	
Total Cash From Financing Activities	-7.690000e+08	-1.036000e+09	
Change To Operating Activities	-2.000000e+07	-7.000000e+06	
Net Income	6.490000e+08	1.840000e+08	
Change In Cash	9.500000e+07	-4.850000e+08	
Repurchase Of Stock	-7.240000e+08	-1.000000e+06	
Total Cash From Operating Activities	1.146000e+09	8.160000e+08	
Depreciation	4.630000e+08	5.830000e+08	
Dividends Paid	-4.700000e+07	-3.900000e+07	
Change To Account Receivables	-7.600000e+07	-6.000000e+07	
Other Cashflows From Financing Activities	2.000000e+06	-9.600000e+07	
Change To Netincome	-1.100000e+07	8.000000e+06	
Capital Expenditures	-2.740000e+08	-2.890000e+08	
Net Borrowings	NaN	-9.000000e+08	
Other Cashflows From Investing Activities	NaN	1.000000e+06	
Change To Inventory	NaN	1.000000e+06	

2021-06-30 2021-03-31

Investments	6000000.0	6000000.0
Change To Liabilities	20000000.0	101000000.0
Total Cashflows From Investing Activities	-256000000.0	-207000000.0
Total Cash From Financing Activities	-554000000.0	-32000000.0
Change To Operating Activities	12000000.0	61000000.0
Net Income	16000000.0	97000000.0
Change In Cash	-155000000.0	383000000.0
Repurchase Of Stock	-1000000.0	-9000000.0
Total Cash From Operating Activities	655000000.0	622000000.0
Depreciation	600000000.0	512000000.0
Dividends Paid	-32000000.0	-23000000.0
Change To Account Receivables	-78000000.0	-175000000.0
Other Cashflows From Financing Activities	-22000000.0	-22000000.0
Change To Netincome	85000000.0	28000000.0
Capital Expenditures	-274000000.0	-209000000.0
Net Borrowings	-500000000.0	-500000000.0
Other Cashflows From Investing Activities	1000000.0	-1000000.0
Change To Inventory	1000000.0	-2000000.0

]

Revenue Earnings

Quarter

1Q2021 118000000 97000000

2Q2021 125900000 16000000

3Q2021	1439000000	184000000
4Q2021	1738000000	649000000]
['quarterly_financials',		
Research Development	None	None
Effect Of Accounting Charges	None	None
Income Before Tax	683000000.0	188000000.0
Minority Interest	None	None
Net Income	649000000.0	184000000.0
Selling General Administrative	6100000.0	7000000.0
Gross Profit	1393000000.0	1089000000.0
Ebit	75500000.0	25400000.0
Operating Income	75500000.0	25400000.0
Other Operating Expenses	9400000.0	16700000.0
Interest Expense	-7400000.0	-5700000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	3400000.0	4000000.0
Total Revenue	1738000000.0	1439000000.0
Total Operating Expenses	983000000.0	1185000000.0
Cost Of Revenue	345000000.0	350000000.0
Total Other Income Expense Net	-7200000.0	-6600000.0
Discontinued Operations	None	None
Net Income From Continuing Ops	649000000.0	184000000.0
Net Income Applicable To Common Shares	649000000.0	184000000.0
2021-06-30 2021-03-31		
Research Development	None	None
Effect Of Accounting Charges	None	None
Income Before Tax	26000000.0	107000000.0
Minority Interest	None	None
Net Income	16000000.0	97000000.0
Selling General Administrative	69000000.0	75000000.0
Gross Profit	96600000.0	90700000.0
Ebit	54000000.0	87000000.0
Operating Income	54000000.0	87000000.0
Other Operating Expenses	240000000.0	227000000.0
Interest Expense	-59000000.0	-13000000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	10000000.0	10000000.0
Total Revenue	1259000000.0	1180000000.0
Total Operating Expenses	1205000000.0	1093000000.0
Cost Of Revenue	293000000.0	273000000.0
Total Other Income Expense Net	-28000000.0	20000000.0
Discontinued Operations	None	None
Net Income From Continuing Ops	16000000.0	97000000.0
Net Income Applicable To Common Shares	16000000.0	97000000.0
] Holder Shares Date Reported % Out \		
0 Vanguard/Windsor II	26018487	2022-01-30 0.0368
1 Select Sector SPDR Fund-Energy Select	22895120	2022-01-30 0.0324
2 Vanguard Total Stock Market Index Fund	22131478	2021-12-30 0.0313
3 Vanguard Small-Cap Index Fund	19611815	2021-12-30 0.0277
4 Vanguard 500 Index Fund	16486851	2021-12-30 0.0233
5 Vanguard Small Cap Value Index Fund	12430773	2021-12-30 0.0176
6 Fidelity Low-Priced Stock Fund	12282677	2022-02-27 0.0174
7 SPDR S&P 500 ETF Trust	8364080	2022-01-30 0.0118
8 Fidelity 500 Index Fund	7972838	2022-02-27 0.0113
9 Invesco Comstock Fd	7808667	2022-01-30 0.0110

Value		
0	506579941	
1	445767986	
2	363398868	
3	322026002	
4	270714093	
5	204113292	
6	277097193	
7	162848637	
8	179867225	
9	152034746]

['options', ('2022-07-15', '2022-09-16', '2023-01-20', '2024-01-19')]

Value	
2022-5	
palmOil	False
controversialWeapons	False
gambling	False
socialScore	10.01
nuclear	False
furLeather	False
alcoholic	False
gmo	False
catholic	False
socialPercentile	0
peerCount	66
governanceScore	8.13
environmentPercentile	0
animalTesting	False
tobacco	False
totalEsg	42.05
highestControversy	2

```

esgPerformance None
coal False
pesticides False
adult False
percentile 90.8
peerGroup Oil & Gas Producers
smallArms False
environmentScore 23.91
governancePercentile 0
militaryContract False]
symbol: DVN
sector: Energy
Index: SP500
vol_30d_2yr: 237878397.65625
Sector 1YMF: 3.9099979400634766
1YMF: 3.9099979400634766
risk trend factor: 0.14878225091792957
          beta currentRatio debtToEquity dividendRate dividendYield \
DVN 2.784803      1.376     71.922      5.08      0.0739

          ebitda ebitdaMargins forwardPE freeCashflow grossMargins \
DVN 5506999808      0.41984    11.09369    2805625088      0.56522

          grossProfits heldPercentInstitutions industry marketCap \
DVN 7414000000      0.86307   Oil & Gas E&P 39279542272

          operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
DVN 4898999808      0.25288      0.4991      0.43      4.401456

          priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
DVN 2.994552      0.21445      1.207      0.13402

          returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \
DVN 0.45627      2.003      19.784      Energy      6770000000

          shortRatio totalCash totalCashPerShare totalDebt totalRevenue \
DVN 1.7 2099000064      3.16      6760000000 13116999680

          trailingPE
DVN 28.808342

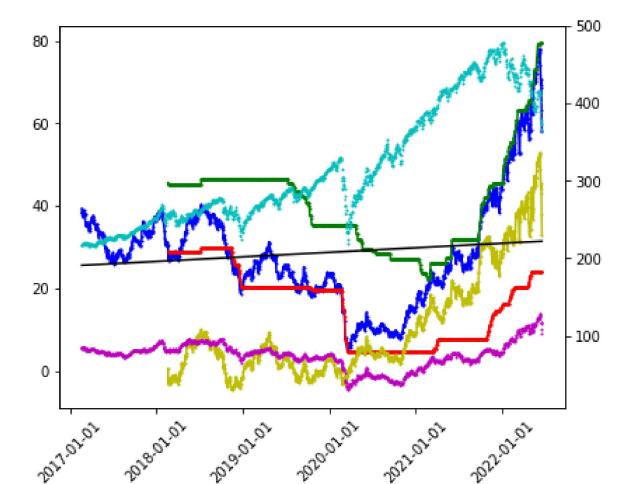
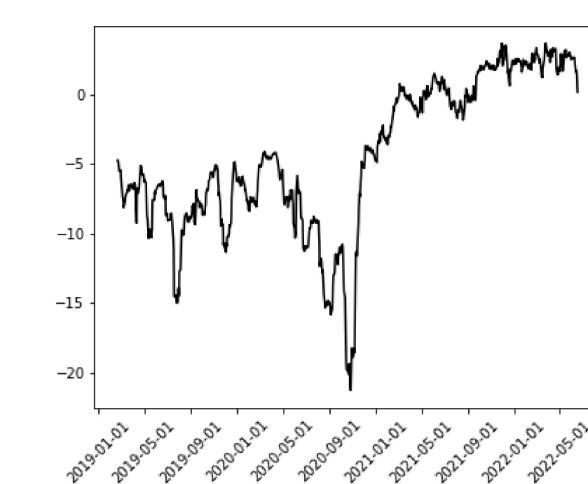
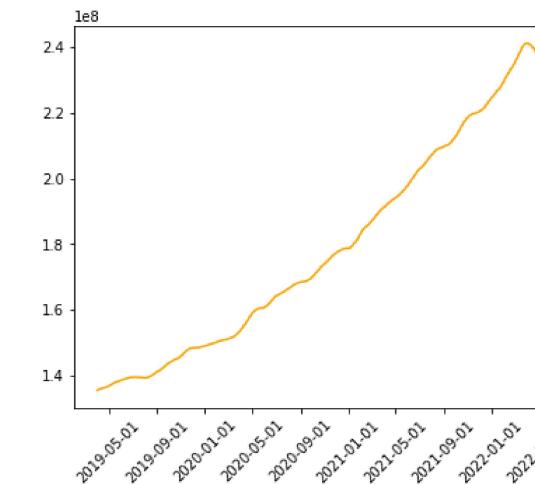
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	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper	
2022-06-17	58.02	63.067854		72.56	82.052146	65.759365	6.444488	52.870389	76.608534

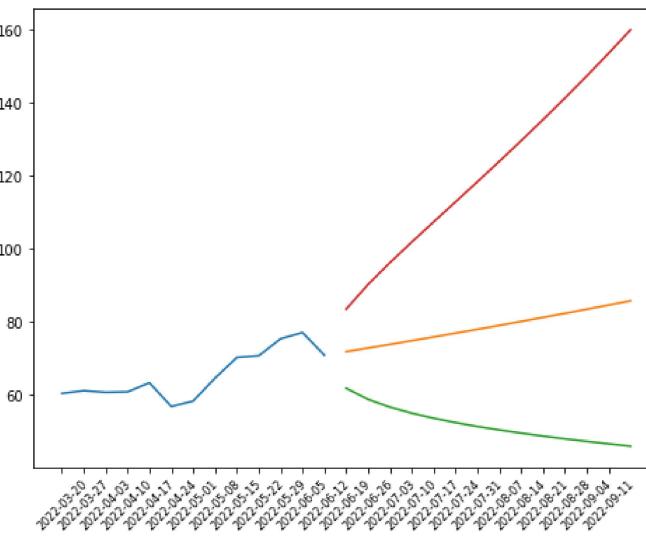
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	
DVN	1.104104	58.02	237878397.65625	0.701688	0.885466	0

I axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		

```
yellow      supply_trend_1yr  
Sector 1YMF: -3.82000732421875  
Sector Volume Factor: 0.8966412344901694  
Sector Risk Trend Factor: -0.12330558135216  
Index 1YMF: -287.8400573730469  
Index Volume Factor: 1.1835166983613057  
Index Risk Trend Factor: -3.791860877423899
```



ets next 13 weeks
inner cv scores:
best model: [None, 'add', False]
best inner cv score, sdev (11 folds): 67.08034661109826 86.6725124718212
test cv mean error, stdev (10 folds): 73.27584410585618 88.55005929559908
sell date: 2022-09-18
expected return: 0.477348348144283
discounted return: 0.004250844361888051
quarter return: 1.4773483481442684



	2021-12-31	2021-09-30	2021-06-30	\
['quarterly_balance_sheet',				
Capital Surplus	7.636000e+09	8.206000e+09	8.189000e+09	
Total Liab	1.162600e+10	1.199600e+10	1.153000e+10	
Total Stockholder Equity	9.262000e+09	8.924000e+09	8.399000e+09	
Minority Interest	1.370000e+08	1.370000e+08	1.360000e+08	
Other Current Liab	2.545000e+09	2.940000e+09	2.554000e+09	
Total Assets	2.102500e+10	2.105700e+10	2.006500e+10	
Common Stock	6.600000e+07	6.800000e+07	6.800000e+07	
Other Current Assets	5.240000e+08	4.860000e+08	5.030000e+08	
Retained Earnings	1.692000e+09	7.500000e+08	2.430000e+08	
Other Liab	1.805000e+09	1.743000e+09	1.698000e+09	
Good Will	7.530000e+08	7.530000e+08	7.530000e+08	
Treasury Stock	-1.320000e+08	-1.000000e+08	-1.010000e+08	
Other Assets	3.780000e+08	3.670000e+08	3.970000e+08	
Cash	2.099000e+09	2.144000e+09	1.348000e+09	
Total Current Liabilities	3.087000e+09	3.505000e+09	3.072000e+09	
Deferred Long Term Asset Charges	7.000000e+06	NaN	NaN	
Other Stockholder Equity	-1.320000e+08	-1.000000e+08	-1.010000e+08	
Property Plant Equipment	1.524300e+10	1.532200e+10	1.544100e+10	
Total Current Assets	4.249000e+09	4.227000e+09	3.076000e+09	
Long Term Investments	4.020000e+08	3.880000e+08	3.980000e+08	
Net Tangible Assets	8.509000e+09	8.171000e+09	7.646000e+09	
Net Receivables	1.626000e+09	1.597000e+09	1.225000e+09	
Long Term Debt	6.482000e+09	6.492000e+09	6.502000e+09	
Accounts Payable	5.000000e+08	5.370000e+08	4.870000e+08	
Short Long Term Debt	NaN	NaN	NaN	

	2021-03-31			
Capital Surplus	8.172000e+09			
Total Liab	1.197100e+10			
Total Stockholder Equity	8.353000e+09			
Minority Interest	1.330000e+08			
Other Current Liab	2.124000e+09			
Total Assets	2.045700e+10			
Common Stock	6.700000e+07			
Other Current Assets	5.290000e+08			
Retained Earnings	2.180000e+08			
Other Liab	1.724000e+09			
Good Will	7.530000e+08			
Treasury Stock	-1.040000e+08			
Other Assets	3.060000e+08			
Cash	1.683000e+09			
Total Current Liabilities	2.945000e+09			
Deferred Long Term Asset Charges	NaN			
Other Stockholder Equity	-1.040000e+08			
Property Plant Equipment	1.552900e+10			
Total Current Assets	3.467000e+09			
Long Term Investments	4.020000e+08			
Net Tangible Assets	7.600000e+09			
Net Receivables	1.255000e+09			
Long Term Debt	7.042000e+09			
Accounts Payable	5.640000e+08			
Short Long Term Debt	2.260000e+08]		

	2021-12-31	2021-09-30	\
['quarterly_cashflow',			
Investments	-1.700000e+07	9.000000e+06	
Change To Liabilities	-1.800000e+07	4.690000e+08	
Total Cashflows From Investing Activities	-5.180000e+08	-4.740000e+08	
Total Cash From Financing Activities	-1.149000e+09	-3.370000e+08	
Change To Operating Activities	-2.200000e+07	-2.900000e+07	
Net Income	1.506000e+09	8.380000e+08	
Change In Cash	-5.000000e+07	7.820000e+08	
Repurchase Of Stock	-5.890000e+08	-3.000000e+06	
Effect Of Exchange Rate	1.000000e+06	-5.000000e+06	
Total Cash From Operating Activities	1.616000e+09	1.598000e+09	
Depreciation	5.850000e+08	5.790000e+08	
Dividends Paid	-7.300000e+07	-7.400000e+07	
Change To Account Receivables	-3.100000e+07	-3.320000e+08	
Other Cashflows From Financing Activities	-6.000000e+06	-5.000000e+06	
Change To Netincome	-4.010000e+08	1.130000e+08	
Capital Expenditures	-5.150000e+08	-4.840000e+08	
Net Borrowings	NaN	NaN	

	2021-06-30	2021-03-31	
['quarterly_cashflow',			
Investments	8.000000e+06	1000000.0	
Change To Liabilities	7.200000e+07	1600000.0	
Total Cashflows From Investing Activities	-4.520000e+08	-13000000.0	
Total Cash From Financing Activities	-9.820000e+08	-82400000.0	
Change To Operating Activities	-7.600000e+07	-9500000.0	
Net Income	2.560000e+08	21300000.0	
Change In Cash	-3.390000e+08	-35900000.0	
Repurchase Of Stock	-9.000000e+06	-3300000.0	
Effect Of Exchange Rate	2.000000e+06	300000.0	
Total Cash From Operating Activities	1.093000e+09	59200000.0	
Depreciation	5.360000e+08	48100000.0	
Dividends Paid	-7.500000e+07	-12800000.0	
Change To Account Receivables	-1.000000e+08	-6300000.0	
Other Cashflows From Financing Activities	-2.000000e+06	-2800000.0	
Change To Netincome	2.840000e+08	2500000.0	
Capital Expenditures	-5.090000e+08	-49900000.0	
Net Borrowings	-7.420000e+08	-56000000.0]
['quarterly_earnings',	Revenue	Earnings	
Quarter			

```
1Q2021 2461000000 213000000  
2Q2021 2977000000 256000000  
3Q2021 3625000000 838000000  
4Q2021 4054000000 1506000000]
```

```
['quarterly_financials', 2021-12-31 2021-09-30 \
```

	None	None
Research Development	None	None
Effect Of Accounting Charges	None	None
Income Before Tax	1662000000.0	964000000.0
Minority Interest	13700000.0	13700000.0
Net Income	1506000000.0	838000000.0
Selling General Administrative	95000000.0	95000000.0
Gross Profit	2380000000.0	2088000000.0
Ebit	1727000000.0	1068000000.0
Operating Income	1727000000.0	1068000000.0
Other Operating Expenses	-24000000.0	344000000.0
Interest Expense	-92000000.0	-93000000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	150000000.0	120000000.0
Total Revenue	4054000000.0	3625000000.0
Total Operating Expenses	2327000000.0	2557000000.0
Cost Of Revenue	1674000000.0	1537000000.0
Total Other Income Expense Net	-65000000.0	-104000000.0
Discontinued Operations	None	None
Net Income From Continuing Ops	1512000000.0	844000000.0
Net Income Applicable To Common Shares	1487000000.0	832000000.0

```
2021-06-30 2021-03-31
```

	None	None
Research Development	None	None
Effect Of Accounting Charges	None	None
Income Before Tax	304000000.0	-32000000.0
Minority Interest	136000000.0	133000000.0
Net Income	256000000.0	213000000.0
Selling General Administrative	94000000.0	107000000.0
Gross Profit	1655000000.0	1291000000.0
Ebit	320000000.0	202000000.0
Operating Income	320000000.0	202000000.0
Other Operating Expenses	702000000.0	512000000.0
Interest Expense	-98000000.0	-105000000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	43000000.0	-248000000.0
Total Revenue	2977000000.0	2461000000.0
Total Operating Expenses	2657000000.0	2259000000.0
Cost Of Revenue	1322000000.0	1170000000.0
Total Other Income Expense Net	-16000000.0	-23400000.0
Discontinued Operations	None	None
Net Income From Continuing Ops	261000000.0	216000000.0
Net Income Applicable To Common Shares	253000000.0	211000000.0

```
] Holder Shares Date Reported \
```

	Holder	Shares	Date Reported
0 Vanguard Total Stock Market Index Fund	19232335	2021-12-30	
1 Select Sector SPDR Fund-Energy Select	18515332	2022-01-30	
2 Vanguard Mid-Cap Index Fund	15295295	2021-12-30	
3 Vanguard 500 Index Fund	13333264	2021-12-30	
4 Undiscovered Managers Behavioral Value Fund	7254904	2021-12-30	
5 SPDR S&P 500 ETF Trust	6678214	2022-01-30	
6 Fidelity 500 Index Fund	6447707	2022-02-27	
7 iShares Core S&P 500 ETF	5236340	2022-01-30	
8 Vanguard Index-Value Index Fund	5169015	2021-12-30	
9 Victory Portfolios-Sycamore Established Value ...	5050000	2022-01-30	

% Out	Value
0 0.0291	847184356
1 0.0281	936320339
2 0.0232	673757744
3 0.0202	587330279
4 0.0110	319578521
5 0.0101	337717281
6 0.0098	383960951
7 0.0079	264801713
8 0.0078	227695110
9 0.0077	255378500

```
['options', ('2022-07-15', '2023-01-20', '2024-01-19')]
```

```
['sustainability', Value
```

```
2022-5
```

	False
palmOil	False
controversialWeapons	False
gambling	False
socialScore	8.78
nuclear	False
furLeather	False
alcoholic	False
gmo	False
catholic	False
socialPercentile	0
peerCount	66
governanceScore	7.86
environmentPercentile	0
animalTesting	False
tobacco	False

```

totalEsg 34.39
highestControversy 2
esgPerformance LEAD_PERF
coal False
pesticides False
adult False
percentile 76.03
peerGroup Oil & Gas Producers
smallArms False
environmentScore 17.75
governancePercentile 0
militaryContract False]
symbol: UTHR
sector: Healthcare
Index: SP400
vol_30d_2yr: 8360250.78125
Sector 1YMF: 8.760009765625
1YMF: 8.760009765625
risk trend factor: 0.13940181852529768
    beta currentRatio debtToEquity earningsGrowth ebitda \
UTHR 0.639732 8.84 19.156 7.246 959200000
    ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
UTHR 0.54244 11.61131 514424992 0.92908 1563000000
    heldPercentInstitutions industry marketCap operatingCashflow \
UTHR 0.99621 Biotechnology 10230438912 797100032
    operatingMargins payoutRatio pegRatio priceToBook \
UTHR 0.51422 0 6.92 2.448979
    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
UTHR 5.785466 0.38873 8.333 0.11365
    returnOnEquity revenueGrowth revenuePerShare sector \
UTHR 0.18038 0.218 39.252 Healthcare
    sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
UTHR 45299500 4.37 2267699968 50.06 800000000
    totalRevenue trailingPE
UTHR 1768300032 15.645306

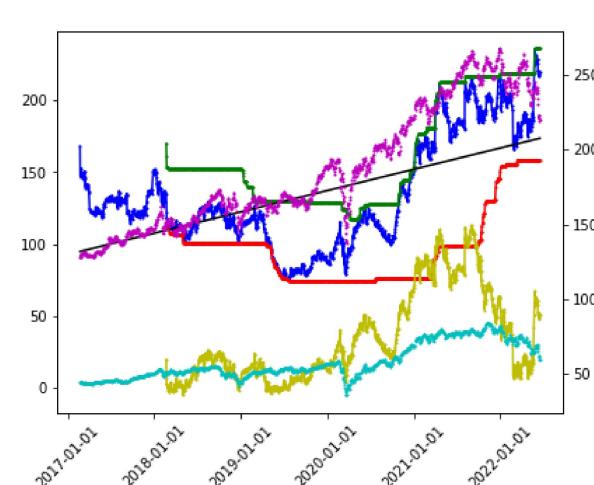
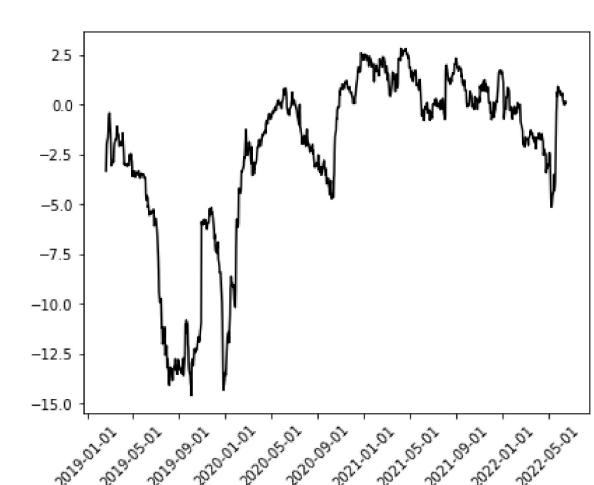
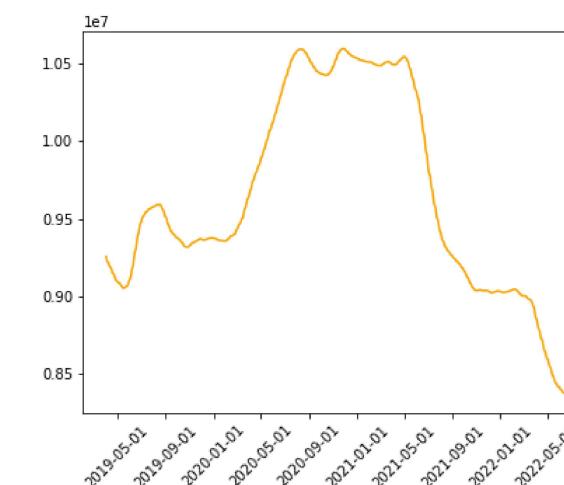
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	219.380005	194.589531	219.462223	244.334915	195.494921	19.533079	156.428764	234.561078

volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
UTHR	1.481235	219.380005	8360250.78125	0.878858	0.826178 0.414478

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

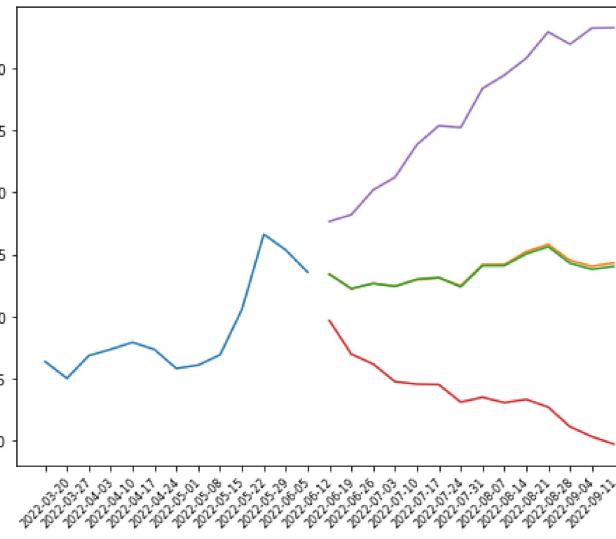
Sector 1YMF: -122.20997619628906
Sector Volume Factor: 1.2238851152317325
Sector Risk Trend Factor: -3.3236323632363236
Index 1YMF: -69.05999755859375
Index Volume Factor: 0.5765983741853883
Index Risk Trend Factor: -5.134573474205833



```

ets next 13 weeks
inner cv scores:
best model: ['add', 'mul', True]
best inner cv score, sdev (11 folds): 581.052066365091 434.30316162788483
test cv mean error, stdev (10 folds): 606.4042953716666 447.67296522383276
sell date: 2022-08-28
expected return: 0.04383961346197422
discounted return: 0.0006044903871480489
quarter return: 1.0571708320889197

```



```

['options', ('2022-08-19',)]
['sustainability', Value
2022-5
palmOil False
controversialWeapons False
gambling False
socialScore 16.62
nuclear False
furLeather False
alcoholic False
gmo False
catholic False
socialPercentile None
peerCount 83
governanceScore 7.41
environmentPercentile None
animalTesting True
tobacco False
totalEsg 25.71
highestControversy 1
esgPerformance AVG_PERF
coal False
pesticides False
adult False
percentile 45.83
peerGroup Pharmaceuticals
smallArms False
environmentScore 1.68
governancePercentile None
militaryContract False]
symbol: VIVO
sector: error
sector: error
Index: SP600
vol_30d_2yr: 11730103.3203125
Sector 1YMF: 0.6100006103515625
1YMF: 0.6100006103515625
risk trend factor: 0.10971235052954659
Empty DataFrame
Columns: []
Index: [VIVO]

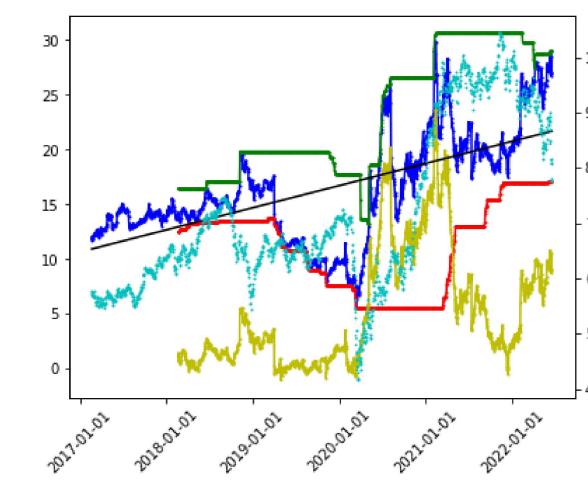
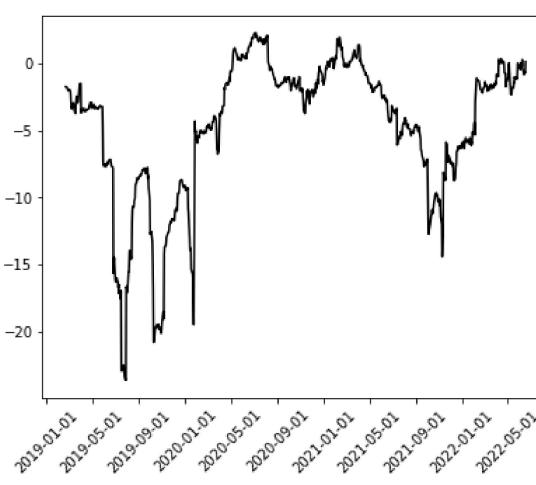
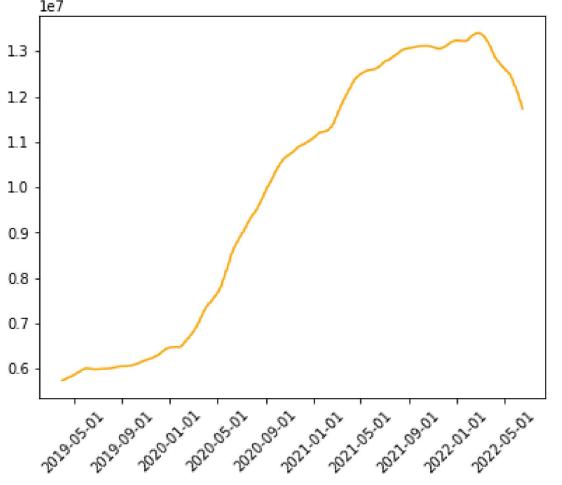
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	28.5	25.427799	27.012222	28.596646	26.44746	1.162243	24.122974	28.771947

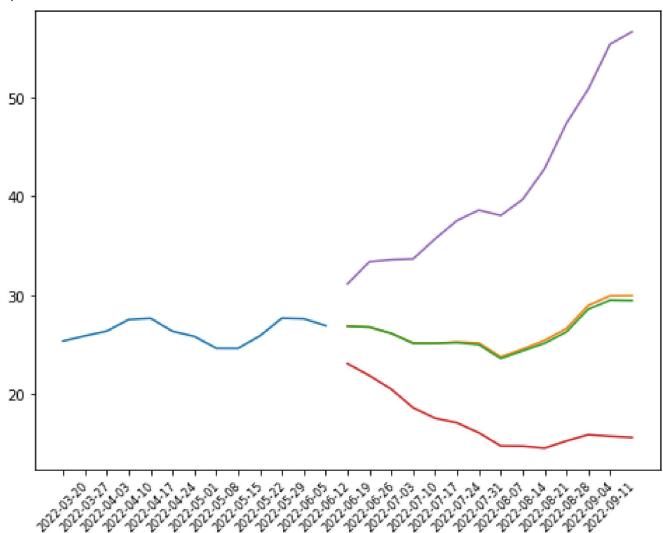
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
VIVO	0.591657	28.5	11730103.320312	0.878325	0.565494	0.431737

l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Index 1YMF: -77.27001953125
 Index Volume Factor: 1.232760496116622
 Index Risk Trend Factor: -5.242200185196592



ets next 13 weeks
 inner cv scores:
 best model: ['add', 'mul', True]
 best inner cv score, sdev (11 folds): 16.179814837641146 14.97126725367644
 test cv mean error, stdev (10 folds): 17.70093452925235 14.869460950444271
 sell date: 2022-09-18
 expected return: 0.051296322828618374
 discounted return: 0.0005438869382852207
 quarter return: 1.051296322828615



```
[ 'options', ('2022-07-15',) ]
symbol: ROCC
sector: Energy
Index: SP600
vol_30d_2yr: 11962556.0546875
Sector 1YMF: 2.549999237060547
1YMF: 2.549999237060547
risk trend factor: 0.10821588524114191
    beta currentRatio debtToEquity      ebitda ebitdaMargins forwardPE \
ROCC  2.866152      0.497     80.978   323780000      0.45632  3.112757

    freeCashflow grossMargins grossProfits heldPercentInstitutions \
ROCC  111158752      0.9232    508729000      0.83062

    industry marketCap operatingCashflow operatingMargins payoutRatio \
ROCC  Oil & Gas E&P  800399808      390172992      0.23271      0

    pegRatio priceToBook priceToSalesTrailing12Months profitMargins \
ROCC  0.13      2.546801      1.128053      0.06175

    quickRatio returnOnAssets returnOnEquity revenueGrowth revenuePerShare \
ROCC  0.404      0.08139      0.19205      1.903      39.08

    sector sharesOutstanding shortRatio totalCash totalCashPerShare \
ROCC  Energy      21163400      2.3      6358000      0.3

    totalDebt totalRevenue trailingPE
ROCC  525808992      709540992      16.0731
```

Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper

2022-06-17 37.82 32.048974 43.306825 54.564677 37.893968 5.380754 27.132461 48.655476

volume_factor latest_p vol_30d_2yr pct_2yr adf hurst

ROCC 1.213679 37.82 11962556.054688 0.666102 0.594188 0.577777

l axis r axis

legend legend

blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	30d_vol_2yr		
black	risk_trend_factor/linear		
yellow	supply_trend_1yr		

Sector 1YMF: -3.82000732421875

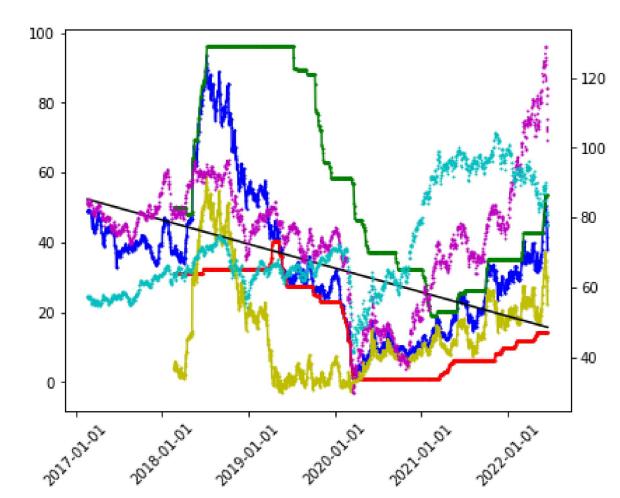
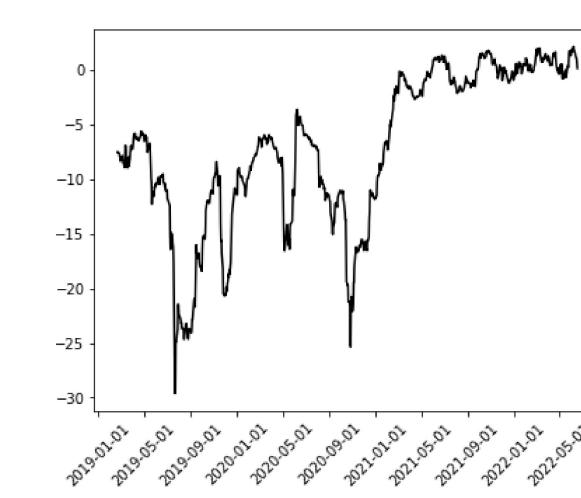
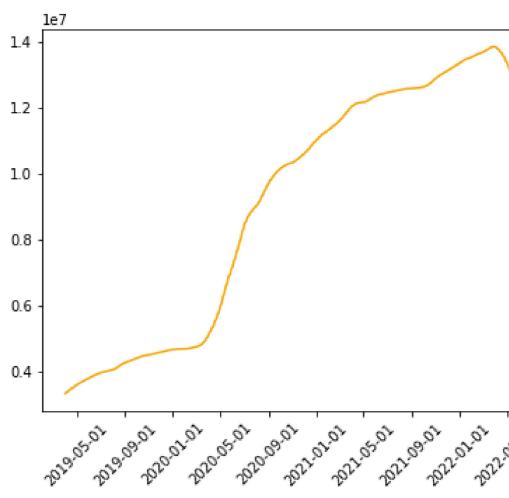
Sector Volume Factor: 0.8966412344901694

Sector Risk Trend Factor: -0.12330558135216596

Index 1YMF: -77.27001953125

Index Volume Factor: 1.232760496116622

Index Risk Trend Factor: -5.242200185196592



ets next 13 weeks

inner cv scores:

best model: ['add', 'add', True]

best inner cv score, sdev (11 folds): 77.56947848579797 62.68356673287805

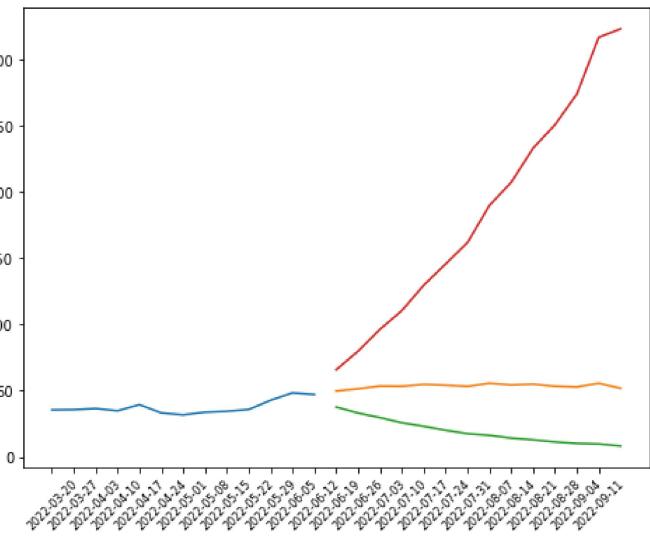
test cv mean error, stdev (10 folds): 80.28001059170666 65.12556527221653

sell date: 2022-08-07

expected return: 0.47100754960841223

discounted return: 0.0077488193841972475

quarter return: 2.0342832305314826



['options', ('2022-07-15', '2022-12-16')]

symbol: COP

sector: Energy

Index: SP500

vol_30d_2yr: 189274208.203125

Sector 1YMF: 3.6199951171875

1YMF: 3.6199951171875

risk trend factor: 0.1025203790799483

 beta currentRatio debtToEquity dividendRate dividendYield \

COP 1.350272 1.513 38.088 1.92 0.0176

 earningsGrowth ebitda ebitdaMargins forwardPE freeCashflow \

COP 4.853 25497999360 0.46444 7.529317 10752749568

 grossMargins grossProfits heldPercentInstitutions industry \

COP 0.52295 22936000000 0.81349 Oil & Gas E&P

 marketCap operatingCashflow operatingMargins payoutRatio pegRatio \

COP 121247997952 19983998976 0.33401 0.2348 0.48

 priceToBook priceToSalesTrailing12Months profitMargins quickRatio \

COP 2.463471 2.208525 0.23417 1.287

 returnOnAssets returnOnEquity revenueGrowth revenuePerShare sector \

COP 0.1295 0.27835 0.828 41.447 Energy

 sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \

COP 1293449984 2.15 7144000000 5.523 18745999360

 totalRevenue trailingPE

COP 54899998720 9.71701

Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper

2022-06-17 93.739998 99.652102 112.199365 124.746628 104.355397 7.447422 89.460553 119.250241

volume_factor latest_p vol_30d_2yr pct_2yr adf hurst

COP 0.95084 93.739998 189274208.203125 0.685759 0.80033 0.48084

l axis r axis

legend legend

blue	symbol	magenta	sector
------	--------	---------	--------

green	trailing_1yr_max	cyan	index
-------	------------------	------	-------

red	trailing_1yr_min		
-----	------------------	--	--

orange	30d_vol_2yr		
--------	-------------	--	--

black	risk_trend_factor/linear		
-------	--------------------------	--	--

yellow	supply_trend_1yr		
--------	------------------	--	--

Sector 1YMF: -3.82000732421875

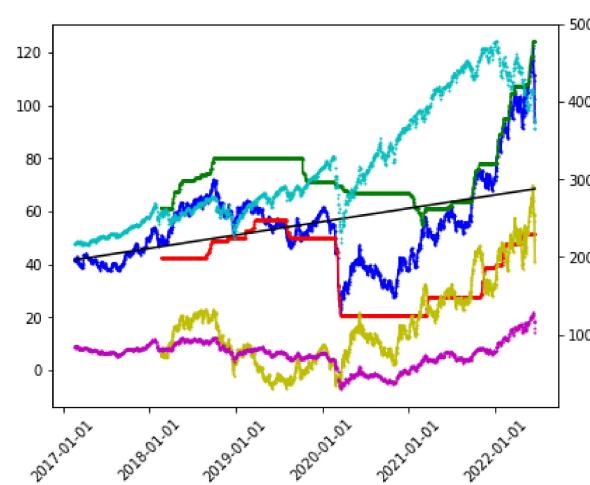
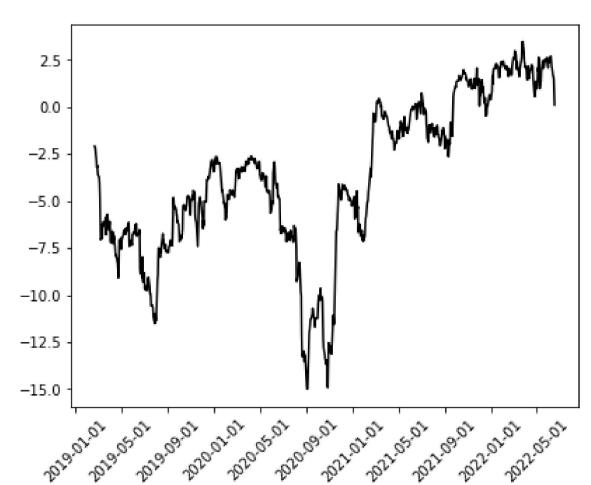
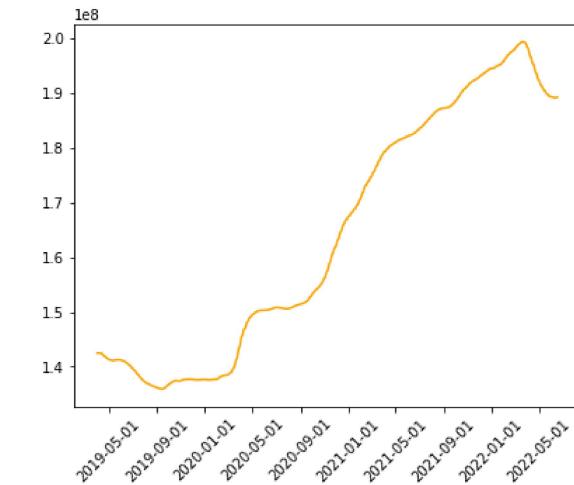
Sector Volume Factor: 0.8966412344901694

Sector Risk Trend Factor: -0.12330558135216596

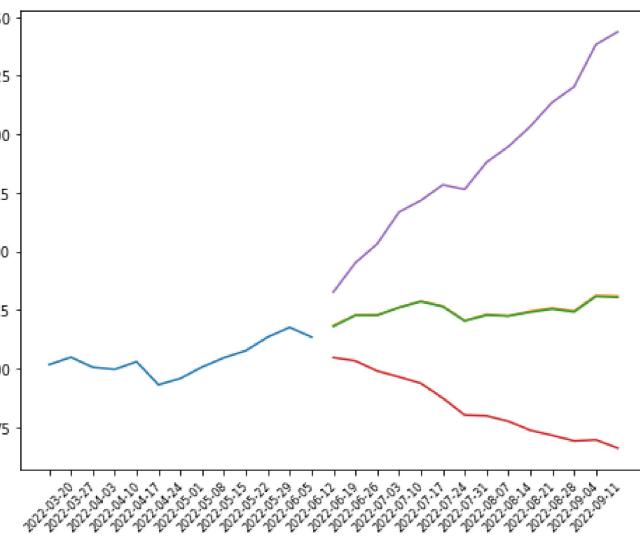
Index 1YMF: -287.8400573730469

Index Volume Factor: 1.1835166983613057

Index Risk Trend Factor: -3.791860877423899



```
ets next 13 weeks
inner cv scores:
best model: ['mul', 'mul', True]
best inner cv score, sdev (11 folds): 131.8588036807157 147.39173844312845
test cv mean error, stdev (10 folds): 144.32990311944945 148.9494774888766
sell date: 2022-09-11
expected return: 0.39963937496998936
discounted return: 0.003963299228999961
quarter return: 1.4389344529812573
```



```

['options', ('2022-08-19', '2023-01-20', '2024-01-19')], value
2022-5
palmOil False
controversialWeapons False
gambling False
socialScore 9.71
nuclear False
furLeather False
alcoholic False
gmo False
catholic False
socialPercentile None
peerCount 66
governanceScore 7.68
environmentPercentile None
animalTesting False
tobacco False
totalEsg 34.92
highestControversy 2
esgPerformance OUT_PERF
coal False
pesticides False
adult False
percentile 77.49
peerGroup Oil & Gas Producers
smallArms False
environmentScore 17.53
governancePercentile None
militaryContract False]
symbol: OXY
sector: Energy
Index: SP500
vol_30d_2yr: 498984476.953125
Sector 1YMF: 2.1100006103515625
1YMF: 2.1100006103515625
risk trend factor: 0.0937361355002032
    beta currentRatio debtToEquity dividendRate dividendYield \
OXY 1.955081 1.156 111.198 0.52 0.0086

    ebitda ebitdaMargins forwardPE freeCashflow grossMargins \
OXY 15392000000 0.53054 6.773723 9129875456 0.64697

    grossProfits heldPercentInstitutions industry marketCap \
OXY 16297000000 0.82197 Oil & Gas E&P 52182794240

    operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
OXY 12762999808 0.25255 0.0242 0.24 3.445545

    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
OXY 1.798662 0.25314 0.844 0.05964

    returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \
OXY 0.34101 0.577 30.999 Energy 937190976

    shortRatio totalCash totalCashPerShare totalDebt totalRevenue \
OXY 2.02 1908999936 2.037 27696001024 29012000768

    trailingPE
OXY 8.324114

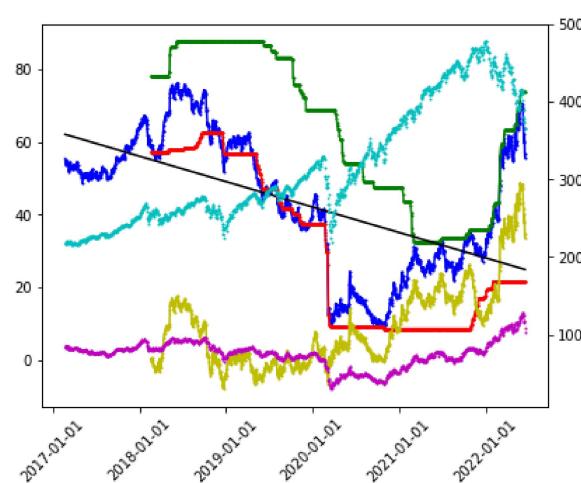
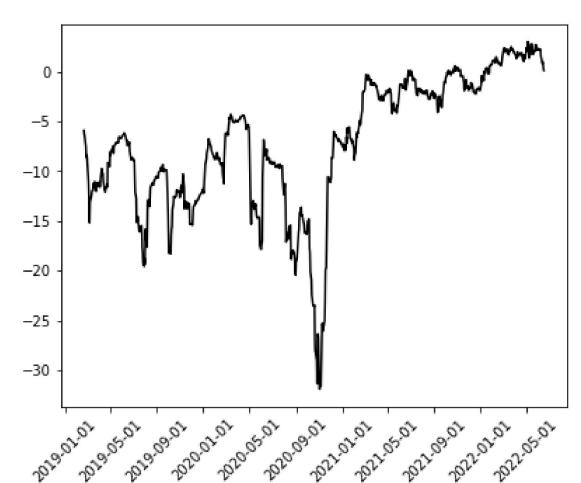
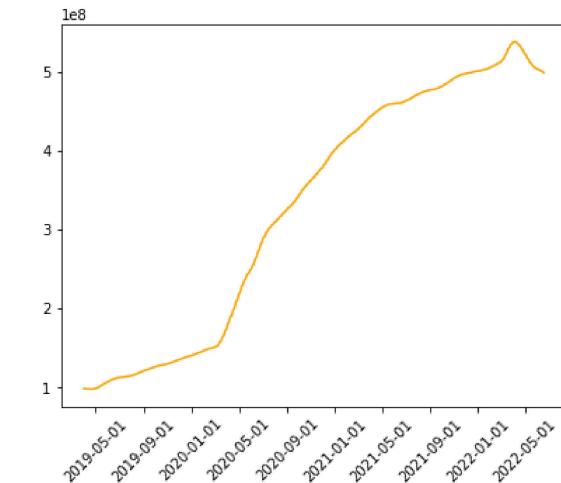
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	55.68	56.839295	65.607143	74.374991	61.382222	4.693201	51.995819	70.768625

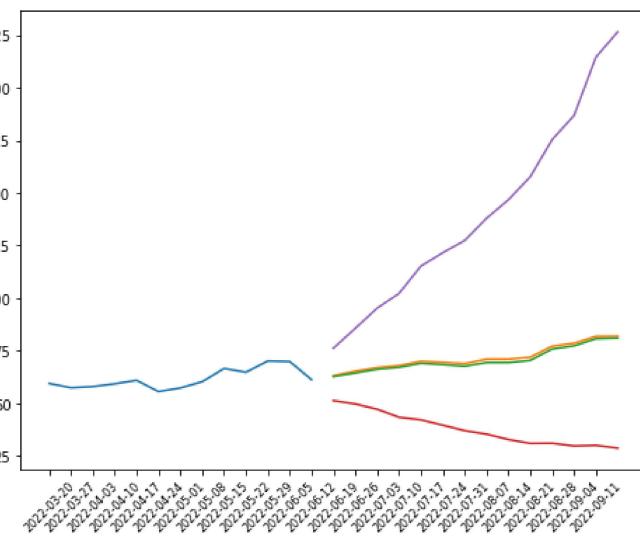
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
OXY	1.190976	55.68	498984476.953125	0.71978	0.690434	0.542013

	l axis	r axis
blue	symbol	magenta sector
green	trailing_1yr_max	cyan index
red	trailing_1yr_min	
orange	30d_vol_2yr	
black	risk_trend_factor/linear	
yellow	supply_trend_1yr	

Sector 1YMF: -3.82000732421875
Sector Volume Factor: 0.8966412344901694
Sector Risk Trend Factor: -0.12330558135216596
Index 1YMF: -287.8400573730469
Index Volume Factor: 1.1835166983613057
Index Risk Trend Factor: -3.791860877423899



```
ets next 13 weeks
inner cv scores:
best model: ['mul', 'add', True]
best inner cv score, sdev (11 folds): 52.33362728746343 43.44383537157274
test cv mean error, stdev (10 folds): 56.28436553093534 43.63956757445321
sell date: 2022-09-18
expected return: 0.4701404460424396
discounted return: 0.004197457989383091
quarter return: 1.470140446042453
```



```

['options', ('2022-08-19', '2023-01-20', '2024-01-19')]           Value
['sustainability',]

2022-5
palmOil                      False
controversialWeapons          False
gambling                      False
socialScore                   12.04
nuclear                       False
furLeather                    False
alcoholic                     False
gmo                            False
catholic                      False
socialPercentile              None
peerCount                      66
governanceScore               6.88
environmentPercentile         None
animalTesting                 False
tobacco                        False
totalEsg                       43.53
highestControversy             2
esgPerformance                LEAD_PERF
coal                           False
pesticides                     False
adult                           False
percentile                     92.95
peerGroup                      Oil & Gas Producers
smallArms                      False
environmentScore               24.61
governancePercentile           None
militaryContract               False]
symbol: MGPI
sector: error
sector: error
Index: SP600
vol_30d_2yr: 2319158.7890625
Sector 1YMF: 1.1299972534179688
1YMF: 1.1299972534179688
risk trend factor: 0.07424422882968507
Empty DataFrame
Columns: []
Index: [MGPI]

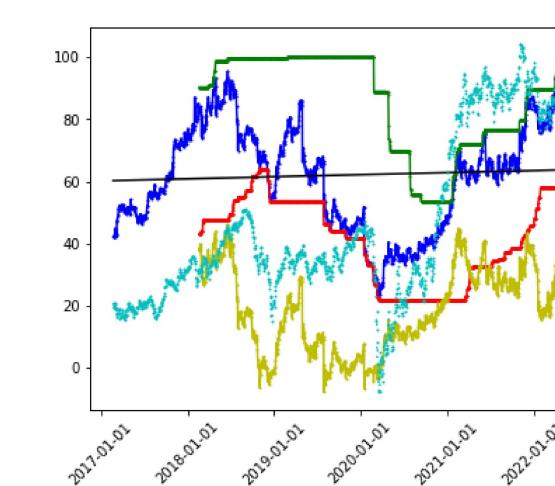
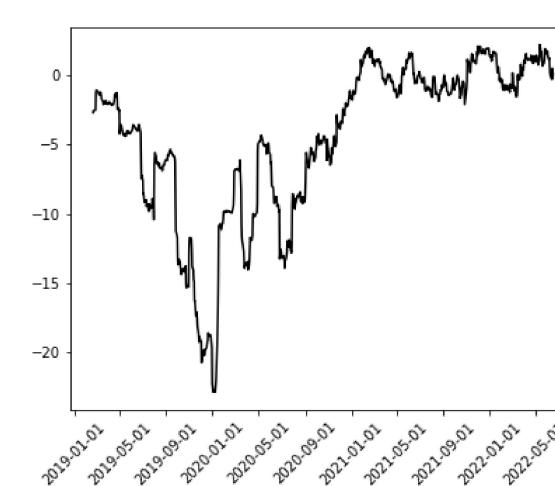
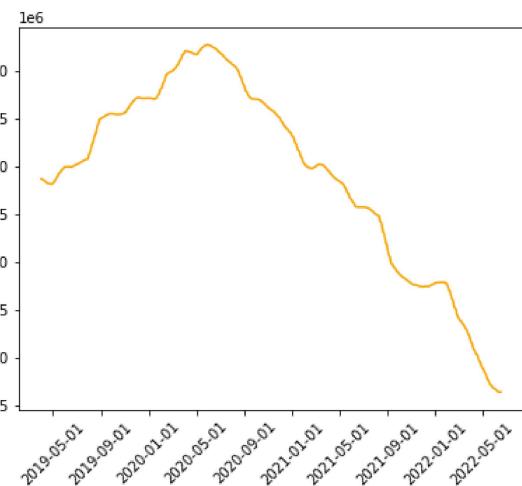
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-17	93.139999	89.504506	94.30381	99.103114	92.664127	3.996399	84.671329	100.656925

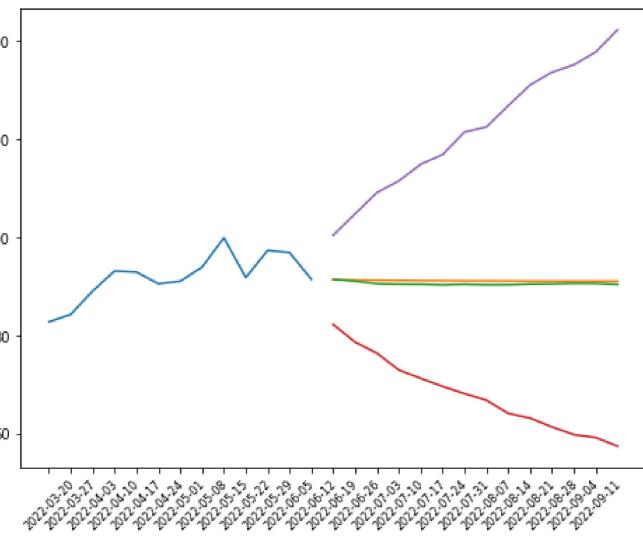
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
MGPI	1.204144	93.139999	2319158.789062	0.847493	0.649088	0.471114

	l axis	r axis
blue	symbol	magenta sector
green	trailing_1yr_max	cyan index
red	trailing_1yr_min	
orange	30d_vol_2yr	
black	risk_trend_factor/linear	
yellow	supply_trend_1yr	

Index 1YMF: -77.27001953125
Index Volume Factor: 1.232760496116622
Index Risk Trend Factor: -5.242200185196592



ets next 13 weeks
inner cv scores:
best model: [None, 'mul', True]
best inner cv score, sdev (11 folds): 110.11939012568004 125.9007193981329
test cv mean error, stdev (10 folds): 112.09217945846277 131.88358217270994
sell date: 2022-06-19
expected return: -0.019630121147322783
discounted return: -0.019630121147322765
quarter return: 0.16138986757441978



	exp_return	sell_date	days_delta	disc_rtn	qtr_rtn	outer_cv_avg_rmse_n11	outer_cv_std_n11	mean_revert_flag	pi_lower	pi_upper	price	Sector	Index	error_price_ratio	std_price_ratio
SYMBOL															
SM	0.233449	2022-06-19	1	0.233449	241630987.138554	46.450576	59.425732	False	37.756069	63.541203	39.709999	Energy	SP600	1.169745	1.496493
APA	0.184138	2022-06-19	1	0.184138	5662666.440975	51.132068	41.973463	False	38.247577	56.391816	39.220001	Energy	SP500	1.303724	1.070206
VPU	0.076907	2022-06-19	1	0.076907	912.842902	172.246362	373.069681	False	142.995043	161.723289	141.440002	error	nan	1.217805	2.637653
LNTH	0.029860	2022-06-19	1	0.029860	14.983392	42.661154	67.928633	False	53.227993	71.780809	60.720001	Healthcare	SP600	0.702588	1.118719
MCK	0.028402	2022-06-19	1	0.028402	13.151865	542.149507	591.201488	False	286.348499	333.673860	300.570007	Healthcare	SP500	1.803738	1.966934
VHT	0.021888	2022-06-19	1	0.021888	7.330012	227.724892	281.298831	False	214.062314	236.559563	220.210007	error	nan	1.034126	1.277412
PBF	0.650130	2022-08-07	50	0.010067	2.513237	29.947933	20.238755	False	25.756073	116.283259	32.980000	Energy	SP600	0.908063	0.613668
GCP	0.008729	2022-06-19	1	0.008729	2.224573	7.229954	9.041944	False	28.456761	34.207648	30.930000	error	SP600	0.233752	0.292336
PLAB	0.065329	2022-06-26	8	0.007942	2.070452	3.307493	2.888139	False	17.167108	24.244223	19.150000	Technology	SP600	0.172715	0.150817
ROCC	0.471008	2022-08-07	50	0.007749	2.034283	80.280011	65.125565	False	16.314375	189.715319	37.820000	Energy	SP600	2.122687	1.721987
MRO	0.615629	2022-08-28	71	0.006780	1.861932	12.772815	12.852391	False	16.206449	99.247204	24.150000	Energy	SP500	0.528895	0.532190
VLO	0.440819	2022-09-11	85	0.004306	1.484811	310.914548	235.949804	False	105.732409	252.701201	112.440002	Energy	SP500	2.765160	2.098451
DVN	0.477348	2022-09-18	92	0.004251	1.477348	73.275844	88.550059	False	45.952301	159.887317	58.020000	Energy	SP500	1.262941	1.526199
OXY	0.470140	2022-09-18	92	0.004197	1.470140	56.284366	43.639568	False	28.608214	226.637654	55.680000	Energy	SP500	1.010854	0.783757
COP	0.399639	2022-09-11	85	0.003963	1.438934	144.329903	148.949477	False	69.596783	238.302459	93.739998	Energy	SP500	1.539683	1.588964
MPC	0.382360	2022-09-11	85	0.003817	1.419717	136.354099	146.003603	False	72.342236	204.341217	87.290001	Energy	SP500	1.562082	1.672627
CEIX	0.317943	2022-09-04	78	0.003546	1.384894	36.976329	64.101820	False	29.713041	124.505812	46.150002	Energy	SP600	0.801221	1.388988
VDE	0.261309	2022-09-11	85	0.002735	1.285655	177.935829	188.779093	False	89.451899	186.306950	102.349998	error	nan	1.738503	1.844446
DINO	0.280834	2022-09-18	92	0.002694	1.280834	74.399932	61.366318	False	32.725490	101.513742	45.000000	Energy	SP400	1.653332	1.363696
VIS	0.095483	2022-07-24	36	0.002536	1.262450	223.723972	187.537204	False	148.019420	203.799349	159.809998	error	nan	1.399937	1.173501
XOM	0.236115	2022-09-11	85	0.002497	1.257883	100.127424	81.366621	False	71.148051	159.280620	86.120003	Energy	SP500	1.162650	0.944805
LLY	0.125331	2022-08-28	71	0.001664	1.165326	480.525905	566.204804	False	256.093218	429.257703	290.899994	Healthcare	SP500	1.651859	1.946390
VFH	0.060626	2022-07-24	36	0.001636	1.162322	57.394672	50.743016	False	68.102366	94.445334	75.849998	error	nan	0.756687	0.668992
SLY	0.121233	2022-08-28	71	0.001613	1.159831	112.116923	145.367130	False	67.863111	110.238311	78.089996	error	nan	1.435740	1.861533
VAW	0.143457	2022-09-11	85	0.001578	1.156151	219.712990	235.714538	False	150.476098	230.293190	162.800003	error	nan	1.349588	1.447878
PPC	0.058044	2022-07-24	36	0.001569	1.155103	27.983159	36.091887	False	24.047501	39.860351	29.340000	Consumer Defensive	SP400	0.953755	1.230126
FCN	0.129379	2022-09-04	78	0.001561	1.154313	216.744371	102.596210	False	139.212389	252.124602	164.020004	error	SP400	1.321451	0.625510
WRB	0.042921	2022-07-17	29	0.001450	1.142616	39.758058	71.366471	False	60.091648	80.816730	66.820000	Financial Services	SP500	0.595002	1.068041
VGT	0.062295	2022-08-07	50	0.001209	1.117612	1054.935316	805.991066	False	281.302054	405.252100	319.809998	error	nan	3.298631	2.520218
MDYG	0.087960	2022-08-28	71	0.001188	1.115429	68.776968	127.441257	False	52.453518	80.794250	59.930000	error	nan	1.147622	2.126502
VCR	0.059382	2022-08-07	50	0.001154	1.111980	1148.847434	1594.275196	False	190.819317	302.369651	225.869995	error	nan	5.086322	7.058375
SPTM	0.078260	2022-08-28	71	0.001062	1.102560	15.009608	17.634103	False	41.243202	57.873910	45.310001	error	nan	0.331265	0.389188
AZPN	0.101348	2022-09-18	92	0.001050	1.101348	500.504518	547.882964	False	143.355482	291.599982	189.199997	Technology	SP400	2.645373	2.895787
VDC	0.057358	2022-08-14	57	0.000979	1.094196	95.349925	81.134208	False	167.652907	209.613643	177.059998	error	nan	0.538518	0.458230
SPY	0.070582	2022-08-28	71	0.000961	1.092398	1006.641023	1238.380006	False	326.610009	469.721162	365.859985	error	nan	2.751438	3.384847
VOX	0.064172	2022-08-28	71	0.000876	1.083930	91.801786	74.933110	False	79.612442	121.735470	92.860001	error	nan	0.988604	0.806947
TVTY	0.083874	2022-09-18	92	0.000876	1.083874	22.590347	17.912448	False	17.015739	71.273527	32.1300				

	exp_return	sell_date	days_delta	disc_rtn	qtr_rtn	outer_cv_avg_rmse_n11	outer_cv_std_n11	mean_revert_flag	pi_lower	pi_upper	price	Sector	Index	error_price_ratio	std_price_ratio
SYMBOL															
ROG	-0.009700	2022-06-19	1	-0.009700	0.407875	1005.131513	1408.588072	False	230.227904	286.581547	259.380005	error	SP600	3.875131	5.430596
MGPI	-0.019630	2022-06-19	1	-0.019630	0.161390	112.092179	131.883582	False	82.170079	100.386304	93.139999	error	SP600	1.203481	1.415971