

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

06-14

Energy ETF	0.093610
Consumer Staples ETF	-0.087285
Utilities ETF	-0.106792
Materials ETF	-0.127132
Health Care ETF	-0.132440
SP600	-0.137592
Industrials ETF	-0.154625
SP400	-0.169115
SP1500	-0.170565
SP500	-0.172195
Financials ETF	-0.177428
Real Estate ETF	-0.194242
Information Technology ETF	-0.223828
Communication Services ETF	-0.227572
Consumer Discretionary ETF	-0.252326

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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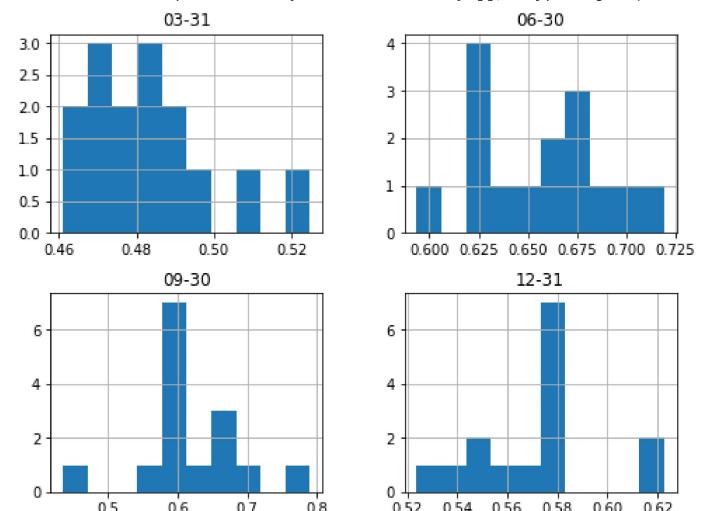
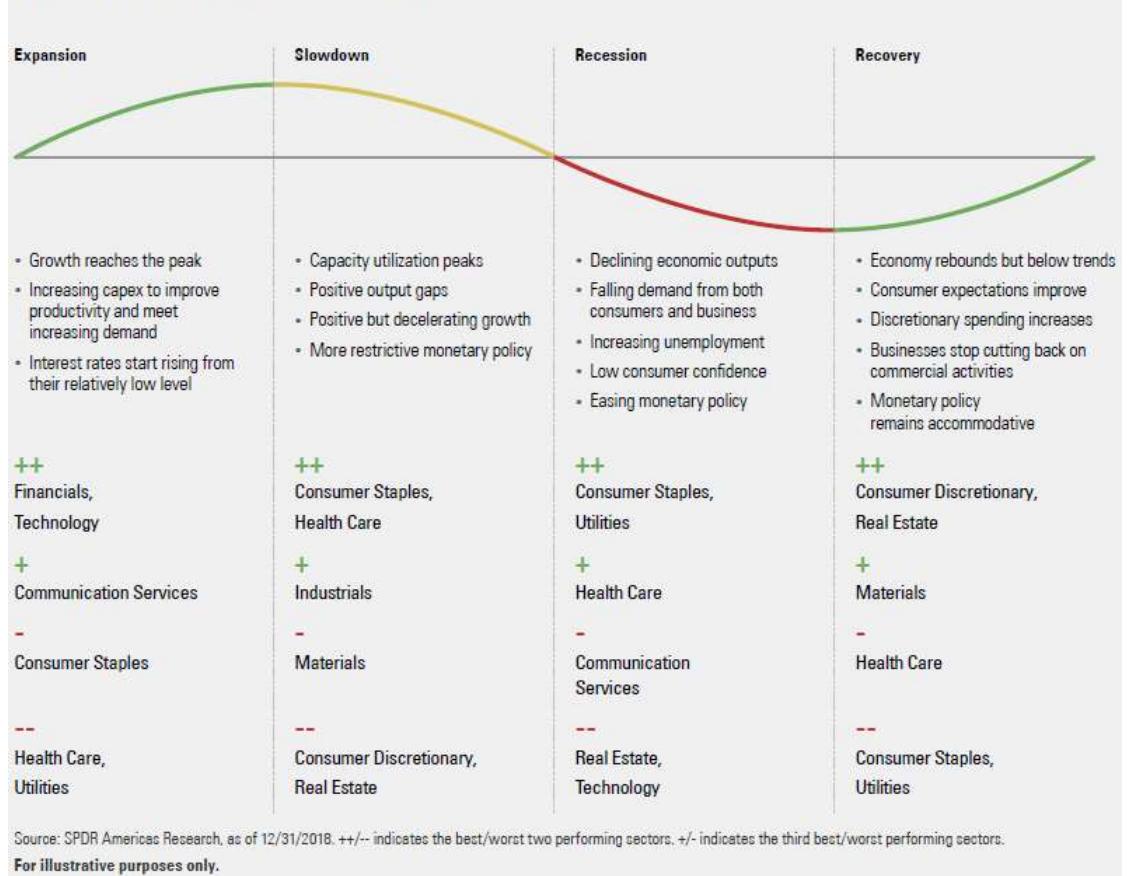


Figure 11: A Sector Roadmap for Business Cycles



Cycles

	<u>Expansion</u>	<u>Slowdown</u>	<u>Recession</u>	<u>Recovery</u>
Strongest	Tech Financials Real Estate Consumer D Industrials Materials Energy Healthcare Cons. Staples Utilities	Cons. Staples Healthcare Industrials Utilities Tech Energy Financials Materials Consumer D Real Estate	Cons. Staples Energy Utilities Healthcare Consumer D Materials Industrials Financials Tech Real Estate	Real Estate Consumer D Materials Tech Industrials Energy Financials Healthcare Cons. Staples Utilities
Weakest				

	Energy ETF	Consumer Staples ETF	Utilities ETF	Materials ETF	Health Care ETF	SP600	Industrials ETF	SP400	SP1500	SP500	Financials ETF	Real Estate ETF	Information Technology ETF	Communication Services 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	0.026999	0.072895	0.018327	0.042167	0.031752	0.030375	0.030708	0.038955	0.017375	0.041388	-0.024136	0.028386
2017-09-30 00:00:00	0.069612	-0.012346	0.031518	0.066617	0.040565	0.064962	0.052781	0.035020	0.044807	0.045666	0.052789	0.008095	0.083223	0.015498	0.014521
2017-12-31 00:00:00	0.073946	0.059268	0.000687	0.071798	0.018576	0.038747	0.066175	0.074139	0.066880	0.069917	0.073683	0.012742	0.093087	0.000763	0.097848
2018-03-31 00:00:00	-0.078807	-0.073521	-0.033734	-0.072483	-0.020049	-0.011631	-0.033542	-0.003978	-0.021321	-0.024130	-0.015065	-0.086159	0.020711	-0.085669	-0.001942
2018-06-30 00:00:00	0.150528	0.006353	0.053422	0.036210	0.055259	0.106722	-0.008057	0.045520	0.052094	0.047568	-0.011331	0.094633	0.080437	0.035862	0.088528
2018-09-30 00:00:00	0.021911	0.050064	0.019751	0.007338	0.137698	0.032842	0.094874	0.032902	0.070536	0.078236	0.031675	0.000044	0.117719	0.023115	0.066008
2018-12-31 00:00:00	-0.267451	-0.055862	0.009925	-0.154310	-0.108129	-0.193040	-0.183620	-0.172165	-0.142834	-0.137319	-0.138848	-0.058855	-0.174415	-0.143117	-0.162070
2019-03-31 00:00:00	0.178564	0.111156	0.103055	0.126958	0.081835	0.124660	0.183161	0.157497	0.151853	0.144236	0.109942	0.173365	0.217473	0.139541	0.157197
2019-06-30 00:00:00	-0.048754	0.036556	0.035855	0.040951	0.017469	0.010843	0.034436	0.030815	0.039106	0.040369	0.067026	0.015389	0.054745	0.035928	0.040127
2019-09-30 00:00:00	-0.075658	0.056319	0.090872	-0.013089	-0.035439	-0.004200	0.004465	-0.009122	0.006291	0.011423	0.013235	0.075811	0.016115	-0.002023	0.002509
2019-12-31 00:00:00	0.054552	0.036517	0.002011	0.066971	0.147851	0.082573	0.058155	0.066590	0.090490	0.089876	0.096390	0.005745	0.139034	0.086727	0.056223
2020-03-31 00:00:00	-0.523877	-0.141472	-0.141270	-0.278876	-0.131539	-0.328050	-0.279339	-0.247693	-0.205302	-0.194477	-0.330709	-0.241350	-0.131215	-0.187109	-0.231167
2020-06-30 00:00:00	0.332245	0.094561	0.024507	0.260712	0.164463	0.223617	0.182339	0.259149	0.206715	0.201618	0.135641	0.135399	0.318555	0.224230	0.379795
2020-09-30 00:00:00	-0.188315	0.098022	0.051209	0.120651	0.062281	0.032878	0.118587	0.068091	0.086119	0.090383	0.028859	0.013268	0.120087	0.097573	0.192380
2020-12-31 00:00:00	0.300830	0.074374	0.073335	0.172363	0.101111	0.312278	0.178685	0.211458	0.132216	0.121185	0.253698	0.092916	0.138205	0.182130	0.172875
2021-03-31 00:00:00	0.324479	0.030385	0.031042	0.105419	0.025327	0.184526	0.116450	0.084662	0.070761	0.063518	0.165207	0.087920	0.015110	0.083288	0.073815
2021-06-30 00:00:00	0.126094	0.029888	-0.005272	0.049264	0.083442	0.043034	0.040613	0.033635	0.080495	0.083593	0.074954	0.115985	0.114030	0.108092	0.064435
2021-09-30 00:00:00	-0.026222	-0.018026	0.002739	-0.041816	0.000121	-0.030694	-0.043573	-0.024123	0.000378	0.002523	0.024323	-0.000098	0.006319	-0.021207	-0.012866
2021-12-31 00:00:00	0.050203	0.115277	0.124048	0.136524	0.077925	0.049293	0.080207	0.077726	0.103038	0.106772	0.042310	0.139811	0.141743	-0.037011	0.099010
2022-03-31 00:00:00	0.379204	-0.019862	0.034591	-0.014374	-0.045192	-0.058344	-0.041831	-0.089783	-0.049102	-0.049099	-0.032929	-0.065856	-0.090992	-0.114414	-0.103975
2022-06-14 00:00:00	0.093610	-0.087285	-0.106792	-0.127132	-0.132440	-0.137592	-0.154625	-0.169115	-0.170565	-0.172195	-0.177428	-0.194242	-0.223828	-0.227572	-0.252326

AnalyzeSP1500

	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	2022-06-14 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
	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	
	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	
	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	Materials 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	Health Care 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	
	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	Health Care ETF	Industrials ETF	
	Consumer Discretionary ETF	SP1500	SP1500	SP1500	SP500	SP1500	SP400	Communication Services ETF	SP500	Communication Services ETF	Industrials ETF	Materials ETF	SP1500	SP1500	Materials ETF	Communication Services ETF	Financials ETF	Consumer Discretionary ETF	Consumer Discretionary ETF	SP500	SP400	
	Materials ETF	Health Care ETF	Industrials ETF	Industrials ETF	SP500	SP600	Materials ETF	Communication Services 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
	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	SP500	
	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	Real Estate ETF	Financials 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	Industrials ETF	Energy ETF	Energy ETF	SP400	Real Estate ETF	
	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	SP400	SP600	Information Technology ETF	Information Technology 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	Communication Services 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	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

2022-06-14

Information Technology ETF	0.101468
Consumer Discretionary ETF	0.100144
Energy ETF	0.080032
Materials ETF	0.068776
SP1500	0.067882
SP500	0.067058
SP600	0.066839
SP400	0.066560
Health Care ETF	0.065333
Communication Services ETF	0.063069
Real Estate ETF	0.062870
Financials ETF	0.050604
Industrials ETF	0.048315
Consumer Staples ETF	0.029348
Utilities ETF	0.021593

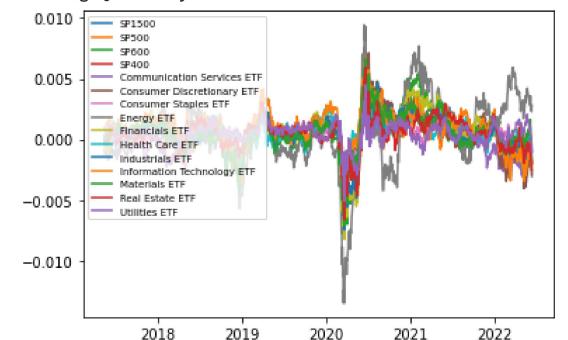
2017-03-31 00:00:00	2017-06-30 00:00:00	2017-09-30 00:00:00	2017-12-31 00:00:00	2018-03-31 00:00:00	2018-06-30 00:00:00	2018-09-30 00:00:00	2018-12-31 00:00:00	2019-03-31 00:00:00	2019-06-30 00:00:00	2019-09-30 00:00:00	2019-12-31 00:00:00	2020-03-31 00:00:00	2020-06-30 00:00:00	2020-09-30 00:00:00	2020-12-31 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	2022-06-14 00:00:00
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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	Information Technology ETF
1	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	Consumer Discretionary ETF
2	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
3	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
4	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	Consumer Staples ETF	Financials ETF	SP1500	
5	SP400	SP400	SP500	Health Care ETF	Consumer Staples ETF	SP1500	SP500	Communication Services ETF	SP500	Communication Services ETF	Financials ETF	SP500	Communication Services ETF	Information Technology ETF	Industrials ETF	Communication Services ETF	SP500	SP500	Health Care ETF	SP500	
6	SP500	Industrials ETF	SP1500	SP1500	SP1500	Consumer Staples ETF	SP1500	SP1500	Materials ETF	SP400	SP600	SP1500	SP600	SP400	Consumer Discretionary ETF	Real Estate ETF	SP1500	SP500	SP1500	Industrials ETF	SP600
7	SP1500	SP1500	Consumer Staples ETF	SP500	Consumer Discretionary ETF	SP600	Financials ETF	SP500	SP1500	SP500	Industrials ETF	Consumer Discretionary ETF	SP1500	SP500	Materials ETF	SP400	Consumer Staples ETF	Communication Services ETF	SP500	SP400	
8	Materials ETF	SP500	Materials ETF	Industrials ETF	SP500	Consumer Discretionary ETF	Materials ETF	Materials ETF	SP400	SP1500	SP400	Real Estate ETF	Industrials ETF	SP1500	SP1500	Consumer Discretionary ETF	Information Technology ETF	SP400	Industrials ETF	SP1500	Health Care ETF
9	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	SP1500	Industrials ETF	SP600	Health Care ETF	Real Estate ETF	Communication Services ETF
10	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
11	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	Industrial ETF	Financials ETF	Utilities ETF	Real Estate ETF	Consumer Staples ETF	Materials ETF	Information Technology ETF	Energy ETF	SP400	Financials ETF
12	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
13	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
14	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	Energy ETF	Consumer Staples ETF	Information Technology ETF	Industrials ETF	Communication Services ETF	Information Technology ETF	Utilities ETF

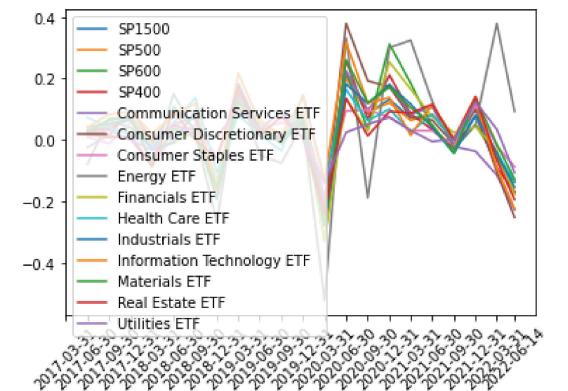
Index	Symbol	risk_trend_factor	
0	SP500	SPY	-3.321707
1	SP1500	SPTM	-3.358764
2	SP400	MDYG	-4.591661
3	SP600	SLY	-4.866667

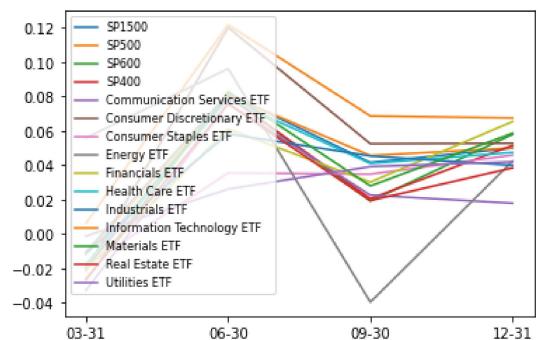
	Symbol	risk_trend_factor	Sector
3	VDE	1.395093	Energy ETF
2	VDC	-2.027309	Consumer Staples ETF
10	VPU	-2.036765	Utilities ETF
8	VAW	-2.726447	Materials ETF
9	VNQ	-2.883868	Real Estate ETF
5	VHT	-2.889925	Health Care ETF
4	VFH	-4.046674	Financials ETF
6	VIS	-4.146982	Industrials ETF
1	VCR	-4.247322	Consumer Discretionary ETF
7	VGT	-4.508045	Information Technology ETF
0	VOX	-6.489858	Communication Services ETF

Rolling Quarterly Mean Return



Quarterly Returns





0.812633541825487

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2744307430.py:13: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead
```

```
See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
temp_sm.iloc[np.where(temp_sm.index==spdr__)][['index']] = spdr_i
```

```
C:\Users\User\AppData\Local\Programs\Python\Python39\lib\site-packages\pandas\core\indexing.py:1637: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame
```

```
See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
self._setitem_single_block(indexer, value, name)
```

```
C:\Users\User\AppData\Local\Programs\Python\Python39\lib\site-packages\pandas\core\indexing.py:692: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame
```

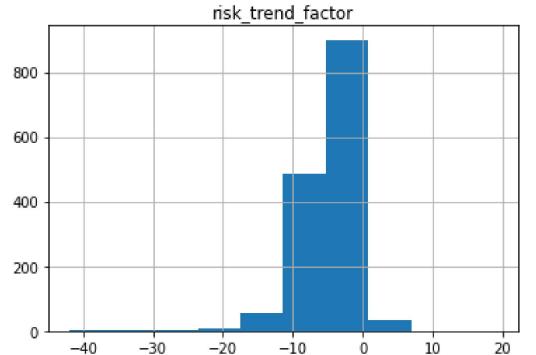
```
See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
iloc._setitem_with_indexer(indexer, value, self.name)
```

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2744307430.py:14: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
```

```
Try using .loc[row_indexer,col_indexer] = value instead
```

```
See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
temp_sm.iloc[np.where(temp_sm.index==spdr__)][['index_Symbol']] = spdr__
```

```
array([[<AxesSubplot:title={'center':'risk_trend_factor'}>]], dtype=object)
```

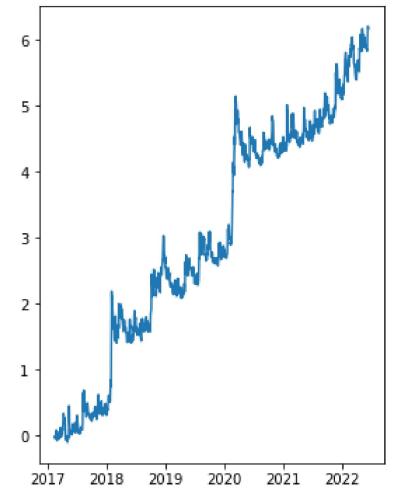
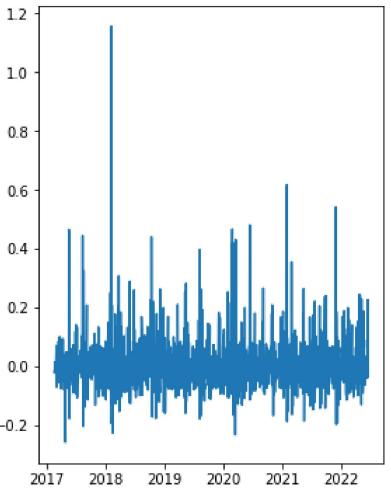
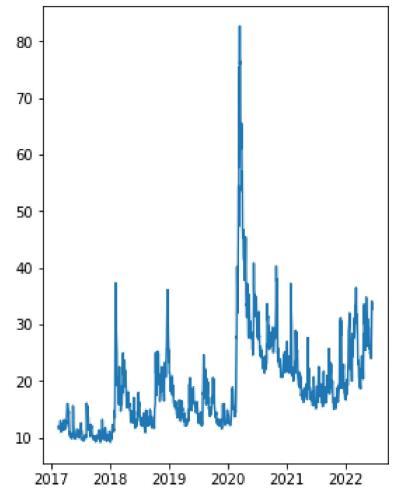


1520

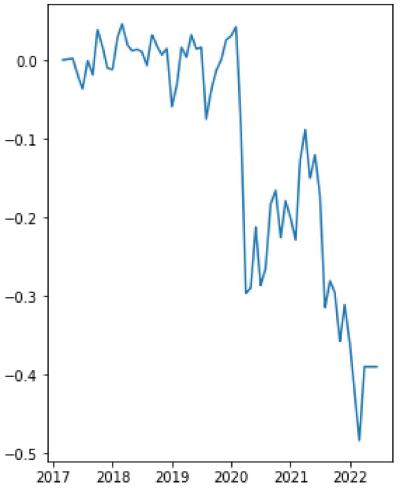
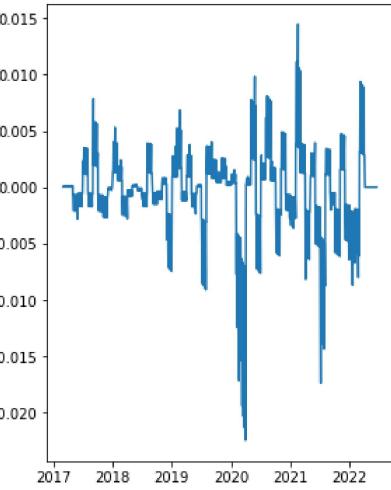
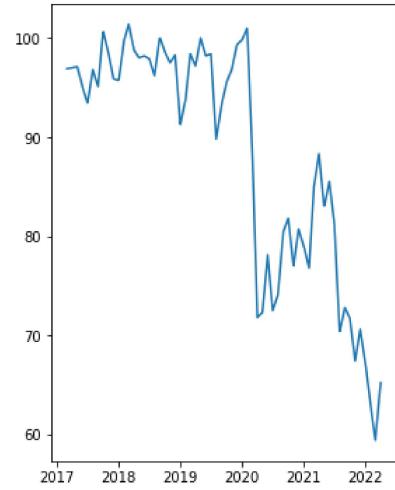
```
Index(['Symbol', 'max_2y', 'min_2y', 'std_2y', 'mean_2y', 'max_1y', 'min_1y',
       'std_1y', 'mean_1y', 'latest_p', '2yr_close_0pct', '2yr_close_2pct',
       '2yr_close_9pct', '2yr_close_25pct', '2yr_close_50pct',
       '2yr_close_75pct', '2yr_close_91pct', '2yr_close_98pct',
       '2yr_close_100pct', '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'],
      dtype='object')
```

Symbol	latest_p	risk_trend_factor	adf	hurst	Sector	Market Index	vol_30d_2yr
0 ACC	64.419998	19.217024	0.979637	0.418255	error	SP400	13781055000.0
1 MTOR	36.0	5.543488	0.304331	0.434725	Consumer Cyclical	SP600	7888381900.0
2 Y	832.0	2.342256	0.38518	0.458449	Financial Services	SP400	828602100.0
3 TWI	19.15	1.92163	0.891295	0.499041	Industrials	SP600	5400736000.0
4 PBF	38.919998	1.908312	0.699548	0.555964	Energy	SP600	47517805800.0
5 SAFM	207.410004	1.772278	0.669942	0.477196	Consumer Defensive	SP400	2596619200.0
6 MPC	102.669998	1.736425	0.977688	0.523103	Energy	SP500	72756266000.0
7 DVN	70.589996	1.66933	0.988553	0.552856	Energy	SP500	121752263500.0
8 VLO	133.75	1.628343	0.922874	0.537334	Energy	SP500	46297639500.0
9 COP	111.489998	1.627301	0.980711	0.490397	Energy	SP500	96861604200.0
10 LNT	62.580002	1.62217	0.98634	0.532554	Healthcare	SP600	7190737100.0
11 MRO	28.790001	1.564966	0.948885	0.544141	Energy	SP500	252220800100.0
12 APA	46.0	1.525584	0.413628	0.447575	Energy	SP500	105341198700.0
13 XOM	96.099998	1.519786	0.958139	0.535838	Energy	SP500	282584082100.0
14 NTUS	31.790001	1.497267	0.159539	0.413711	Healthcare	SP600	2379907100.0
15 BANF	91.309998	1.492805	0.916616	0.536421	error	SP600	1269485800.0
16 SM	48.68	1.482713	0.962497	0.477599	Energy	SP600	43971070600.0
17 FANG	149.630005	1.431262	0.795622	0.471983	Energy	SP500	30862818500.0
18 MUSA	233.460007	1.409106	0.994555	0.410124	Consumer Cyclical	SP400	2942817400.0
19 VDE	117.059998	1.395093	0.890286	0.520485	error	NaN	13219432500.0
20 PDCE	81.650002	1.370913	0.723739	0.494349	Energy	SP400	12710569500.0
21 MTDR	61.389999	1.32419	0.97374	0.466991	Energy	SP400	25155623800.0
22 CVX	167.550003	1.282539	0.949121	0.497243	Energy	SP500	121494374800.0
23 DINO	52.709999	1.260593	0.358718	0.56268	Energy	SP400	26318648400.0
24 MCK	306.519989	1.252954	0.998289	0.462444	Healthcare	SP500	11748608200.0
25 PXD	264.549988	1.247964	0.912273	0.497407	Energy	SP500	24263857900.0
26 HRB	34.380001	1.229135	0.725167	0.435532	Consumer Cyclical	SP400	27760839000.0
27 SWX	87.040001	1.106403	0.145807	0.399565	Utilities	SP400	4573768600.0
28 CIVI	72.260002	1.099358	0.000891	0.485954	Energy	SP600	5736171600.0
29 CEIX	48.619999	1.087891	0.88812	0.521633	Energy	SP600	5252640900.0
30 CTRA	31.110001	1.075726	0.297053	0.466999	Energy	SP500	85091501400.0
31 EOG	131.259995	1.058399	0.811415	0.485527	Energy	SP500	49783403200.0
32 ROCC	45.240002	1.052877	0.622824	0.579733	Energy	SP600	6186219000.0
33 HES	120.07	1.04224	0.938257	0.449035	Energy	SP500	24607383000.0
34 TVTY	31.6	1.0	0.510164	0.449517	error	SP600	5611692500.0
35 OXY	62.09	0.96757	0.738509	0.544974	Energy	SP500	256214422000.0
36 MUR	41.580002	0.843595	0.791664	0.454943	Energy	SP400	33077715200.0
37 AZPN	184.309998	0.82682	0.752504	0.381769	Technology	SP400	4840968000.0

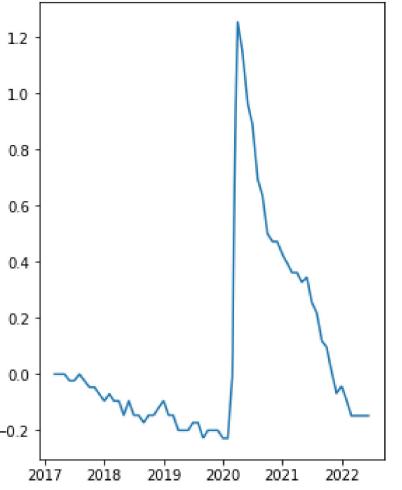
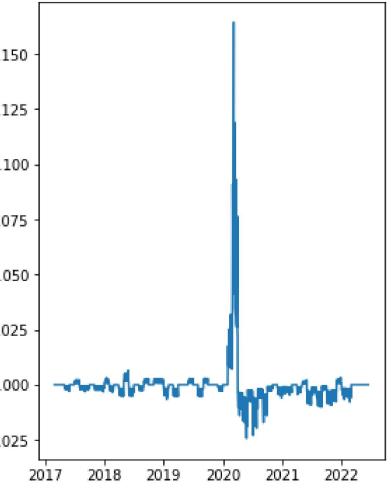
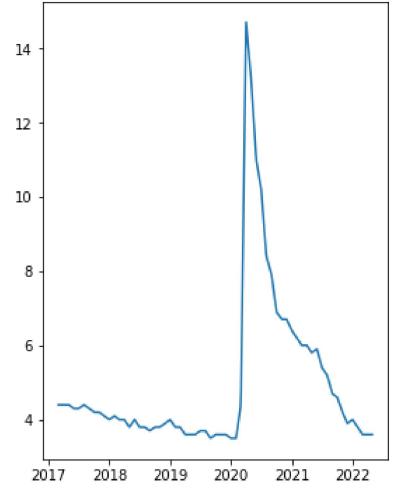
nominal, pct_change, pct_change().cumsum
Market volatility



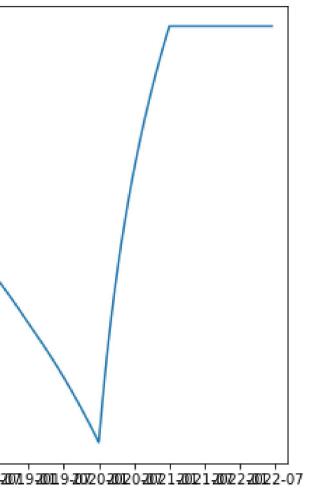
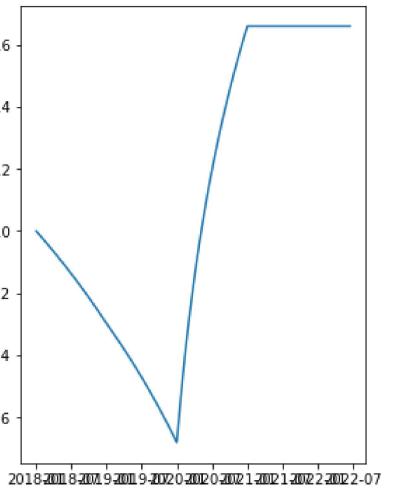
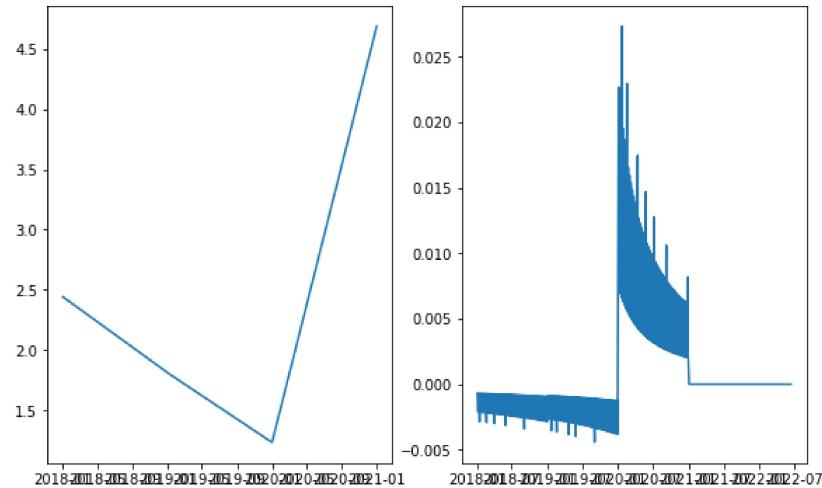
Consumer Confidence



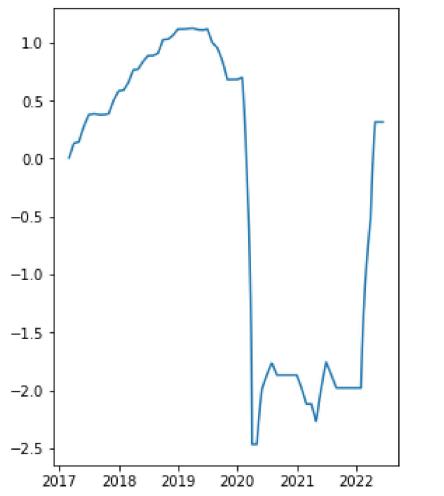
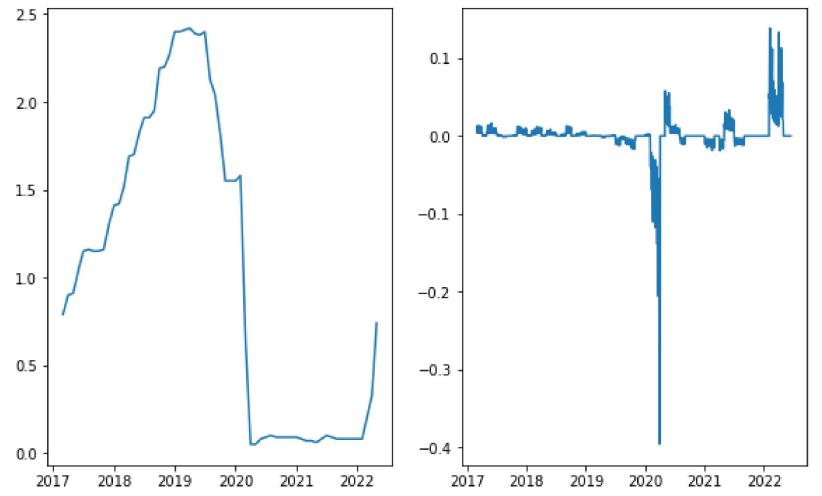
Unemployment



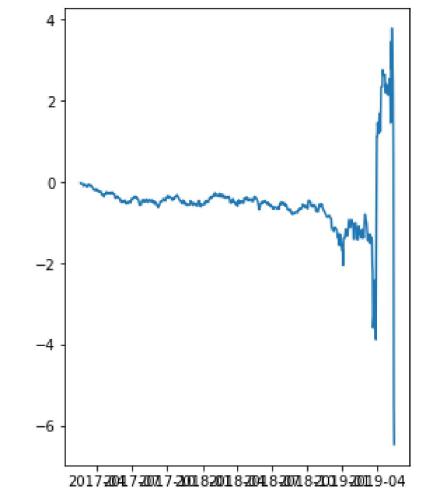
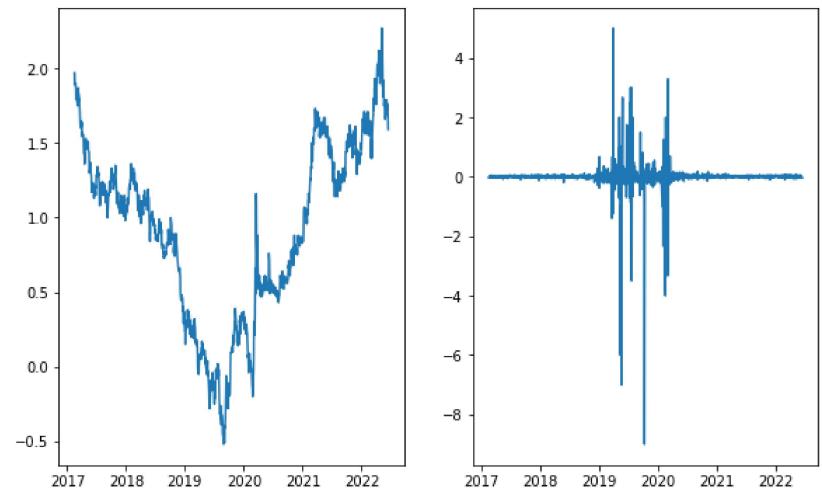
Inflation



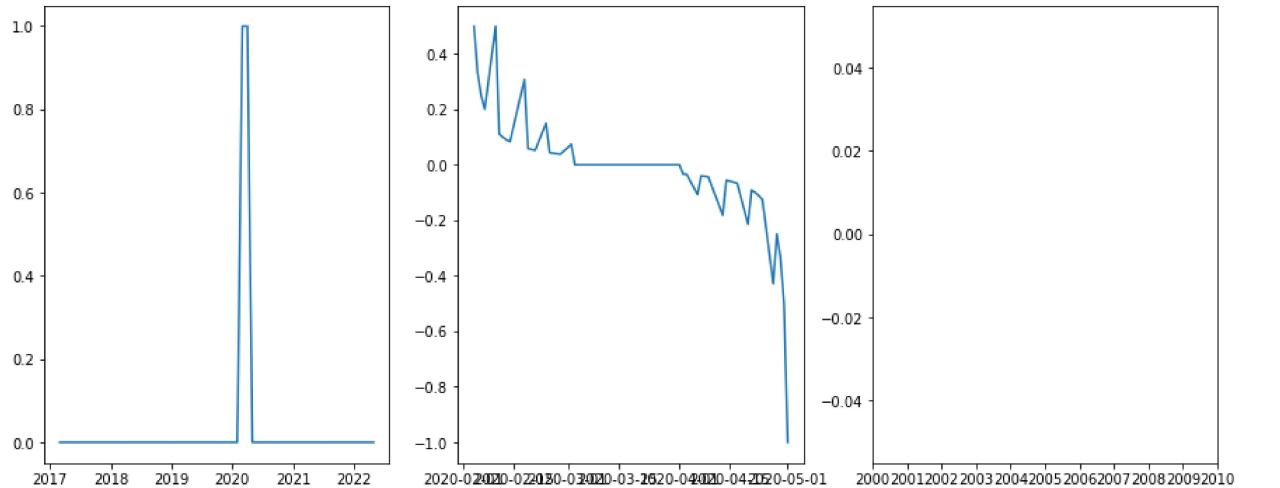
Interest Rates



10 Year to 3 Month



Recession Indicator



```

Symbol
ACC 13781055000.0
MTOR 7888381900.0
Y 828602100.0
TWI 5400736000.0
PBF 47517805800.0
...
GXO      NaN
CCSI     NaN
AIRC      NaN
HRMY      NaN
JW-A     missing
Name: vol_30d_2yr, Length: 1520, dtype: object

```

```
C:\Users\User\AppData\Local\Programs\Python\Python39\lib\site-packages\distributed\client.py:1265: VersionMismatchWarning: Mismatched versions found
```

```

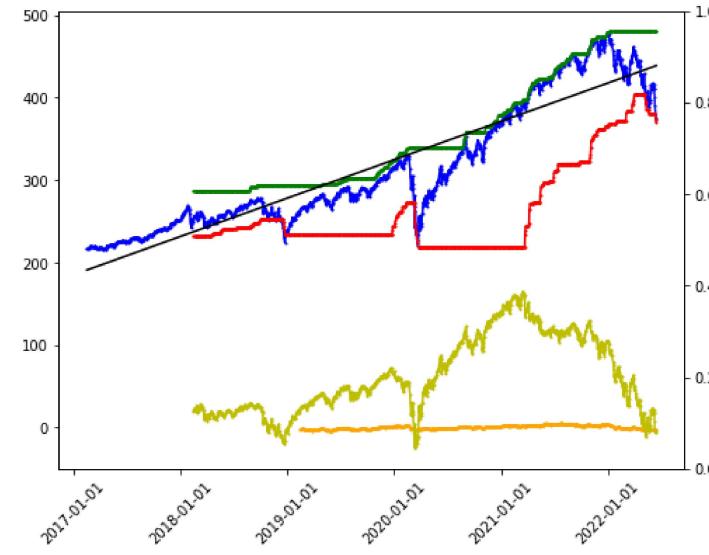
+-----+-----+-----+
| Package | client | scheduler | workers |
+-----+-----+-----+
| dask    | 2022.01.1 | 2021.11.2 | 2021.11.2 |
| distributed | 2022.01.1 | 2021.11.2 | 2021.11.2 |
| lz4     | 3.1.3   | 3.1.10   | 3.1.10   |
| python   | 3.9.7.final.0 | 3.9.9.final.0 | 3.9.9.final.0 |
| toolz   | 0.11.1  | 0.11.2   | 0.11.2   |
+-----+-----+-----+
warnings.warn(version_module.VersionMismatchWarning(msg[0]["warning"]))
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: 880461857300.0
Sector 1YMF: -263.8100280761719
1YMF: 0.0022075805827187875
risk trend factor: -3.321707170400029
totalAssets trailingPE
SPY 3.710190e+11 2.63136
Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper
2022-06-14 373.869995 377.05431 400.804286 424.554262 422.745398 23.333621 376.078155 469.41264

```

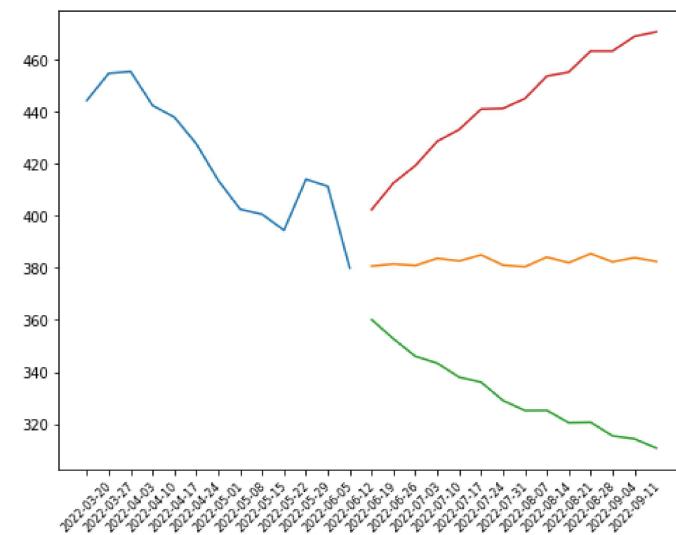
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
SPY	0.002208	373.869995	880461857300.0	0.413919	0.695366	0.422162

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

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
  ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



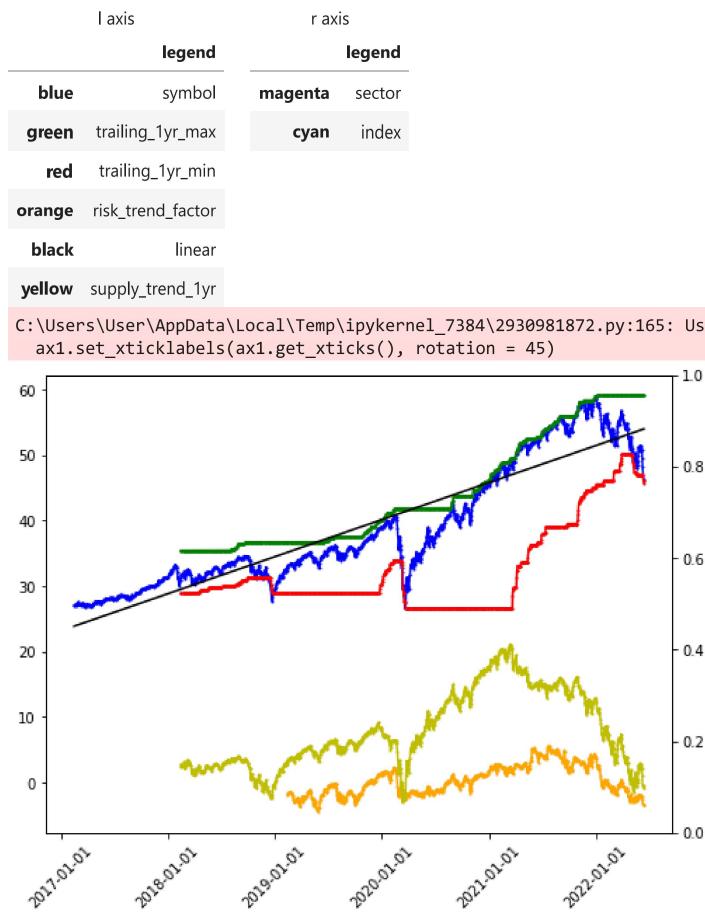
```
ets next 13 weeks
inner cv scores: [896.8975766275627, 896.8975918004722, 896.8975735235356, 896.8975999236275]
inner cv sdevs: [664.5686910942507, 664.5686789100486, 664.5686719967034, 664.5686974109883]
best model: ['F', 'F']
best inner cv score, sdev (11 folds): 896.8975735235356 664.5686719967034
test cv mean error, stdev (10 folds): [944.4210566860951, 678.9502274418586]
sell date: 2022-08-28
expected return: 0.031069868742507327
discounted return: 0.00041355806825960073
quarter return: 1.0387722397385468
```



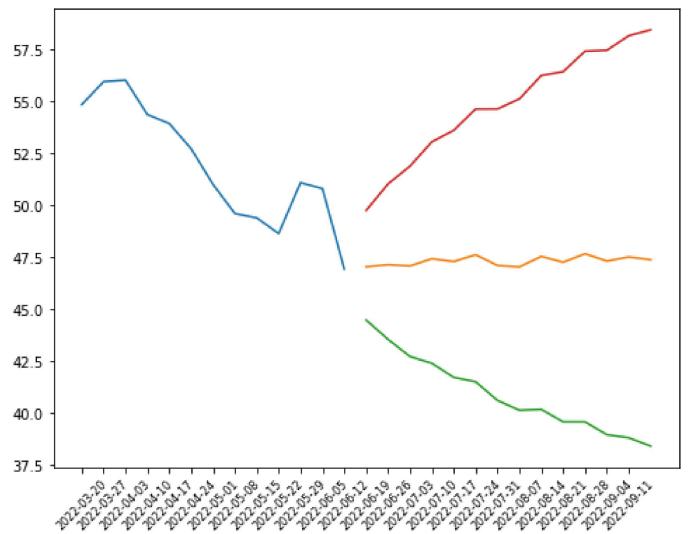
```
['options', ('2022-06-17', '2022-06-30', '2022-09-16', '2022-09-30', '2022-12-16', '2023-01-20', '2023-03-17', '2023-06-16', '2023-12-15', '2024-01-19', '2024-12-20')]  
symbol: SPTM  
sector: error  
sector: error  
Index: SP1500  
vol_30d_2yr: 5201844300.0  
Sector 1YMF: -32.58000946044922  
1YMF: 0.0030551471907761638  
risk trend factor: -3.3587635977232946  
Empty DataFrame  
Columns: []  
Index: [SPTM]
```

	Adj Close	21d BOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	46.099998	46.489957	49.444444	52.398932	52.094127	2.828054	46.43802	57.750234

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
SPTM	0.003055	46.099998	5201844300.0	0.423367	0.683931	0.429284



```
ets next 13 weeks
inner cv scores: [13.691379393897245, 13.691379393897245, 13.691379421717125, 13.691379219975392]
inner cv sdevs: [10.047228454226708, 10.047228454226708, 10.047228450840223, 10.047228107538883]
best model: ['F', 'T']
best inner cv score, sdev (11 folds): 13.691379219975392 10.047228107538883
test cv mean error, stdev (10 folds): [14.411595905559233, 10.263315717261595]
sell date: 2022-08-28
expected return: 0.03377647922453026
discounted return: 0.00044900052402097046
quarter return: 1.042163433829165
```



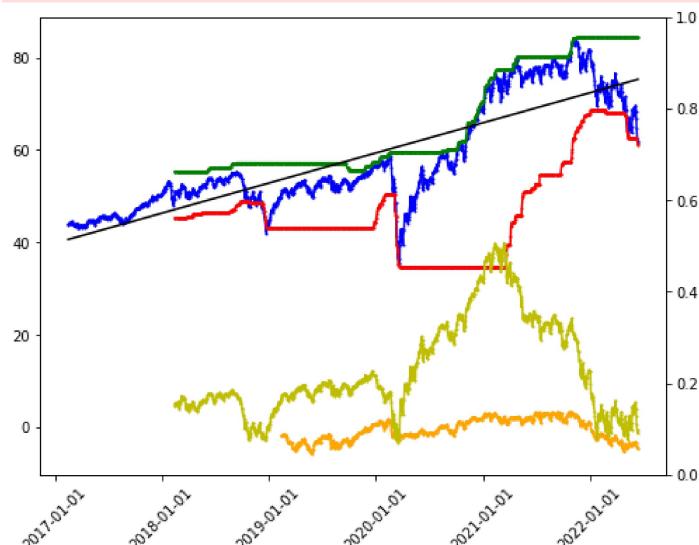
```
['options', ('2022-06-17',)]
symbol: MDYG
sector: error
sector: error
Index: SP400
vol_30d_2yr: 2570312700.0
Sector 1YMF: -63.869998931884766
1YMF: 0.0011014613124698796
risk trend factor: -4.591660649354175
Empty DataFrame
Columns: []
Index: [MDYG]
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	61.66	61.685558	66.113175	70.540792	69.694445	3.996942	61.70056	77.688329

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
MDYG	0.001101	61.66	2570312700.0	0.308819	0.549257	0.452092

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

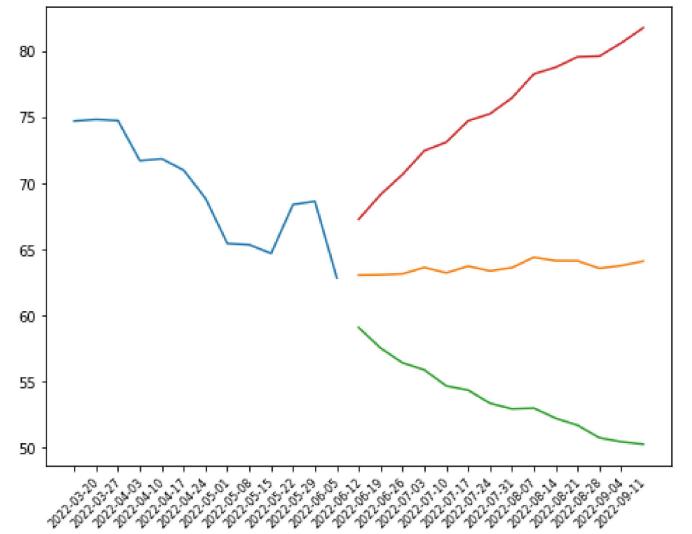
```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```

ets next 13 weeks
inner cv scores: [36.61053237685582, 36.61053239832299, 36.61053237685582, 36.61053232137597]
inner cv sdevs: [32.65372604592799, 32.65372602719306, 32.65372604592799, 32.65372601883619]
best model: ['F', 'T']
best inner cv score, sdev (11 folds): 36.61053232137597 32.65372601883619
test cv mean error, stdev (10 folds): [39.399144320764556, 32.975028200307406]
sell date: 2022-08-14
expected return: 0.044351153582295647
discounted return: 0.0007235247330383832
quarter return: 1.0688039361821564

```



```

['options', ('2022-06-17',)]
symbol: SLY
sector: error
sector: error
Index: SP600
vol_30d_2yr: 928269400.0
Sector 1YMF: -69.3499984741211
1YMF: 0.0022254315395940014
risk trend factor: -4.866666559587445
totalAssets
SLY 1.703341e+09

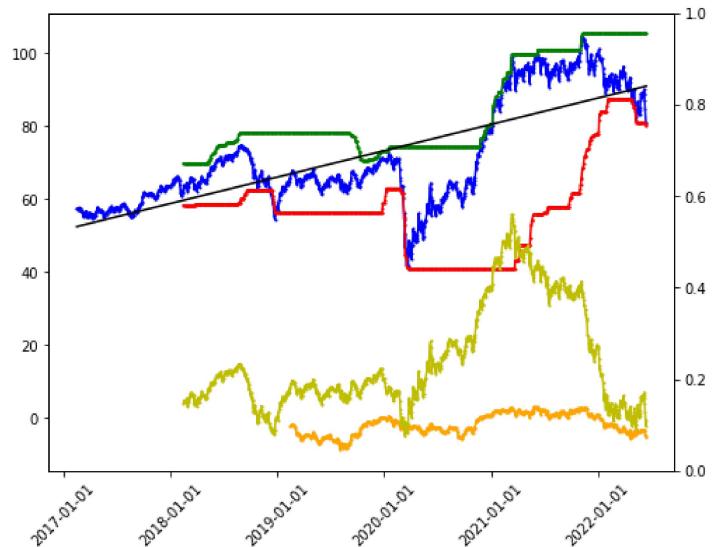
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	80.730003	80.784692	85.904285	91.023878	88.959683	4.13917	80.681342	97.238024

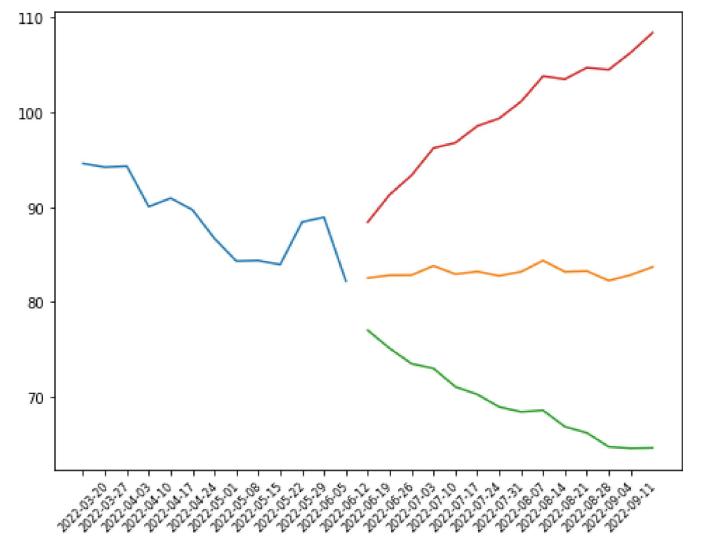
volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
SLY	0.002225	80.730003	928269400.0	0.502933	0.580461	0.514913

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

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



ets next 13 weeks
 inner cv scores: [63.2394369051782, 63.2394368196984, 63.23943695976586, 63.239436960512734]
 inner cv sdevs: [56.49895888480584, 56.49895893730717, 56.49895924650045, 56.49895910269093]
 best model: ['T', 'F']
 best inner cv score, sdev (11 folds): 63.2394368196984 56.49895893730717
 test cv mean error, stdev (10 folds): [66.84056960033242, 58.0404678456298]
 sell date: 2022-08-14
 expected return: 0.0453239070838725
 discounted return: 0.0007390529038044935
 quarter return: 1.0703307944202143



symbol: VDE
 sector: error
 sector: Energy
 Index: nan
 vol_30d_2yr: 13219432500.0
 Sector 1YMF: 43.219993591308594
 1YMF: 0.0015231818763778249
 risk trend factor: 1.395093250744777
 totalAssets trailingPE
 VDE 9.791998e+09 9.531159

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

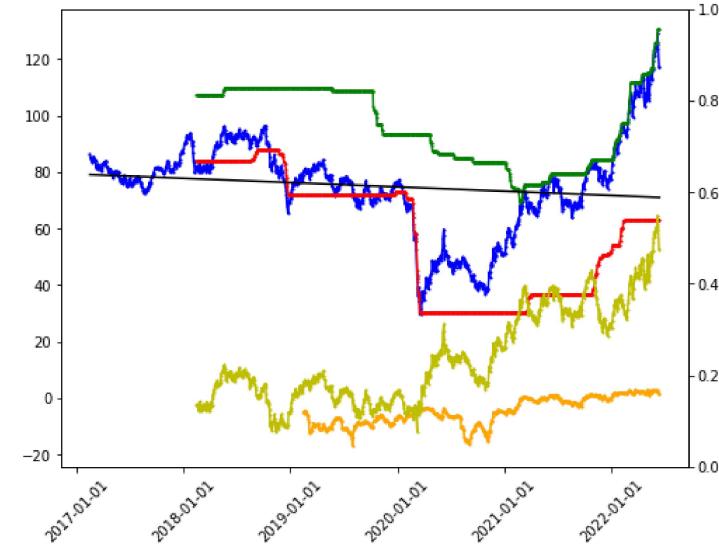
2022-06-14	117.059998	110.042752	120.133016	130.223281	112.220159	6.984736	98.250688	126.189631
------------	------------	------------	------------	------------	------------	----------	-----------	------------

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

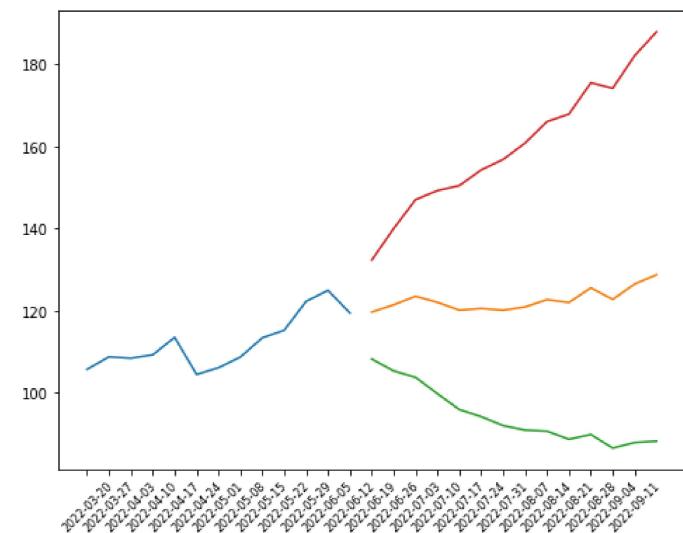
VDE	0.001523	117.059998	13219432500.0	0.85821	0.890286	0.520485
-----	----------	------------	---------------	---------	----------	----------

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

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [159.12369199654069, 159.12369203331647, 159.1236920328821, 159.1236921381809]
inner cv sdevs: [181.54981239622683, 181.54981234355023, 181.54981238173517, 181.54981243891243]
best model: ['T', 'T']
best inner cv score, sdev (11 folds): 159.12369199654069 181.54981239622683
test cv mean error, stdev (10 folds): [174.1935106323338, 183.7342484583649]
sell date: 2022-09-18
expected return: 0.09949443558493525
discounted return: 0.000998924594639794
quarter return: 1.0962060713271222
```



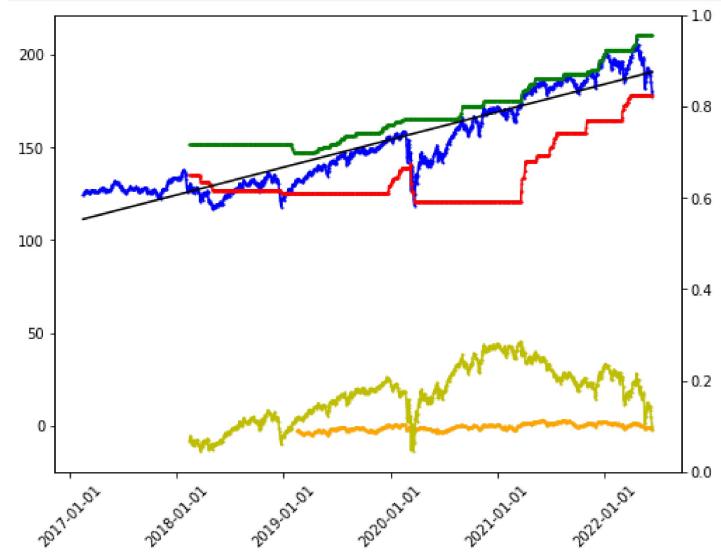
```
['options', ('2022-06-17',)]
symbol: VDC
sector: error
sector: Consumer Defensive
Index: nan
vol_30d_2yr: 1677598400.0
Sector 1YMF: -66.07002258300781
1YMF: 0.0028162878553055367
risk trend factor: -2.0273089620421954
    totalAssets
VDC 8.239956e+09
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	178.809998	178.659124	188.147461	197.635797	195.320794	7.023074	181.274647	209.366942

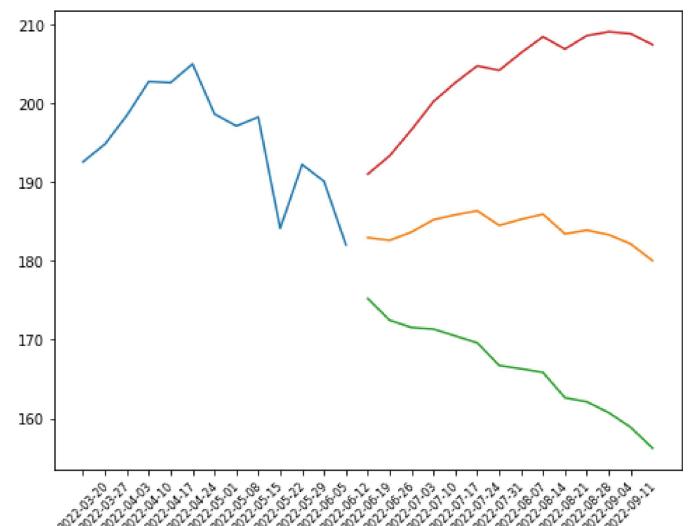
	volume_factor	latest_p	vol_30d_2yr	pct.2yr	adf	hurst
VDC	0.002816	178.809998	1677598400.0	0.516069	0.790338	0.356259

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

C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



ets next 13 weeks
inner cv scores: [78.12379230339916, 78.12374333491836, 78.1237918402513, 78.12380427872517]
inner cv sdevs: [41.898262859542285, 41.8981972659733, 41.89826163735926, 41.89824319907534]
best model: ['T', 'F']
best inner cv score, sdev (11 folds): 78.12374333491836 41.8981972659733
test cv mean error, stdev (10 folds): [78.14556971924652, 43.94319756772432]
sell date: 2022-07-24
expected return: 0.042086603909973055
discounted return: 0.0010576115189662172
quarter return: 1.102134598042263



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AnalyzeSP1500

```
['options', ('2022-07-15',)]
symbol: VPU
sector: error
sector: Utilities
Index: nan
vol_30d_2yr: 2572686100.0
Sector 1YMF: -49.86000061035156
1YMF: 0.002030212702591272
risk trend factor: -2.0367650862888413
    totalAssets
VPU 7.799146e+09
```

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

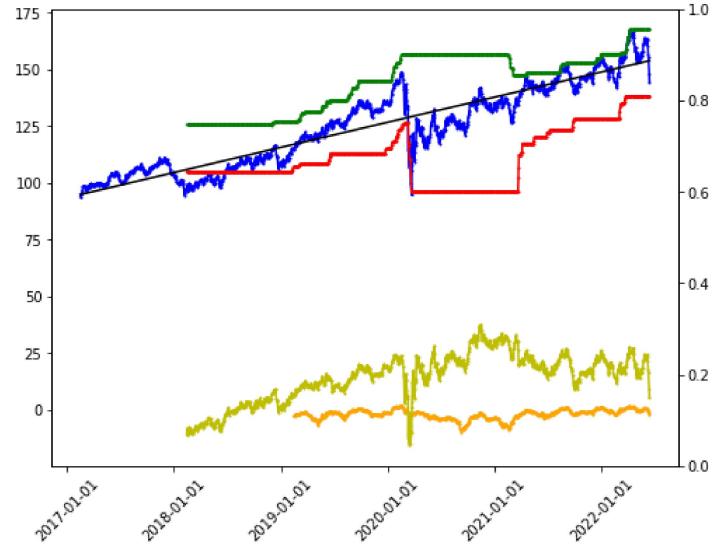
2022-06-14	144.529999	149.475374	158.290953	167.106531	159.121428	4.658368	149.804693	168.438164
------------	------------	------------	------------	------------	------------	----------	------------	------------

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

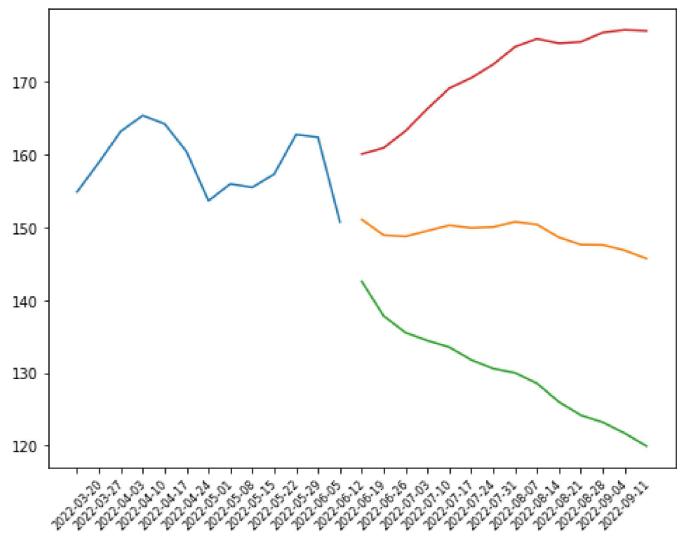
VPU	0.00203	144.529999	2572686100.0	0.51674	0.602637	0.294964
-----	---------	------------	--------------	---------	----------	----------

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

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [49.03168023764127, 49.03168018678877, 49.031678804539226, 49.03168022067991]
inner cv sdevs: [48.373685674526264, 48.37368568992851, 48.3736870768259, 48.37368568649664]
best model: ['F', 'F']
best inner cv score, sdev (11 folds): 49.031678804539226 48.3736870768259
test cv mean error, stdev (10 folds): [49.98076532987001, 50.637006471544105]
sell date: 2022-06-19
expected return: 0.045292998193906614
discounted return: 0.01113585391390437
quarter return: 2.7699692658469064
```

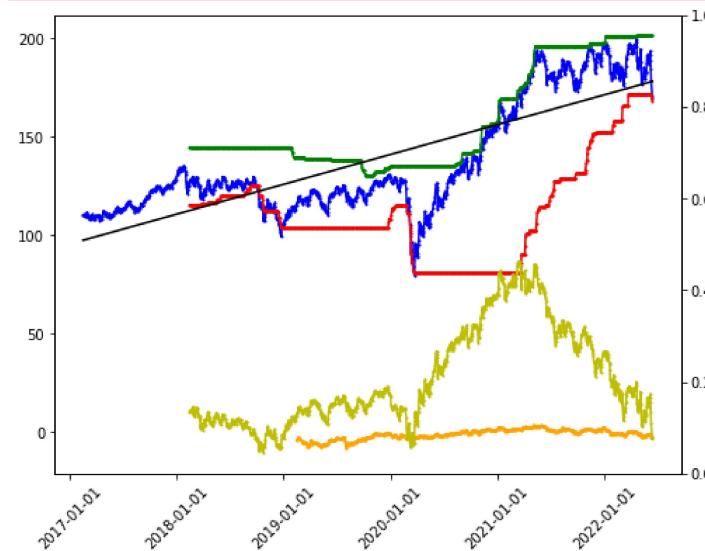


```
['options', ('2022-06-17',)]
symbol: VAW
sector: error
sector: Basic Materials
Index: nan
vol_30d_2yr: 1374740100.0
Sector 1YMF: -89.99998474121094
1YMF: 0.0017602599938708414
risk trend factor: -2.7264465228121475
    totalAssets
VAW 5.085875e+09
      Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper
2022-06-14 169.380005 171.785257 183.917777 196.050297 188.386984 6.915825 174.555335 202.218634
```

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
VAW	0.00176	169.380005	1374740100.0	0.6301	0.73357	0.42923

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

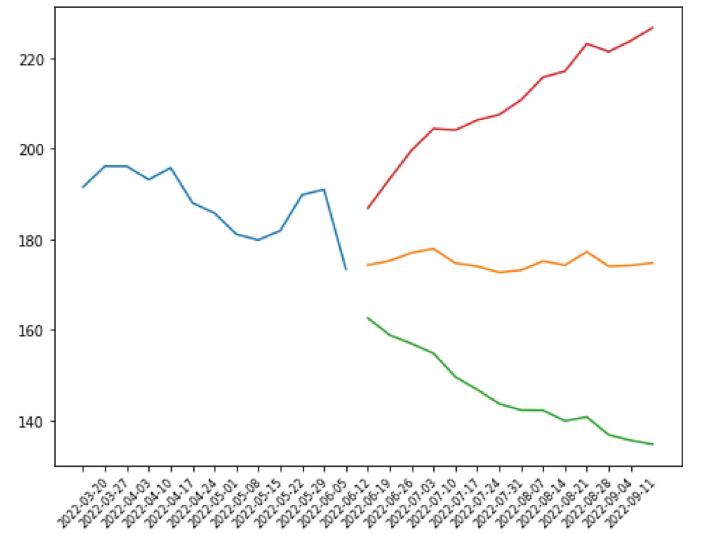
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



```

ets next 13 weeks
inner cv scores: [212.1723743013601, 212.17237472139814, 212.17231727637093, 212.1723741667365]
inner cv sdevs: [126.59214261995862, 126.59214236505552, 126.59208819743209, 126.59214272719368]
best model: ['F', 'F']
best inner cv score, sdev (11 folds): 212.17231727637093 126.59208819743209
test cv mean error, stdev (10 folds): [228.72672795234553, 120.8867830781834]
sell date: 2022-07-10
expected return: 0.050287380858997095
discounted return: 0.001964479978523004
quarter return: 1.1978818448451296

```



```

['options', ('2022-08-19',)]
symbol: VNQ
sector: error
sector: Real Estate
Index: nan
vol_30d_2yr: 52794532700.0
Sector 1YMF: -77.22999572753906
1YMF: 0.0022024174484264352
risk trend factor: -2.8838677089514886
totalAssets
VNQ 8.281489e+10

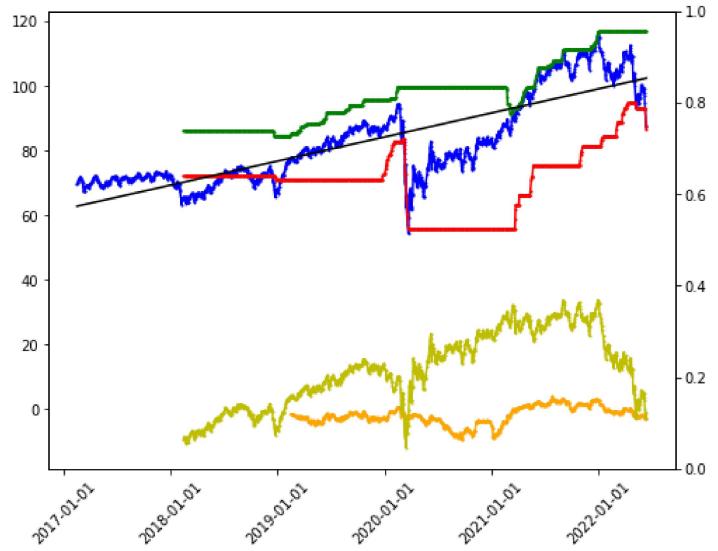
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	87.32	89.87477	96.078254	102.281738	102.636985	6.527182	89.58262	115.691349

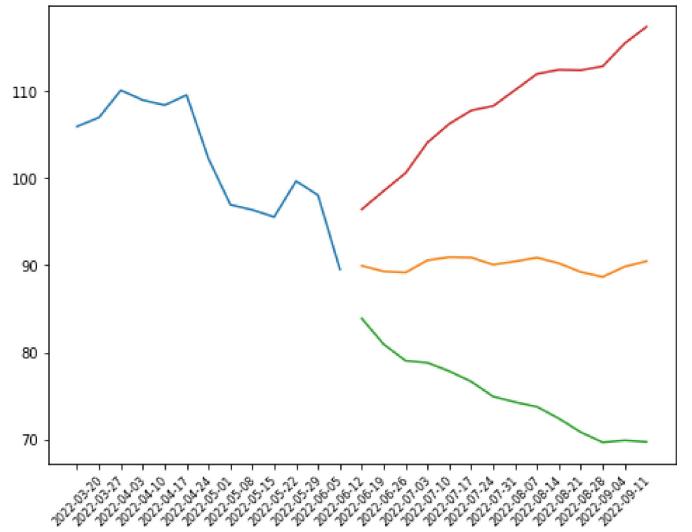
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
VNQ	0.002202	87.32	52794532700.0	0.287515	0.45398	0.395523

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

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



fits next 13 weeks
 inner cv scores: [41.756251115882506, 41.75625167587673, 41.75625131264041, 41.75625059335419]
 inner cv sdevs: [38.32586931416017, 38.32586902394019, 38.32586941101985, 38.32586950116114]
 best model: ['F', 'T']
 best inner cv score, sdev (11 folds): 41.75625059335419 38.32586950116114
 test cv mean error, stdev (10 folds): [42.99933367958127, 39.98451798555243]
 sell date: 2022-07-17
 expected return: 0.04148155644509356
 discounted return: 0.0012709404898285648
 quarter return: 1.1239533922404303



['options', ('2022-06-17', '2023-01-20', '2024-01-19')]

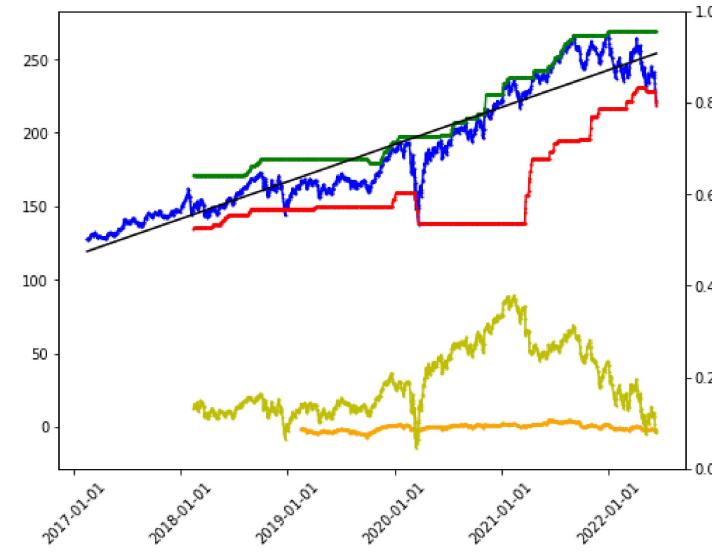
symbol: VHT
 sector: error
 sector: Healthcare
 Index: nan
 vol_30d_2yr: 2748002700.0
 Sector 1YMF: -120.76998901367188
 1YMF: 0.0022806018349254167
 risk trend factor: -2.889924965769055
 totalAssets trailingPE
 VHT 1.944618e+10 5.167231

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	220.690002	225.697492	236.696032	247.694571	245.267301	10.459678	224.347945	266.186656

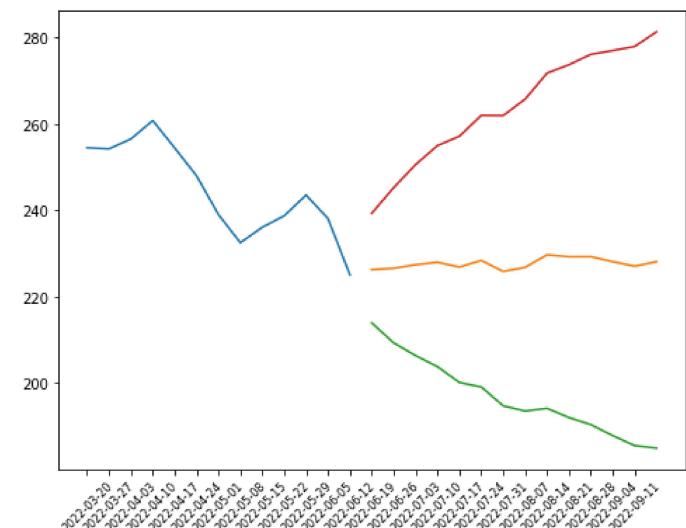
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
VHT	0.002281	220.690002	2748002700.0	0.412621	0.648137	0.33236

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

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [277.7451461581983, 277.74514641528134, 277.74514615819834, 277.7451482209096]
inner cv sdevs: [225.18617390971545, 225.18617362877762, 225.18617390971548, 225.1861792107841]
best model: ['T', 'T']
best inner cv score, sdev (11 folds): 277.7451461581983 225.18617390971545
test cv mean error, stdev (10 folds): [275.74009022599625, 236.08361573141826]
sell date: 2022-08-14
expected return: 0.04074255717420015
discounted return: 0.0006657958047198154
quarter return: 1.063146419894677
```



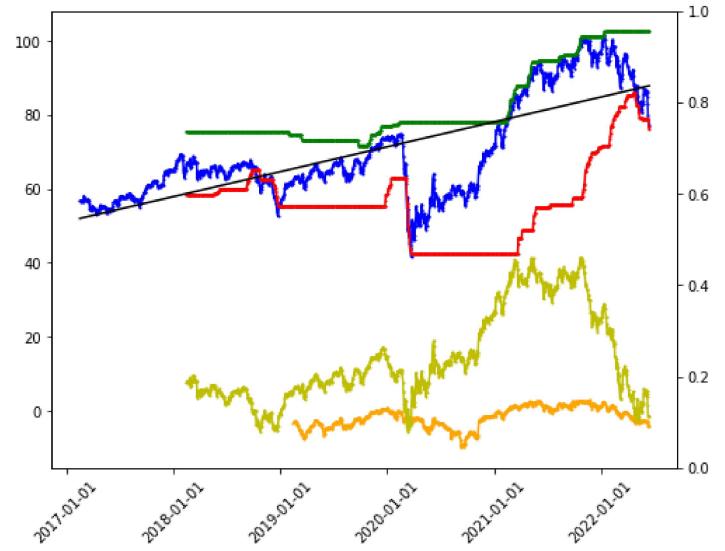
```
['options', ('2022-06-17',)]
symbol: VFH
sector: error
sector: Financial Services
Index: nan
vol_30d_2yr: 8469515700.0
Sector 1YMF: -69.35999298095703
1YMF: 0.002096259175716505
risk trend factor: -4.046674180329693
    totalAssets
VFH 1.055284e+10
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	76.82	77.599922	83.310159	89.020397	87.703016	5.254499	77.194017	98.212014

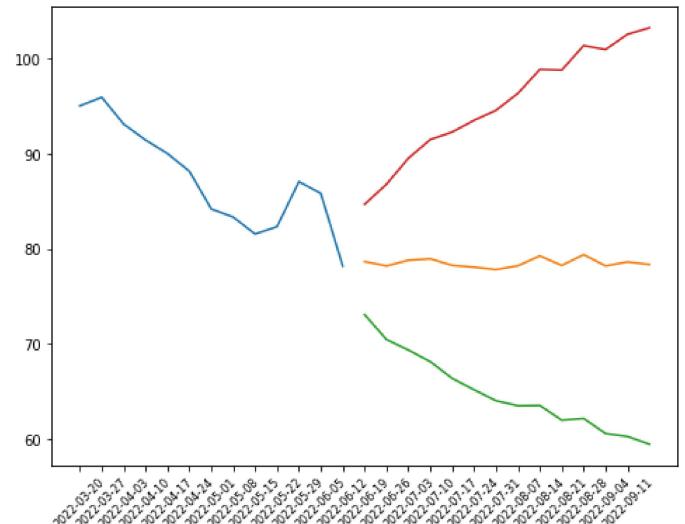
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
VFH	0.002096	76.82	8469515700.0	0.458719	0.51009	0.491558

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

C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



ets next 13 weeks
inner cv scores: [47.77495539390786, 47.77477717060499, 47.77495539310583, 47.774779266669796]
inner cv sdevs: [37.0613852002491, 37.0609710561574, 37.06138519880584, 37.060970467417356]
best model: ['T', 'F']
best inner cv score, sdev (11 folds): 47.77477717060499 37.0609710561574
test cv mean error, stdev (10 folds): [50.45041356796897, 37.843917916741894]
sell date: 2022-08-28
expected return: 0.03337692248609594
discounted return: 0.0004437741816722962
quarter return: 1.0416626810895997



```
[ 'options', ('2022-08-19',) ]
symbol: VIS
sector: error
sector: Industrials
Index: nan
vol_30d_2yr: 1731436900.0
Sector 1YMF: -127.81001281738281
1YMF: 0.0013972787573142285
risk trend factor: -4.146981909279044
Empty DataFrame
Columns: []
Index: [VIS]
```

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

2022-06-14	164.399994	164.489515	174.358095	184.226675	182.881746	9.185573	164.5106	201.252892
------------	------------	------------	------------	------------	------------	----------	----------	------------

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

VIS	0.001397	164.399994	1731436900.0	0.479391	0.528815	0.471381
-----	----------	------------	--------------	----------	----------	----------

l axis r axis

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

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

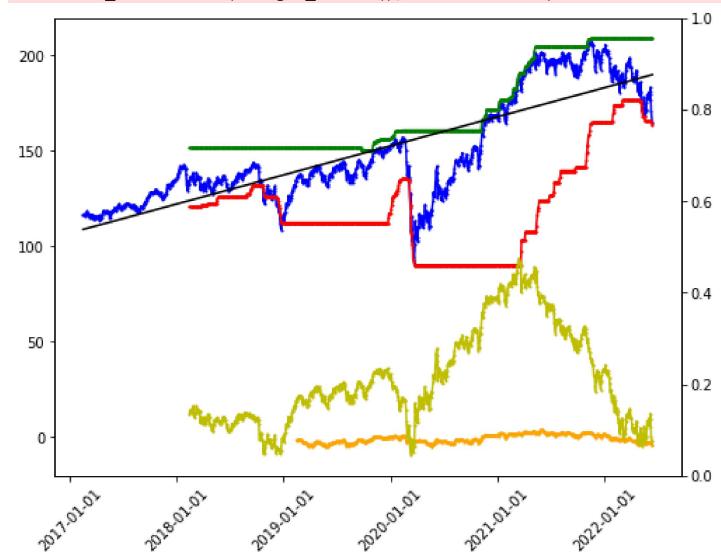
red	trailing_1yr_min
-----	------------------

orange	risk_trend_factor
--------	-------------------

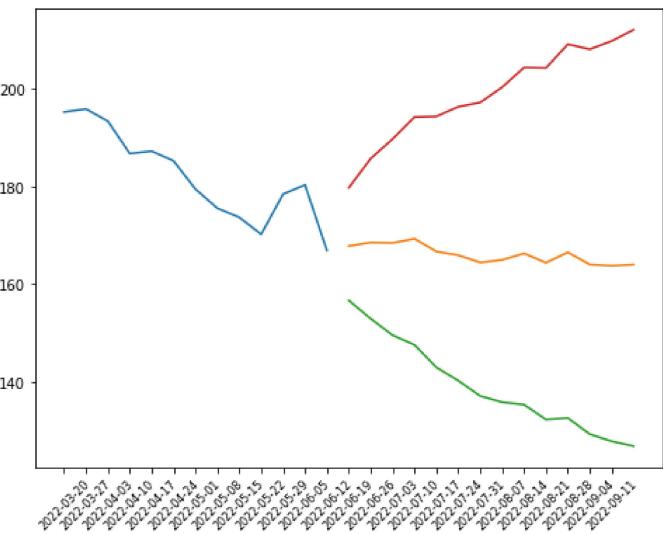
black	linear
-------	--------

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

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [207.63819325037574, 207.63819516158262, 207.6381944475033, 207.63819411812776]
inner cv sdevs: [188.5332848050259, 188.5332870870547, 188.5332874889668, 188.53328464938414]
best model: ['T', 'T']
best inner cv score, sdev (11 folds): 207.63819325037574 188.5332848050259
test cv mean error, stdev (10 folds): [224.84316841469064, 189.32289107705722]
sell date: 2022-07-10
expected return: 0.02995976022883286
discounted return: 0.0011814867557888853
quarter return: 1.114752737423006
```

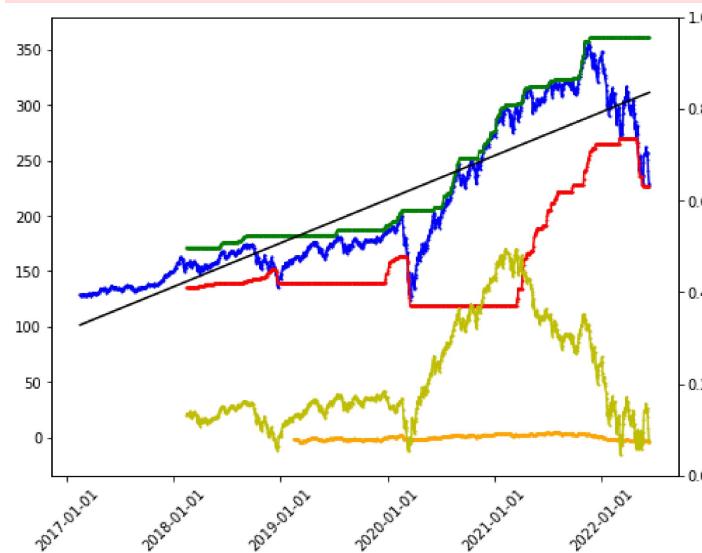


```
['options', ('2022-08-19',)]
symbol: VCR
sector: error
sector: Consumer Cyclical
Index: nan
vol_30d_2yr: 1325765300.0
Sector 1YMF: -352.9100036621094
1YMF: 0.0021034643160444764
risk trend factor: -4.247321632052965
    totalAssets
VCR 6.015592e+09
Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSD 90d_lower 90d_upper
2022-06-14 228.220001 224.528255 245.745873 266.963491 274.465714 26.880962 220.70379 328.227637
```

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
VCR	0.002103	228.220001	1325765300.0	0.219627	0.651501	0.471679

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

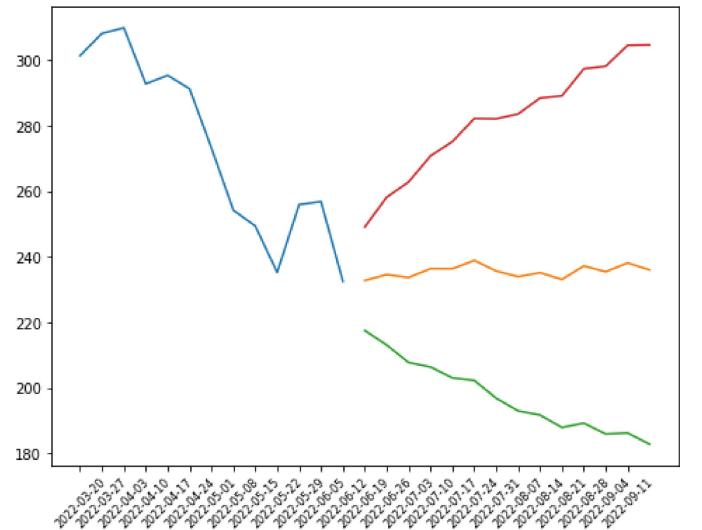
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



```

ets next 13 weeks
inner cv scores: [887.9501604558427, 887.9502091412995, 887.9502212350785, 887.9501531238255]
inner cv sdevs: [918.1708574434468, 918.1710243556035, 918.17102634911, 918.170860712812]
best model: ['F', 'T']
best inner cv score, sdev (11 folds): 887.9501531238255 918.170860712812
test cv mean error, stdev (10 folds): [969.5163536543694, 924.2069236512151]
sell date: 2022-07-24
expected return: 0.04671037183047765
discounted return: 0.001171256331887971
quarter return: 1.1137052585072091

```



```

['options', ('2022-06-17',)]
symbol: VGT
sector: error
sector: Technology
Index: nan
vol_30d_2yr: 7337614600.0
Sector 1YMF: -353.0699768066406
1YMF: 0.00219037124135683
risk trend factor: -4.508044961227624
    totalAssets
VGT 5.044675e+10

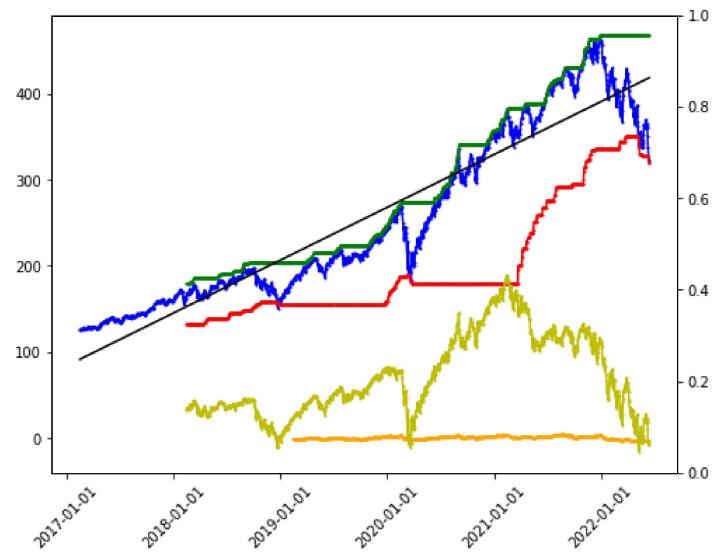
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	323.26001	323.523724	348.914604	374.305484	375.414605	28.155127	319.104351	431.724859

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
VGT	0.00219	323.26001	7337614600.0	0.279559	0.700663	0.427795

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

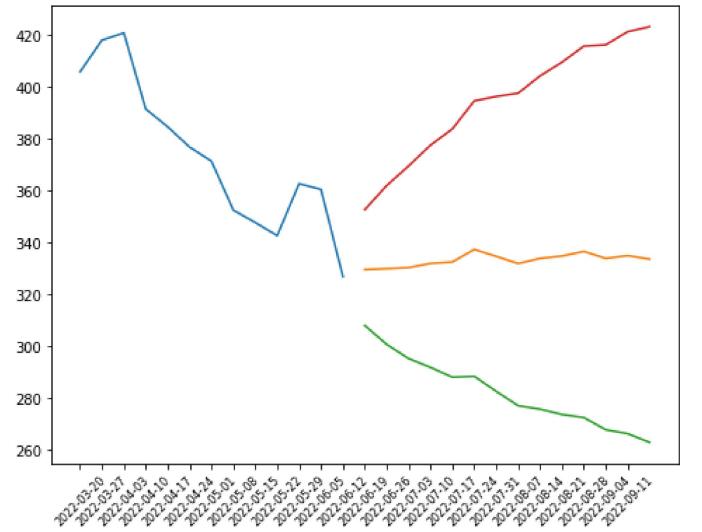
```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```

ets next 13 weeks
inner cv scores: [1125.880633382814, 1125.8229762481571, 1125.8229351078967, 1125.8230119060377]
inner cv sdevs: [1141.3577032498895, 1141.361590216077, 1141.3616404460613, 1141.3615873812503]
best model: ['F', 'F']
best inner cv score, sdev (11 folds): 1125.8229351078967 1141.3616404460613
test cv mean error, stdev (10 folds): [1191.988051865975, 1176.784160315662]
sell date: 2022-07-24
expected return: 0.04323195124407209
discounted return: 0.0010858080331990205
quarter return: 1.1049942653660179

```



```

['options', ('2022-06-17', '2022-08-19')]
symbol: VOX
sector: error
sector: Communication Services
Index: nan
vol_30d_2yr: 2369729400.0
Sector 1YMF: -166.4000015258789
1YMF: 0.0030011443500679866
risk trend factor: -6.489857877273307
Empty DataFrame
Columns: []
Index: [VOX]

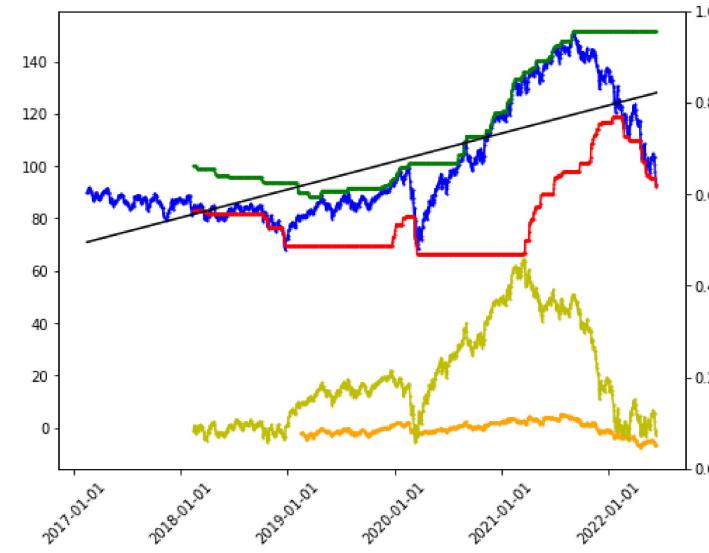
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSD	90d_lower	90d_upper
2022-06-14	92.730003	94.556122	100.620159	106.684195	108.598413	8.932614	90.733184	126.463641

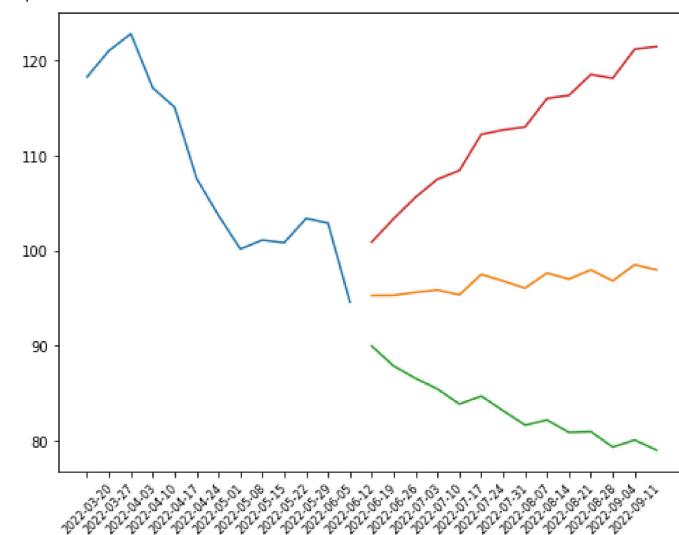
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
VOX	0.003001	92.730003	2369729400.0	0.05763	0.716865	0.511705

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

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [99.46173530143805, 99.46164781888719, 99.4616511136766, 99.4616460371224]
inner cv sdevs: [92.64433422592688, 92.6443665612294, 92.64437259414846, 92.64436860691903]
best model: ['F', 'T']
best inner cv score, sdev (11 folds): 99.4616460371224 92.64436860691903
test cv mean error, stdev (10 folds): [106.36093060200218, 94.43344422898768]
sell date: 2022-09-11
expected return: 0.062358399468594755
discounted return: 0.0006876379265265964
quarter return: 1.0652834865496712
```



```
[ 'options', ('2022-07-15',) ]
symbol: ACC
sector: error
sector: error
Index: SP400
vol_30d_2yr: 13781055000.0
Sector 1YMF: 20.369998931884766
1YMF: 0.004415184468823323
risk trend factor: 19.217024385328497
Empty DataFrame
Columns: []
Index: [ACC]
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	64.419998	64.395295	64.757143	65.118991	61.641746	4.162777	53.316192	69.967301

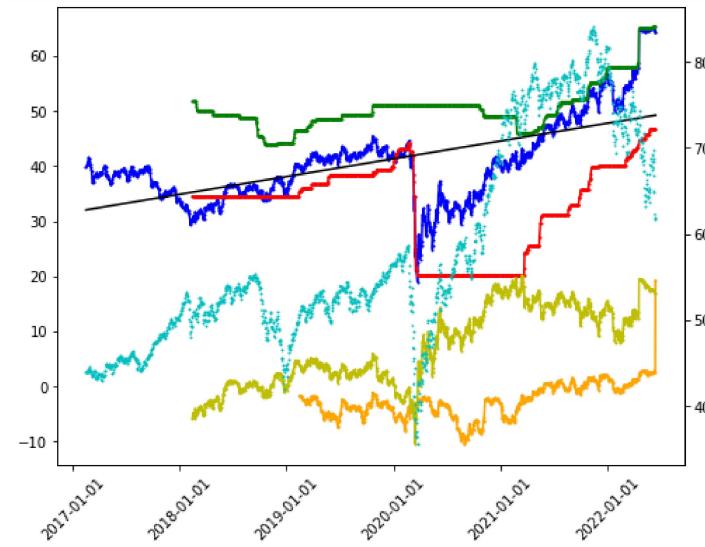
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
ACC	0.004415	64.419998	13781055000.0	0.976574	0.979637	0.418255

l axis r axis

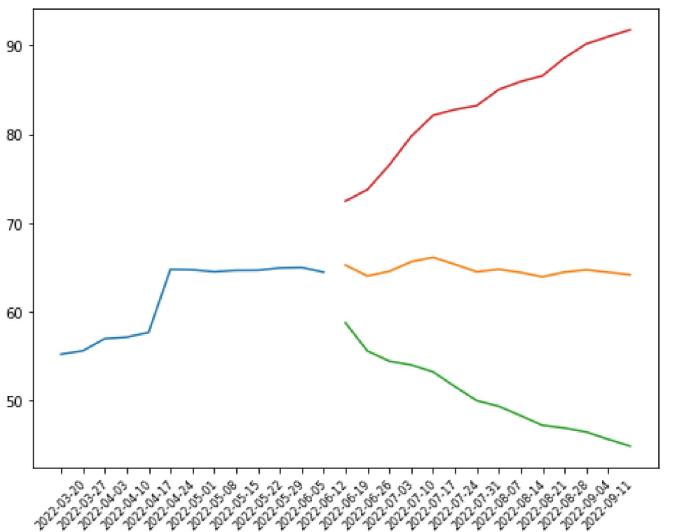
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	risk_trend_factor		
black	linear		
yellow	supply_trend_1yr		

Index 1YMF: -63.869998931884766
Index Volume Factor: 0.0011014613124698796
Index Risk Trend Factor: -4.591660649354175

C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



ets next 13 weeks
inner cv scores: [17.384967300438674, 17.38496741224909, 17.38496741224909, 17.384968377006693]
inner cv sdevs: [12.106773591116221, 12.106773615356733, 12.106773615356733, 12.106773832025187]
best model: ['T', 'T']
best inner cv score, sdev (11 folds): 17.384967300438674 12.106773591116221
test cv mean error, stdev (10 folds): [18.106530539963796, 12.470131423085485]
sell date: 2022-07-17
expected return: 0.02634446503992094
discounted return: 0.0008129373267091733
quarter return: 1.0776253287707782



```
['options', ('2022-06-17',)]
symbol: MTOR
sector: Consumer Cyclical
Index: SP600
vol_30d_2yr: 7888381900.0
Sector 1YMF: 2.549999237060547
1YMF: 0.003133037968154153
risk trend factor: 5.543487635380559
    beta currentRatio debtToEquity earningsGrowth   ebitda \
MTOR  1.754411      1.434     172.571      0.727  339000000
```

```
ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
MTOR      0.0863  8.103372  57375000      0.13162  505000000
```

```
heldPercentInstitutions industry marketCap operatingCashflow \
MTOR      0.95489  Auto Parts  2526940672      132000000
```

```
operatingMargins payoutRatio pegRatio priceToBook \
MTOR      0.06059      0     0.46    4.404006
```

```
priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
MTOR      0.643315      0.05626      0.682      0.04977
```

```
returnOnEquity revenueGrowth revenuePerShare      sector \
MTOR      0.39069      0.107      55.169  Consumer Cyclical
```

```
sharesOutstanding shortRatio totalCash totalCashPerShare  totalDebt \
MTOR      70076000      3.99  113000000      1.597  1100999936
```

```
totalRevenue trailingPE
MTOR  3928000000  13.228173
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSD	90d_lower	90d_upper
2022-06-14	36.0	35.938587	36.097143	36.255698	35.866508	0.249917	35.366673	36.366342

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
MTOR	0.003133	36.0	7888381900.0	0.983462	0.304331	0.434725

l axis r axis

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

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

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

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

orange risk_trend_factor	
--------------------------	--

black linear	
--------------	--

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

Sector 1YMF: -352.9100036621094

Sector Volume Factor: 0.0021034643160444764

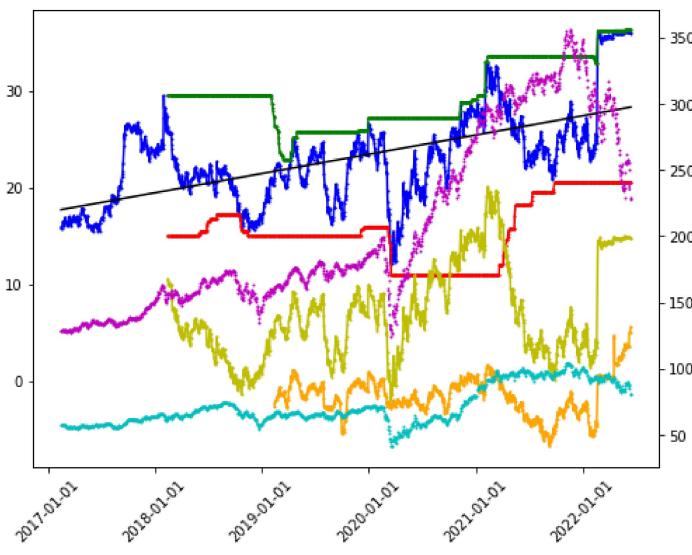
Sector Risk Trend Factor: -4.247321632052965

Index 1YMF: -69.3499984741211

Index Volume Factor: 0.0022254315395940014

Index Risk Trend Factor: -4.866666559587445

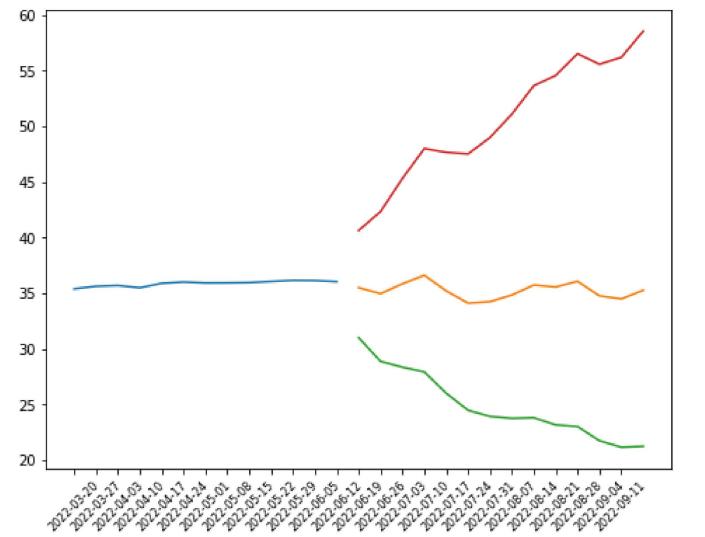
```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```

ets next 13 weeks
inner cv scores: [15.364658655428217, 15.364658674848744, 15.364658672298736, 15.36465865547079]
inner cv sdevs: [8.761209278344097, 8.761209272512293, 8.761209274259965, 8.761209282232448]
best model: ['T', 'T']
best inner cv score, sdev (11 folds): 15.364658655428217 8.761209278344097
test cv mean error, stdev (10 folds): [14.849095111304726, 9.028333362677202]
sell date: 2022-07-10
expected return: 0.017131949015148844
discounted return: 0.000679704975934392
quarter return: 1.064506823586518

```



```
[ 'quarterly_balance_sheet',
  Capital Surplus 7.610000e+08 2021-12-31 2021-09-30 2021-06-30 \
  Total Liab 2.409000e+09 2.323000e+09 2.390000e+09
  Total Stockholder Equity 5.970000e+08 5.740000e+08 6.160000e+08
  Minority Interest 4.100000e+07 4.100000e+07 3.900000e+07
  Other Current Liab 1.920000e+08 1.700000e+08 1.670000e+08
  Total Assets 3.047000e+09 2.938000e+09 3.045000e+09
  Common Stock 1.060000e+08 1.050000e+08 1.060000e+08
  Other Current Assets 6.900000e+07 5.000000e+07 6.100000e+07
  Retained Earnings 1.006000e+09 9.350000e+08 8.730000e+08
  Other Liab 4.030000e+08 3.620000e+08 4.390000e+08
  Good Will 5.070000e+08 5.070000e+08 5.100000e+08
  Treasury Stock -1.276000e+09 -1.264000e+09 -1.155000e+09
  Other Assets 4.990000e+08 4.340000e+08 5.080000e+08
  Cash 1.130000e+08 1.010000e+08 1.380000e+08
  Total Current Liabilities 9.790000e+08 9.000000e+08 9.400000e+08
  Deferred Long Term Asset Charges 4.100000e+07 4.200000e+07 3.100000e+07
  Short Long Term Debt 7.400000e+07 1.500000e+07 1.900000e+07
  Other Stockholder Equity -6.440000e+08 -6.320000e+08 -5.570000e+08
  Property Plant Equipment 5.080000e+08 5.790000e+08 5.060000e+08
  Total Current Assets 1.404000e+09 1.286000e+09 1.397000e+09
  Long Term Investments 1.290000e+08 1.320000e+08 1.240000e+08
  Net Tangible Assets 9.000000e+07 6.700000e+07 1.060000e+08
  Net Receivables 5.550000e+08 5.340000e+08 6.350000e+08
  Long Term Debt 1.017000e+09 9.990000e+08 1.000000e+09
  Inventory 6.670000e+08 6.010000e+08 5.630000e+08
  Accounts Payable 6.350000e+08 5.730000e+08 6.330000e+08
```

2021-03-31

```
Capital Surplus 7.880000e+08
Total Liab 2.527000e+09
Total Stockholder Equity 5.770000e+08
Minority Interest 3.600000e+07
Other Current Liab 1.760000e+08
Total Assets 3.140000e+09
Common Stock 1.060000e+08
Other Current Assets 7.200000e+07
Retained Earnings 8.310000e+08
Other Liab 4.520000e+08
Good Will 5.100000e+08
Treasury Stock -1.148000e+09
Other Assets 5.020000e+08
Cash 3.210000e+08
Total Current Liabilities 8.890000e+08
Deferred Long Term Asset Charges 3.000000e+07
Short Long Term Debt 1.700000e+07
Other Stockholder Equity -5.750000e+08
Property Plant Equipment 5.020000e+08
Total Current Assets 1.507000e+09
Long Term Investments 1.190000e+08
Net Tangible Assets 6.700000e+07
Net Receivables 6.040000e+08
Long Term Debt 1.176000e+09
Inventory 5.100000e+08
Accounts Payable 5.930000e+08 ]
```

2021-12-31 2021-09-30 \

```
[ 'quarterly_cashflow',
  Change To Liabilities 0.0 0.0
  Total Cashflows From Investing Activities -16000000.0 -16000000.0
  Net Borrowings 50000000.0 50000000.0
  Total Cash From Financing Activities 50000000.0 50000000.0
  Change To Operating Activities -63000000.0 -63000000.0
  Net Income 54000000.0 62000000.0
  Change In Cash 12000000.0 12000000.0
  Effect Of Exchange Rate -1000000.0 -1000000.0
  Total Cash From Operating Activities -21000000.0 -21000000.0
  Depreciation 25000000.0 25000000.0
  Other Cashflows From Investing Activities 2000000.0 2000000.0
  Change To Account Receivables -181000000.0 -181000000.0
  Change To Netincome 144000000.0 144000000.0
  Capital Expenditures -18000000.0 -18000000.0
  Repurchase Of Stock NaN NaN
  Other Cashflows From Financing Activities NaN NaN
```

2021-06-30 2021-03-31

```
Change To Liabilities 0.0 0.0
Total Cashflows From Investing Activities -21000000.0 -16000000.0
Net Borrowings -179000000.0 -3000000.0
Total Cash From Financing Activities -204000000.0 -5000000.0
Change To Operating Activities 22000000.0 25000000.0
Net Income 42000000.0 63000000.0
Change In Cash -183000000.0 38000000.0
Effect Of Exchange Rate 3000000.0 -4000000.0
Total Cash From Operating Activities 39000000.0 63000000.0
Depreciation 26000000.0 25000000.0
Other Cashflows From Investing Activities 2000000.0 2000000.0
Change To Account Receivables -4000000.0 14000000.0
```

```

Change To Netincome          -11000000.0 -64000000.0
Capital Expenditures        -21000000.0 -16000000.0
Repurchase Of Stock         -25000000.0 -25000000.0
Other Cashflows From Financing Activities   NaN -2000000.0 ]
['quarterly_earnings',      Revenue Earnings
Quarter
1Q2021    98300000 6300000
2Q2021    101600000 4200000
3Q2021    94500000 6200000
4Q2021    98400000 5400000]
['quarterly_financials',
Research Development        None None
Effect Of Accounting Charges None None
Income Before Tax           7000000.0 47000000.0
Minority Interest            41000000.0 41000000.0
Net Income                  54000000.0 62000000.0
Selling General Administrative 49000000.0 67000000.0
Gross Profit                127000000.0 110000000.0
Ebit                         79000000.0 39000000.0
Operating Income              79000000.0 39000000.0
Other Operating Expenses     -1000000.0 4000000.0
Interest Expense              -13000000.0 -14000000.0
Extraordinary Items          None None
Non Recurring                None None
Other Items                  None None
Income Tax Expense            12000000.0 -19000000.0
Total Revenue                984000000.0 945000000.0
Total Operating Expenses     905000000.0 960000000.0
Cost Of Revenue               857000000.0 835000000.0
Total Other Income Expense Net -9000000.0 8000000.0
Discontinued Operations      NaN -1000000.0
Net Income From Continuing Ops 58000000.0 66000000.0
Net Income Applicable To Common Shares 54000000.0 62000000.0

2021-06-30 2021-03-31
Research Development        None None
Effect Of Accounting Charges None None
Income Before Tax           59000000.0 88000000.0
Minority Interest            39000000.0 36000000.0
Net Income                  42000000.0 63000000.0
Selling General Administrative 56000000.0 56000000.0
Gross Profit                132000000.0 148000000.0
Ebit                         73000000.0 92000000.0
Operating Income              73000000.0 92000000.0
Other Operating Expenses     300000.0 200000.0
Interest Expense              -2000000.0 -1700000.0
Extraordinary Items          None None
Non Recurring                None None
Other Items                  None None
Income Tax Expense            14000000.0 22000000.0
Total Revenue                1016000000.0 983000000.0
Total Operating Expenses     943000000.0 891000000.0
Cost Of Revenue               884000000.0 835000000.0
Total Other Income Expense Net -14000000.0 -4000000.0
Discontinued Operations      -1000000.0 -1000000.0
Net Income From Continuing Ops 45000000.0 66000000.0
Net Income Applicable To Common Shares 42000000.0 63000000.0]
['options', ('2022-08-19',)]
symbol: Y
sector: Financial Services
Index: SP400
vol_30d_2yr: 828602100.0
Sector 1YMF: 32.3699951171875
1YMF: 0.00289246189455711
risk trend factor: 2.3422560030385067
beta currentRatio debtToEquity earningsGrowth      ebitda ebitdaMargins \
Y 0.70049      0.714      32.782      2.347 1693042048      0.14104

forwardPE freeCashflow grossMargins grossProfits heldPercentInstitutions \
Y 11.877285    4801059328      0.42499    5101669000      0.85398

industry marketCap operatingCashflow \
Y Insurance—Property & Casualty 11389568000      1860232960

operatingMargins payoutRatio pegRatio priceToBook \
Y 0.12621      0      0.15      1.290272

priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
Y 0.948806      0.08621      0.434      0.03095

returnOnEquity revenueGrowth revenuePerShare      sector \
Y 0.12229      0.335      866.486 Financial Services

sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
Y 13699100      2.14      2070224000      153.015 3115698944

```

```
totalRevenue trailingPE
Y 12004105216 17.126936
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	832.0	831.66739	833.556348	835.445307	831.194443	35.950757	759.292929	903.095958

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
Y	0.002892	832.0	828602100.0	0.923264	0.38518	0.458449

l axis r axis

legend legend

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

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

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

orange	risk_trend_factor
--------	-------------------

black	linear
-------	--------

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

Sector 1YMF: -69.35999298095703

Sector Volume Factor: 0.002096259175716505

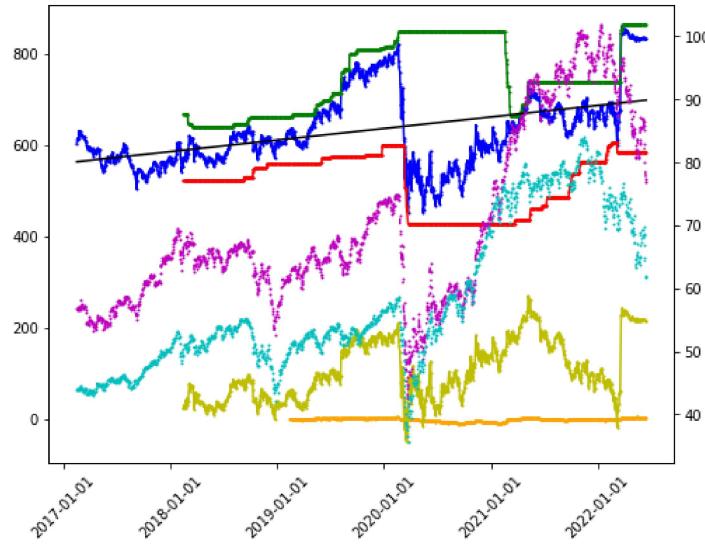
Sector Risk Trend Factor: -4.046674180329693

Index 1YMF: -63.869998931884766

Index Volume Factor: 0.0011014613124698796

Index Risk Trend Factor: -4.591660649354175

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



ets next 13 weeks

inner cv scores: [5884.238223314144, 5884.237419037489, 5884.238218770723, 5884.237405846029]

inner cv sdevs: [9840.888695359496, 9840.88623569527, 9840.888696951211, 9840.886240663112]

best model: ['F', 'T']

best inner cv score, sdev (11 folds): 5884.237405846029 9840.886240663112

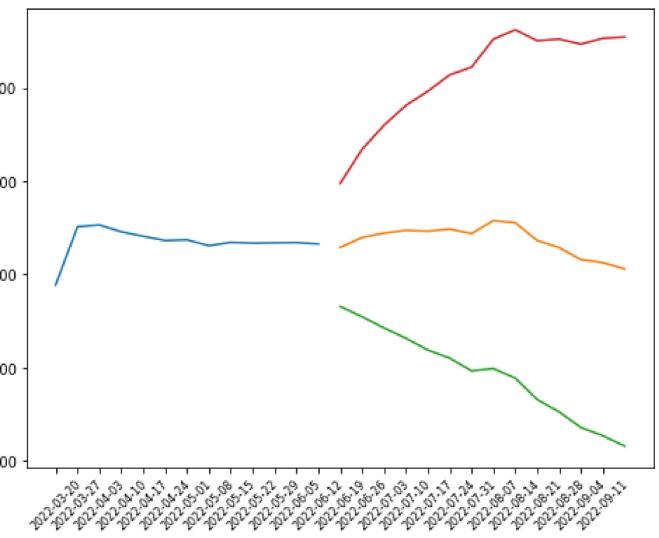
test cv mean error, stdev (10 folds): [6331.714206801712, 10213.949082642846]

sell date: 2022-08-07

expected return: 0.030869624492332

discounted return: 0.0005738011958289491

quarter return: 1.0541919722649558



```
[ 'quarterly_balance_sheet', 2021-12-31 2021-09-30 2021-06-30 \
Intangible Assets 1.511159e+09 1.465825e+09 1.453498e+09
Capital Surplus 3.608905e+09 3.611383e+09 3.612783e+09
Total Liab 2.276445e+10 2.274715e+10 2.110891e+10
Total Stockholder Equity 9.186882e+09 8.859510e+09 9.142031e+09
Minority Interest 3.173460e+08 2.625260e+08 2.407220e+08
Other Current Liab 3.213810e+09 3.516756e+09 3.335249e+09
Total Assets 3.226868e+10 3.186919e+10 3.049166e+10
Common Stock 1.746000e+07 1.746000e+07 1.746000e+07
Other Current Assets 2.283585e+09 2.282419e+09 1.959696e+09
Retained Earnings 7.353226e+09 6.837060e+09 6.952026e+09
Other Liab 1.156344e+10 1.634516e+10 1.541578e+10
Good Will 7.536870e+08 6.318270e+08 6.276120e+08
Treasury Stock -1.792709e+09 -1.606393e+09 -1.440238e+09
Other Assets 3.343289e+09 3.745712e+09 3.475111e+09
Cash 9.279660e+08 9.955060e+08 8.714590e+08
Total Current Liabilities 8.135612e+09 3.849789e+09 3.629478e+09
Other Stockholder Equity 1.418220e+08 2.283490e+08 3.031960e+08
Property Plant Equipment 5.449520e+08 2.994040e+08 3.028480e+08
Total Current Assets 5.812488e+09 5.826124e+09 4.648640e+09
Long Term Investments 2.030318e+10 1.990030e+10 1.998395e+10
Net Tangible Assets 7.508869e+09 7.441654e+09 7.712753e+09
Short Term Investments 1.142258e+09 1.060414e+09 3.790090e+08
Net Receivables 1.458579e+09 1.487785e+09 1.438476e+09
Long Term Debt 2.847199e+09 2.552198e+09 2.063652e+09
Accounts Payable 4.871502e+09 3.330330e+08 2.942290e+08
```

2021-03-31

```
Intangible Assets 1.411883e+09
Capital Surplus 3.613764e+09
Total Liab 2.045644e+10
Total Stockholder Equity 8.695881e+09
Minority Interest 2.335630e+08
Other Current Liab 3.185510e+09
Total Assets 2.938588e+10
Common Stock 1.746000e+07
Other Current Assets 1.919911e+09
Retained Earnings 6.548375e+09
Other Liab 1.494084e+10
Good Will 6.141140e+08
Treasury Stock -1.483718e+09
Other Assets 3.327209e+09
Cash 1.197474e+09
Total Current Liabilities 3.435316e+09
Other Stockholder Equity 2.241900e+08
Property Plant Equipment 2.697900e+08
Total Current Assets 4.996506e+09
Long Term Investments 1.876638e+10
Net Tangible Assets 7.306970e+09
Short Term Investments 5.949580e+08
Net Receivables 1.284163e+09
Long Term Debt 2.080288e+09
Accounts Payable 2.498060e+08 ]
```

2021-12-31 2021-09-30 \

```
[ 'quarterly_cashflow', 2021-12-31 2021-09-30 \
Investments -520402000.0 -868753000.0
Change To Liabilities -328277000.0 178707000.0
Total Cashflows From Investing Activities -513449000.0 -894562000.0
Net Borrowings 294594000.0 493862000.0
Total Cash From Financing Activities 163341000.0 388748000.0
Change To Operating Activities 314365000.0 433531000.0
Net Income 516165000.0 -114966000.0
Change In Cash -67540000.0 124047000.0
Repurchase Of Stock -100080000.0 -91324000.0
Effect Of Exchange Rate -3522000.0 -5100000.0
Total Cash From Operating Activities 280090000.0 634961000.0
Depreciation 46051000.0 45531000.0
Other Cashflows From Investing Activities -46013000.0 -13366000.0
Change To Account Receivables 29106000.0 -49309000.0
Other Cashflows From Financing Activities -31173000.0 -13790000.0
Change To Netincome -291321000.0 141467000.0
Capital Expenditures -14586000.0 -12137000.0
```

2021-06-30 2021-03-31

```
Investments -704852000.0 -16812000.0
Change To Liabilities 152288000.0 192735000.0
Total Cashflows From Investing Activities -703762000.0 102643000.0
Net Borrowings -49783000.0 -55729000.0
Total Cash From Financing Activities -119660000.0 -127859000.0
Change To Operating Activities 107189000.0 248684000.0
Net Income 403651000.0 230041000.0
Change In Cash -326015000.0 406032000.0
Repurchase Of Stock -35925000.0 -63192000.0
Effect Of Exchange Rate 520000.0 -11047000.0
Total Cash From Operating Activities 496887000.0 442295000.0
Depreciation 42895000.0 43554000.0
Other Cashflows From Investing Activities -74819000.0 101159000.0
```

	Revenue	Earnings
Change To Account Receivables	-154313000.0	-138822000.0
Other Cashflows From Financing Activities	-33952000.0	-8938000.0
Change To Netincome	-54823000.0	-133897000.0
Capital Expenditures	-20606000.0	-12322000.0

[quarterly_earnings',	Revenue	Earnings
-----------------------	---------	----------

Quarter

1Q2021	2653713000	230041000
--------	------------	-----------

2Q2021	2928797000	403651000
--------	------------	-----------

3Q2021	2866613000	-114966000
--------	------------	------------

4Q2021	3554982000	516166000
--------	------------	-----------

]
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[quarterly_financials',	2021-12-31	2021-09-30	\
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Research Development	None	None	
----------------------	------	------	--

Effect Of Accounting Charges	None	None	
------------------------------	------	------	--

Income Before Tax	705907000.0	-112004000.0	
-------------------	-------------	--------------	--

Minority Interest	317346000.0	262526000.0	
-------------------	-------------	-------------	--

Net Income	516166000.0	-114966000.0	
------------	-------------	--------------	--

Selling General Administrative	21287000.0	6225000.0	
--------------------------------	------------	-----------	--

Gross Profit	1894495000.0	823489000.0	
--------------	--------------	-------------	--

Ebit	734767000.0	-86345000.0	
------	-------------	-------------	--

Operating Income	734767000.0	-86345000.0	
------------------	-------------	-------------	--

Other Operating Expenses	1125075000.0	890972000.0	
--------------------------	--------------	-------------	--

Interest Expense	-28860000.0	-25659000.0	
------------------	-------------	-------------	--

Extraordinary Items	None	None	
---------------------	------	------	--

Non Recurring	None	None	
---------------	------	------	--

Other Items	None	None	
-------------	------	------	--

Income Tax Expense	149286000.0	-28509000.0	
--------------------	-------------	-------------	--

Total Revenue	3554982000.0	2866613000.0	
---------------	--------------	--------------	--

Total Operating Expenses	2820215000.0	295295000.0	
--------------------------	--------------	-------------	--

Cost Of Revenue	1660487000.0	2043124000.0	
-----------------	--------------	--------------	--

Total Other Income Expense Net	-28860000.0	-25659000.0	
--------------------------------	-------------	-------------	--

Discontinued Operations	None	None	
-------------------------	------	------	--

Net Income From Continuing Ops	556621000.0	-83495000.0	
--------------------------------	-------------	-------------	--

Net Income Applicable To Common Shares	516166000.0	-114966000.0	
--	-------------	--------------	--

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

Research Development	None	None
----------------------	------	------

Effect Of Accounting Charges	None	None
------------------------------	------	------

Income Before Tax	521870000.0	296930000.0
-------------------	-------------	-------------

Minority Interest	240722000.0	233563000.0
-------------------	-------------	-------------

Net Income	403651000.0	230041000.0
------------	-------------	-------------

Selling General Administrative	20148000.0	9558000.0
--------------------------------	------------	-----------

Gross Profit	1318078000.0	1065607000.0
--------------	--------------	--------------

Ebit	545907000.0	320682000.0
------	-------------	-------------

Operating Income	545907000.0	320682000.0
------------------	-------------	-------------

Other Operating Expenses	739592000.0	723889000.0
--------------------------	-------------	-------------

Interest Expense	-24037000.0	-23752000.0
------------------	-------------	-------------

Extraordinary Items	None	None
---------------------	------	------

Non Recurring	None	None
---------------	------	------

Other Items	None	None
-------------	------	------

Income Tax Expense	102281000.0	58867000.0
--------------------	-------------	------------

Total Revenue	2928797000.0	2653713000.0
---------------	--------------	--------------

Total Operating Expenses	2382890000.0	2333031000.0
--------------------------	--------------	--------------

Cost Of Revenue	1610719000.0	1588106000.0
-----------------	--------------	--------------

Total Other Income Expense Net	-24037000.0	-23752000.0
--------------------------------	-------------	-------------

Discontinued Operations	None	None
-------------------------	------	------

Net Income From Continuing Ops	419589000.0	238063000.0
--------------------------------	-------------	-------------

Net Income Applicable To Common Shares	403651000.0	230041000.0
--	-------------	-------------

[mutualfund_holders',	Holder	Shares	Date Reported	\
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0 Victory Portfolios-Sycamore	Established Value ...	500000	2022-01-30	
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1 Victory Portfolios-Sycamore	Established Value ...	500000	2022-01-30	
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2 iShares Core S&P Midcap ETF	380243	2022-01-30		
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3 iShares Core S&P Midcap ETF	380243	2022-01-30		
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4 Vanguard Total Stock Market Index Fund	369755	2021-12-30		
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5 Vanguard Total Stock Market Index Fund	369755	2021-12-30		
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6 First Eagle Global Fund	309855	2022-01-30		
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7 First Eagle Global Fund	309855	2022-01-30		
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8 John Hancock Fds III-Disciplined Value Mid Cap Fd	259557	2021-12-30		
---	--------	------------	--	--

9 John Hancock Fds III-Disciplined Value Mid Cap Fd	259557	2021-12-30		
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10 Touchstone Funds Group Tr-Touchstone Mid-Cap Fd	199509	2021-12-30		
--	--------	------------	--	--

11 Touchstone Funds Group Tr-Touchstone Mid-Cap Fd	199509	2021-12-30		
--	--------	------------	--	--

12 Vanguard Extended Market Index Fund	181014	2021-12-30		
--	--------	------------	--	--

13 Vanguard Extended Market Index Fund	181014	2021-12-30		
--	--------	------------	--	--

14 Franklin Mutual Series Fund-Mutual Shares Fund	170350	2021-12-30		
---	--------	------------	--	--

15 Franklin Mutual Series Fund-Mutual Shares Fund	170350	2021-12-30		
---	--------	------------	--	--

16 Vanguard Small-Cap Index Fund	164314	2021-12-30		
----------------------------------	--------	------------	--	--

17 Vanguard Small-Cap Index Fund	164314	2021-12-30		
----------------------------------	--------	------------	--	--

18 Vanguard Mid-Cap Index Fund	147164	2021-12-30		
--------------------------------	--------	------------	--	--

19 Vanguard Mid-Cap Index Fund	147164	2021-12-30		
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% Out	Value
-------	-------

0 0.0372	332000000
----------	-----------

1 0.0372	332000000
----------	-----------

2 0.0283	252481352
----------	-----------

3 0.0283	252481352
----------	-----------

4 0.0275	246844740
----------	-----------

5 0.0275	246844740
----------	-----------

```

6  0.0230  205743720
7  0.0230  205743720
8  0.0193  173277657
9  0.0193  173277657
10 0.0148  133190213
11 0.0148  133190213
12 0.0135  120843136
13 0.0135  120843136
14 0.0127  113723956
15 0.0127  113723956
16 0.0122  109694383
17 0.0122  109694383
18 0.0109  98245214
19 0.0109  98245214 ]
['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 0
peerCount     96
governanceScore 11.77
environmentPercentile 0
animalTesting False
tobacco       False
totalEsg      21.71
highestControversy 1
esgPerformance None
coal          False
pesticides    False
adult         False
percentile    30.32
peerGroup     Insurance
smallArms     False
environmentScore 1.23
governancePercentile 0
militaryContract False]
symbol: TWI
sector: Industrials
Index: SP600
vol_30d_2yr: 5400736000.0
Sector 1YMF: 12.259998321533203
1YMF: 0.0025539667186102043
risk trend factor: 1.9216297964921827
    beta currentRatio debtToEquity earningsGrowth ebitda \
TWI  2.436607      1.853     219.119      0.682  163579008

ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
TWI  0.08464     9.842391   -24455124      0.13457  227051000

heldPercentInstitutions           industry marketCap \
TWI  0.77687  Farm & Heavy Construction Machinery  1134716544

operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
TWI  8171000      0.06043      0  0.46  4.566314

priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
TWI  0.587117      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      1.85  98144000      1.566  538417984

totalRevenue trailingPE
TWI  1932694016  19.204666

Adj Close  21dBOLD  21dMA-TP  21dBOLU  90dSMA  90dSDDev  90d_lower  90d_upper
2022-06-14  19.15  16.177578  17.96746  19.757342  15.764603  1.880329  12.003945  19.525262

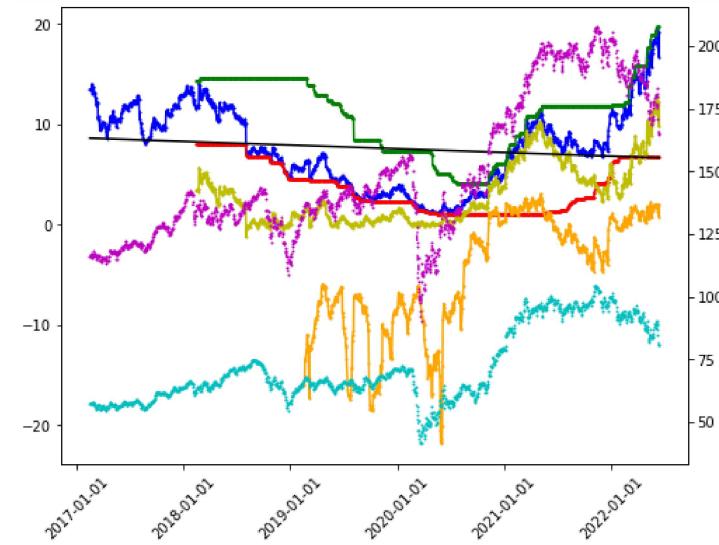
volume_factor latest_p  vol_30d_2yr  pct_2yr      adf      hurst
TWI  0.002554  19.15  5400736000.0  0.972343  0.891295  0.499041

```

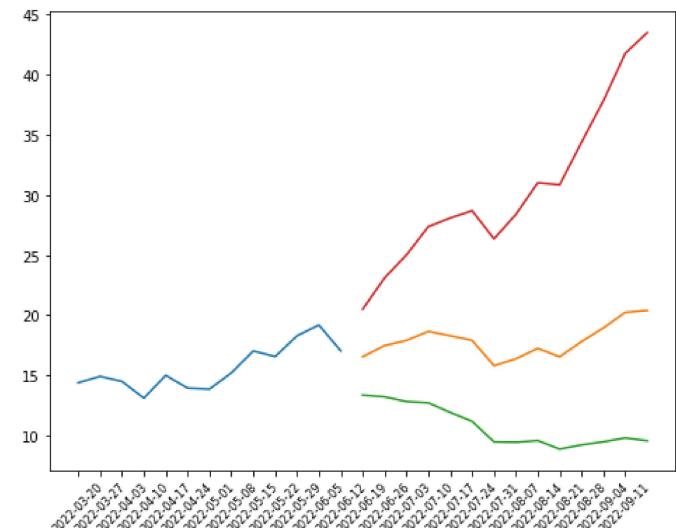
l axis	r axis
legend	legend
blue symbol	magenta sector
green trailing_1yr_max	cyan index
red trailing_1yr_min	
orange risk_trend_factor	
black linear	
yellow supply_trend_1yr	

Sector 1YMF: -127.81001281738281
Sector Volume Factor: 0.0013972787573142285
Sector Risk Trend Factor: -4.146981909279044
Index 1YMF: -69.3499984741211
Index Volume Factor: 0.0022254315395940014
Index Risk Trend Factor: -4.86666559587445

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
  ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [4.844630465458022, 4.844630597686336, 4.844526133674592, 4.844549970490171]
inner cv sdevs: [8.077163918116325, 8.07715974090879, 8.077209819761267, 8.07720577585918]
best model: ['F', 'F']
best inner cv score, sdev (11 folds): 4.844526133674592 8.077209819761267
test cv mean error, stdev (10 folds): [5.31845447309697, 8.324357872757824]
sell date: 2022-09-18
expected return: 0.06548231166691564
discounted return: 0.0006678815804794791
quarter return: 1.0633503121163144
```



```
[ 'options', ('2022-07-15',) ]
symbol: PBF
sector: Energy
Index: SP600
vol_30d_2yr: 47517805800.0
Sector 1YMF: 37.8799934387207
1YMF: 0.0014413607456596827
risk trend factor: 1.9083121587190919
    beta currentRatio debtToEquity      ebitda ebitdaMargins forwardPE \
PBF  2.581372      1.254     197.914   690400000      0.02194    93.975

    freeCashflow grossMargins grossProfits heldPercentInstitutions \
PBF  284750016      0.0362    671100000      0.79091

    industry marketCap operatingCashflow \
PBF  Oil & Gas Refining & Marketing  4520047104      803299968

    operatingMargins payoutRatio pegRatio priceToBook \
PBF      0.0135        0     -0.22    2.613866

    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
PBF      0.143629      0.00798    0.629      0.02192

    returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \
PBF      0.14223      0.856    261.505  Energy      120246000

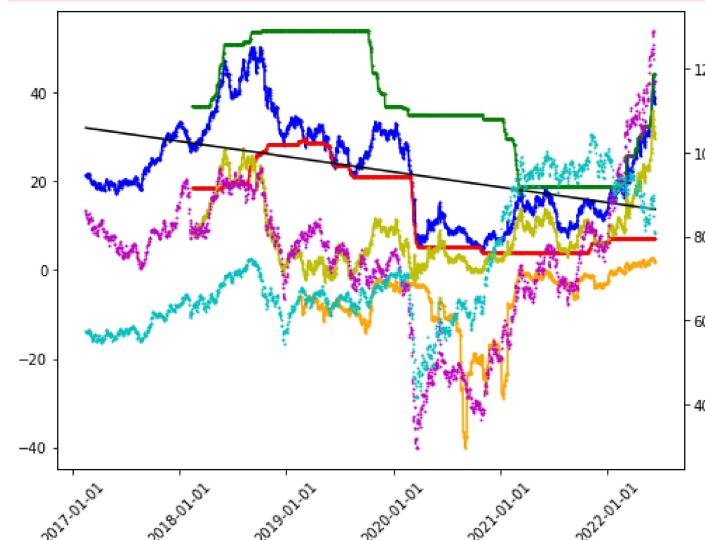
    shortRatio totalCash totalCashPerShare totalDebt totalRevenue
PBF      2.75    1434599936      11.873  4999499776  31470299136
Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper
2022-06-14 38.919998 26.021817 35.020635 44.019453 29.266032 5.552078 18.161876 40.370187
```

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
PBF	0.001441	38.919998	47517805800.0	0.870195	0.699548	0.555964

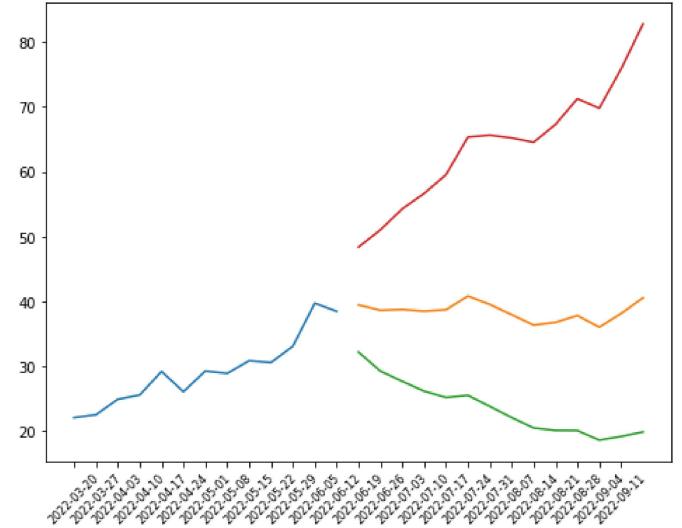
l axis		r axis	
legend	legend	legend	legend
blue symbol	magenta sector		
green trailing_1yr_max	cyan index		
red trailing_1yr_min			
orange risk_trend_factor			
black linear			
yellow supply_trend_1yr			

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -69.3499984741211
Index Volume Factor: 0.0022254315395940014
Index Risk Trend Factor: -4.866666559587445

C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



```
ets next 13 weeks
inner cv scores: [25.31686564007184, 25.31687099553441, 25.31686493308238, 25.31686564480558]
inner cv sdevs: [23.57488872656242, 23.574895534726664, 23.574889215724816, 23.574888752834987]
best model: ['F', 'F']
best inner cv score, sdev (11 folds): 25.31686493308238 23.574889215724816
test cv mean error, stdev (10 folds): [22.654817370162995, 23.095484515235285]
C:\Users\User\AppData\Local\Programs\Python\Python39\lib\site-packages\statsmodels\tsa\statespace\exponential_smoothing.py:348: RuntimeWarning: overflow encountered in exp
  1 / (1 + np.exp(-unconstrained[0])) * (high - low) + low)
C:\Users\User\AppData\Local\Programs\Python\Python39\lib\site-packages\statsmodels\tsa\statespace\exponential_smoothing.py:356: RuntimeWarning: overflow encountered in exp
  1 / (1 + np.exp(-unconstrained[i])) * (high - low) + low)
C:\Users\User\AppData\Local\Programs\Python\Python39\lib\site-packages\statsmodels\tsa\statespace\exponential_smoothing.py:364: RuntimeWarning: overflow encountered in exp
  1 / (1 + np.exp(-unconstrained[i])) * (high - low) + low)
sell date: 2022-07-24
expected return: 0.04879362370363711
discounted return: 0.0012222995752930732
quarter return: 1.1189412124172486
```



```
[ 'quarterly_balance_sheet', 2022-03-31 2021-12-31 2021-09-30 \
Capital Surplus 2.882000e+09 2.874000e+09 2.868000e+09
Total Liab 1.042220e+10 9.108600e+09 9.522100e+09
Total Stockholder Equity 1.911000e+09 1.926200e+09 1.729200e+09
Minority Interest 6.151000e+08 6.066000e+08 5.929000e+08
Other Current Liab 1.544200e+09 1.345900e+09 1.676400e+09
Total Assets 1.294830e+10 1.164140e+10 1.184420e+10
Common Stock 1.000000e+05 1.000000e+05 1.000000e+05
Other Current Assets 5.190000e+07 1.200000e+07 NaN
Retained Earnings -8.172000e+08 -7.961000e+08 -9.614000e+08
Other Liab 4.486000e+08 4.121000e+08 3.574000e+08
Treasury Stock -1.539000e+08 -1.518000e+08 -1.775000e+08
Other Assets 8.938000e+08 8.133000e+08 7.915000e+08
Cash 1.434600e+09 1.341500e+09 1.472500e+09
Total Current Liabilities 5.085700e+09 3.759700e+09 4.199600e+09
Short Long Term Debt 2.990000e+07 NaN 8.910000e+07
Other Stockholder Equity 1.630000e+07 1.730000e+07 -9.000000e+06
Property Plant Equipment 5.674900e+09 5.619300e+09 5.566200e+09
Total Current Assets 6.379600e+09 5.199200e+09 5.486500e+09
Net Tangible Assets 1.911000e+09 1.916600e+09 1.729200e+09
Net Receivables 1.763200e+09 1.265600e+09 1.056800e+09
Long Term Debt 4.185400e+09 4.237400e+09 4.247600e+09
Inventory 2.893500e+09 2.505100e+09 2.831400e+09
Accounts Payable 1.625100e+09 9.117000e+08 4.612000e+08
Intangible Assets NaN 9.600000e+06 NaN
Deferred Long Term Liab NaN 5.370000e+08 7.706000e+08
```

2021-06-30

```
Capital Surplus 2.862500e+09
Total Liab 9.407300e+09
Total Stockholder Equity 1.664400e+09
Minority Interest 5.825000e+08
Other Current Liab 1.419000e+09
Total Assets 1.165420e+10
Common Stock 1.000000e+05
Other Current Assets NaN
Retained Earnings -1.020500e+09
Other Liab 3.677000e+08
Treasury Stock -1.777000e+08
Other Assets 8.117000e+08
Cash 1.479700e+09
Total Current Liabilities 3.751000e+09
Short Long Term Debt 3.700000e+06
Other Stockholder Equity -9.200000e+06
Property Plant Equipment 5.576000e+09
Total Current Assets 5.266500e+09
Net Tangible Assets 1.664400e+09
Net Receivables 1.007800e+09
Long Term Debt 4.517800e+09
Inventory 2.636200e+09
Accounts Payable 7.833000e+08
Intangible Assets NaN
Deferred Long Term Liab 7.908000e+08 ]
```

2022-03-31 2021-12-31 \

```
[ 'quarterly_cashflow', 2022-03-31 2021-12-31 \
Change To Liabilities 697000000.0 446900000.0
Total Cashflows From Investing Activities -225500000.0 -161300000.0
Net Borrowings 19300000.0 -11010000.0
Total Cash From Financing Activities 6300000.0 -121300000.0
Change To Operating Activities 372500000.0 -722400000.0
Net Income -21100000.0 165300000.0
Change In Cash 93100000.0 -13100000.0
Total Cash From Operating Activities 312300000.0 151600000.0
Depreciation 124600000.0 -98500000.0
Other Cashflows From Investing Activities -107200000.0 -61400000.0
Change To Inventory -388400000.0 326300000.0
Change To Account Receivables -537500000.0 -220800000.0
Other Cashflows From Financing Activities -13000000.0 -11200000.0
Change To Netincome 65200000.0 33700000.0
Capital Expenditures -118300000.0 -107100000.0
```

2021-09-30 2021-06-30

```
Change To Liabilities -325700000.0 87500000.0
Total Cashflows From Investing Activities -87600000.0 -79100000.0
Net Borrowings -170800000.0 -51400000.0
Total Cash From Financing Activities -180600000.0 -60800000.0
Change To Operating Activities 674300000.0 218400000.0
Net Income 59100000.0 47900000.0
Change In Cash -72000000.0 -61500000.0
Total Cash From Operating Activities 261000000.0 78400000.0
Depreciation 120300000.0 119200000.0
Other Cashflows From Investing Activities -30200000.0 -31900000.0
Change To Inventory -195200000.0 -59800000.0
Change To Account Receivables -49000000.0 -144300000.0
Other Cashflows From Financing Activities -9800000.0 -9400000.0
Change To Netincome -22800000.0 -190500000.0
Capital Expenditures -57400000.0 -47200000.0 ]
```

```
[{'quarterly_earnings': Revenue Earnings
Quarter
2Q2021 6897900000 47900000
3Q2021 7186700000 59100000
4Q2021 8244000000 165300000
1Q2022 9141700000 -21100000]
[{'quarterly_financials': 2022-03-31 2021-12-31 \
Research Development None None
Effect Of Accounting Charges None None
Income Before Tax -9400000.0 184800000.0
Minority Interest 615100000.0 606600000.0
Net Income -21100000.0 165300000.0
Selling General Administrative 51300000.0 78500000.0
Gross Profit 315100000.0 493300000.0
Ebit 143600000.0 296600000.0
Operating Income 143600000.0 296600000.0
Other Operating Expenses None None
Interest Expense -78400000.0 -74400000.0
Extraordinary Items None None
Non Recurring None None
Other Items None None
Income Tax Expense -6100000.0 -4300000.0
Total Revenue 9141700000.0 8244000000.0
Total Operating Expenses 8998100000.0 7947400000.0
Cost Of Revenue 8826600000.0 7750700000.0
Total Other Income Expense Net -153000000.0 -111800000.0
Discontinued Operations None None
Net Income From Continuing Ops -3300000.0 189100000.0
Net Income Applicable To Common Shares -21100000.0 165300000.0

2021-09-30 2021-06-30
Research Development None None
Effect Of Accounting Charges None None
Income Before Tax 99000000.0 74400000.0
Minority Interest 592900000.0 582500000.0
Net Income 59100000.0 47900000.0
Selling General Administrative 62100000.0 53100000.0
Gross Profit 281500000.0 49400000.0
Ebit 103200000.0 -118600000.0
Operating Income 103200000.0 -118600000.0
Other Operating Expenses None None
Interest Expense -82000000.0 -80800000.0
Extraordinary Items None None
Non Recurring None None
Other Items None None
Income Tax Expense 20300000.0 4500000.0
Total Revenue 7186700000.0 6897900000.0
Total Operating Expenses 7083500000.0 7016500000.0
Cost Of Revenue 6905200000.0 6848500000.0
Total Other Income Expense Net -4200000.0 19300000.0
Discontinued Operations None None
Net Income From Continuing Ops 78700000.0 69900000.0
Net Income Applicable To Common Shares 59100000.0 47900000.0 ]
[{'mutualfund_holders': Holder Shares Date Reported \
0 SPDR (R) Ser Tr-SPDR (R) S&P (R) Oil & Gas Exp... 6991379 2022-01-30
1 iShares Core S&P Smallcap ETF 6680962 2022-01-30
2 Vanguard Total Stock Market Index Fund 2732636 2021-12-30
3 Vanguard Small-Cap Index Fund 2467978 2021-12-30
4 iShares Russell 2000 ETF 2209869 2022-01-30
5 iShares S&P Smallcap 600 Value ETF 1579759 2022-01-30
6 Vanguard Small Cap Value Index Fund 1532696 2021-12-30
7 Invesco ETF Tr II-Invesco S&P Smallcap 600 Rev... 1500327 2022-02-27
8 DFA U.S. Small Cap Value Series 1329554 2022-01-30
9 Vanguard Extended Market Index Fund 1285907 2021-12-30

% Out Value
0 0.0579 110743443
1 0.0553 105826438
2 0.0226 35442288
3 0.0204 32009674
4 0.0183 35004324
5 0.0131 25023382
6 0.0127 19879067
7 0.0124 24935434
8 0.0110 21060135
9 0.0106 16678213 }
['options', ('2022-06-17', '2022-07-15', '2022-12-16', '2023-01-20', '2024-01-19')]
symbol: SAFM
sector: Consumer Defensive
Index: SP400
vol_30d_2yr: 2596619200.0
Sector 1YMF: 44.75001525878906
1YMF: 0.002312661017064035
risk trend factor: 1.77227783203125
    beta currentRatio debtToEquity dividendRate dividendYield \
SAFM 0.64375 5.529 0.877 1.76 0.0088
```

```

earningsGrowth      ebitda ebitdaMargins forwardPE freeCashflow \
SAFM        2.316 1342139008      0.23866 6.8157   669912512

grossMargins grossProfits heldPercentInstitutions      industry \
SAFM       0.25714 907758000      0.81081 Packaged Foods

marketCap operatingCashflow operatingMargins payoutRatio pegRatio \
SAFM 4457344000      954787008      0.20787      0.0455     -0.38

priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
SAFM 1.890186      0.792613      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      5.12 829123968

totalCashPerShare totalDebt totalRevenue trailingPE
SAFM      37.147 20690000 5623608832 5.167149

Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper
2022-06-14 207.410004 183.440635 196.337143 209.233652 189.885873 6.962494 175.960885 203.810861

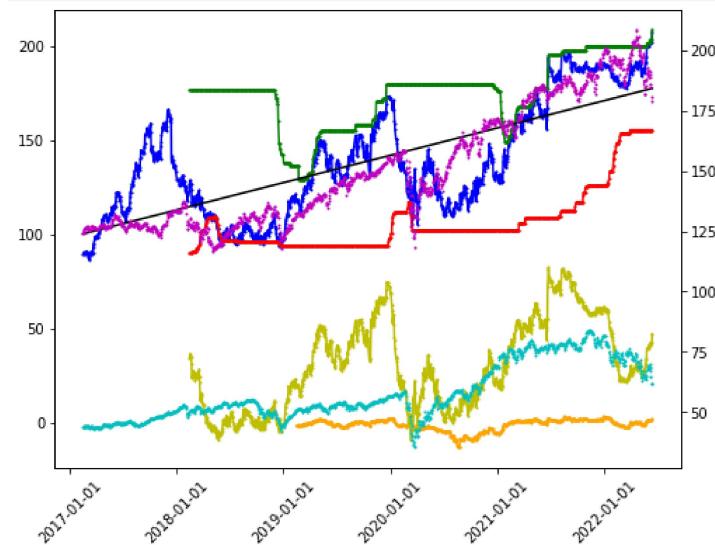
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	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
SAFM	0.002313	207.410004	2596619200.0	0.990282	0.669942	0.477196

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

Sector 1YMF: -66.07002258300781
Sector Volume Factor: 0.0028162878553055367
Sector Risk Trend Factor: -2.0273089620421954
Index 1YMF: -63.869998931884766
Index Volume Factor: 0.0011014613124698796
Index Risk Trend Factor: -4.591660649354175

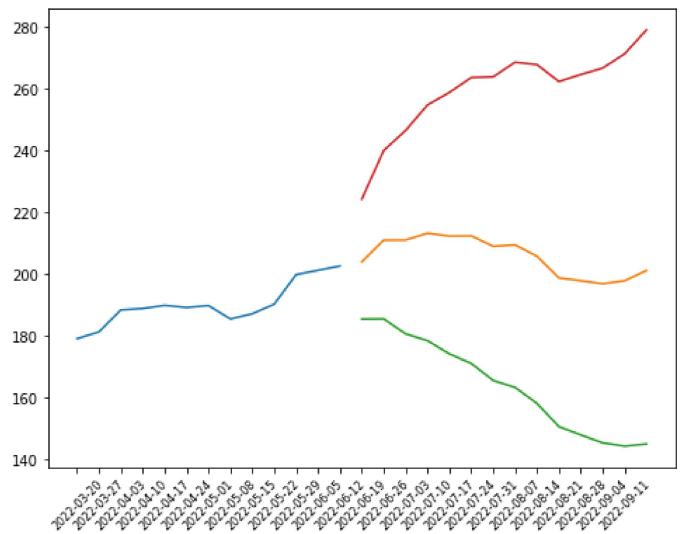
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ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



```

ets next 13 weeks
inner cv scores: [301.8694480871505, 301.8694413630348, 301.8694431496199, 301.8694456201761]
inner cv sdevs: [367.5235659625113, 367.5235679827517, 367.5235675369362, 367.5235641897937]
best model: ['T', 'F']
best inner cv score, sdev (11 folds): 301.8694413630348 367.5235679827517
test cv mean error, stdev (10 folds): [325.35586650347346, 377.5092038977911]
sell date: 2022-07-10
expected return: 0.02764576524364591
discounted return: 0.0010914160138748574
quarter return: 1.105563896548965

```



['options', ('2022-08-19', '2022-12-16')]
symbol: MPC
sector: Energy
Index: SP500
vol_30d_2yr: 72756266000.0
Sector 1YMF: 56.91999816894531
1YMF: 0.0018767029632884129
risk trend factor: 1.7364246579806077
beta currentRatio debtToEquity dividendRate dividendYield \\\nMPC 1.910294 1.704 80.117 2.32 0.0242

earningsGrowth ebitda ebitdaMargins forwardPE freeCashflow \\\nMPC 1.917 7120999936 0.05912 23.43602 16415250432

grossMargins grossProfits heldPercentInstitutions \\\nMPC 0.0867 10443000000 0.82037

industry marketCap operatingCashflow \\\nMPC Oil & Gas Refining & Marketing 60881649664 4360000000

operatingMargins payoutRatio pegRatio priceToBook \\\nMPC 0.03119 0.5472 0.55 2.175252

priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \\\nMPC 0.505447 0.08085 1.222 0.02754

returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \\\nMPC 0.08003 0.967 189.986 Energy 615587968

shortRatio totalCash totalCashPerShare totalDebt totalRevenue \\\nMPC 2.92 10839000064 19.177 26904000512 120450998272

trailingPE
MPC 6.942299

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

2022-06-14 102.669998 91.287088 102.474286 113.661483 91.610984 9.404473 72.802038 110.419931

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
MPC	0.001877	102.669998	72756266000.0	0.866955	0.977688	0.523103

l axis r axis

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

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

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

orange risk_trend_factor	
--------------------------	--

black linear	
--------------	--

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

Sector 1YMF: 43.219993591308594

Sector Volume Factor: 0.0015231818763778249

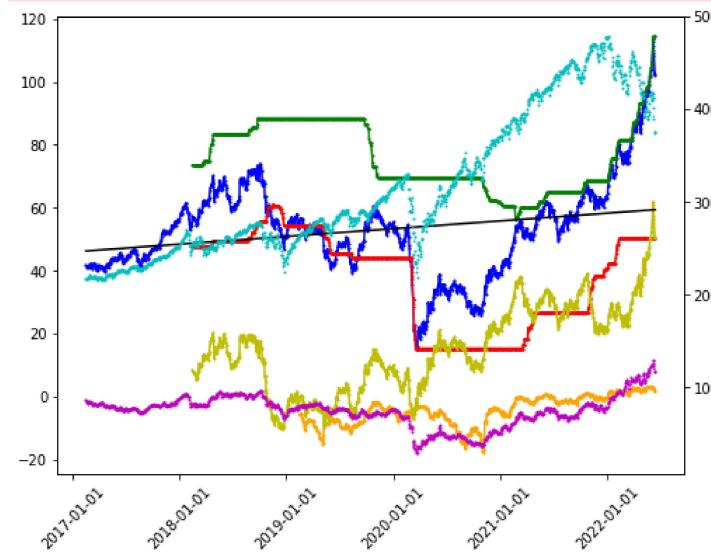
Sector Risk Trend Factor: 1.395093250744777

Index 1YMF: -263.8100280761719

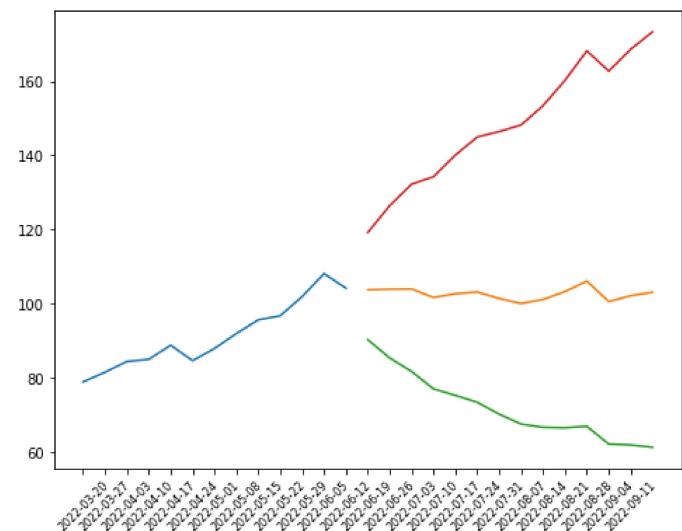
Index Volume Factor: 0.0022075805827187875

Index Risk Trend Factor: -3.321707170400029

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  ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [131.65140460881426, 131.65140413332375, 131.65140440044064, 131.65053612536832]
inner cv sdevs: [179.62199064827453, 179.621989816526, 179.62199075696446, 179.62004357125272]
best model: ['F', 'T']
best inner cv score, sdev (11 folds): 131.65053612536832 179.62004357125272
test cv mean error, stdev (10 folds): [140.5948091624812, 186.0393391719661]
sell date: 2022-08-28
expected return: 0.03379650654177166
discounted return: 0.00044926243591159043
quarter return: 1.0421885347175452
```



```
[ 'quarterly_balance_sheet',
  Capital Surplus 3.326200e+10 2021-12-31 2021-09-30 2021-06-30 \
  Total Liab 5.179200e+10
  Total Stockholder Equity 2.620600e+10 2.828000e+10 2.892100e+10
  Minority Interest 7.375000e+09 7.684000e+09 7.772000e+09
  Other Current Liab 2.278000e+09 3.377000e+09 6.148000e+09
  Total Assets 8.537300e+10 8.930000e+10 9.430000e+10
  Common Stock 1.000000e+07 1.000000e+07 1.000000e+07
  Other Current Assets 5.680000e+08 5.850000e+08 5.850000e+08
  Retained Earnings 1.290500e+10 1.248400e+10 1.216000e+10
  Other Liab 7.999000e+09 8.193000e+09 8.825000e+09
  Good Will 8.256000e+09 8.256000e+09 8.256000e+09
  Treasury Stock -1.997100e+10 -1.747000e+10 -1.648700e+10
  Other Assets 2.400000e+09 2.463000e+09 2.532000e+09
  Cash 5.291800e+09 5.874000e+09 1.183900e+10
  Total Current Liabilities 1.789800e+10 1.689800e+10 1.951200e+10
  Deferred Long Term Asset Charges 2.000000e+06 NaN NaN
  Short Long Term Debt 4.980000e+08 7.300000e+07 7.000000e+07
  Other Stockholder Equity -6.700000e+07 -3.440000e+08 -3.400000e+08
  Property Plant Equipment 3.881200e+10 3.905400e+10 3.949600e+10
  Total Current Assets 3.049600e+10 3.414300e+10 3.859200e+10
  Long Term Investments 5.409000e+09 5.384000e+09 5.424000e+09
  Net Tangible Assets 1.795000e+10 2.002400e+10 2.066500e+10
  Short Term Investments 5.548000e+09 7.352000e+09 5.418000e+09
  Net Receivables 1.103400e+10 1.112100e+10 1.187100e+10
  Long Term Debt 2.444300e+10 2.665500e+10 2.763900e+10
  Inventory 8.055000e+09 9.211000e+09 8.879000e+09
  Accounts Payable 1.370000e+10 1.219600e+10 1.217000e+10
```

2021-03-31

```
Capital Surplus 3.322200e+10
Total Liab 5.717200e+10
Total Stockholder Equity 2.159200e+10
Minority Interest 7.887000e+09
Other Current Liab 3.370000e+09
Total Assets 8.665100e+10
Common Stock 1.000000e+07
Other Current Assets 1.176200e+10
Retained Earnings 4.029000e+09
Other Liab 9.386000e+09
Good Will 8.256000e+09
Treasury Stock -1.566900e+10
Other Assets 2.594000e+09
Cash 6.240000e+08
Total Current Liabilities 1.608500e+10
Deferred Long Term Asset Charges NaN
Short Long Term Debt 6.900000e+07
Other Stockholder Equity -5.110000e+08
Property Plant Equipment 4.000500e+10
Total Current Assets 3.036100e+10
Long Term Investments 5.435000e+09
Net Tangible Assets 1.333600e+10
Short Term Investments NaN
Net Receivables 9.568000e+09
Long Term Debt 3.006100e+10
Inventory 8.407000e+09
Accounts Payable 9.953000e+09 ]
```

2021-12-31 2021-09-30 \

```
[ 'quarterly_cashflow',
  Investments 1.742000e+09 -1.934000e+09
  Change To Liabilities 1.590000e+09 1.930000e+08
  Total Cashflows From Investing Activities 1.448000e+09 -2.054000e+09
  Net Borrowings -1.951000e+09 -1.018000e+09
  Total Cash From Financing Activities -5.703000e+09 -2.762000e+09
  Change To Operating Activities -2.000000e+06 1.000000e+06
  Issuance Of Stock 3.500000e+07 1.800000e+07
  Net Income 7.740000e+08 6.940000e+08
  Change In Cash -5.810000e+08 -5.964000e+08
  Repurchase Of Stock -2.742000e+09 -9.280000e+08
  Total Cash From Operating Activities 3.674000e+09 -1.148000e+09
  Depreciation 8.130000e+08 8.360000e+08
  Other Cashflows From Investing Activities 1.320000e+08 2.400000e+08
  Dividends Paid -3.540000e+08 -3.700000e+08
  Change To Inventory 1.173000e+09 -3.260000e+08
  Change To Account Receivables -1.534000e+09 1.820000e+08
  Other Cashflows From Financing Activities -6.910000e+08 -4.640000e+08
  Change To Netincome 8.400000e+08 -2.746000e+09
  Capital Expenditures -4.810000e+08 -3.770000e+08
```

2021-06-30 2021-03-31

```
Investments -5.477000e+09 -5.000000e+07
Change To Liabilities 2.656000e+09 1.821000e+09
Total Cashflows From Investing Activities 1.567000e+10 -2.670000e+08
Net Borrowings -4.169000e+09 8.650000e+08
Total Cash From Financing Activities -5.970000e+09 1.600000e+07
Change To Operating Activities -1.000000e+06 5.000000e+06
Issuance Of Stock 3.000000e+07 2.300000e+07
```

	Revenue	Earnings
Quarter		
1Q2021	22788000000	-242000000
2Q2021	29734000000	8512000000
3Q2021	32491000000	694000000
4Q2021	35438000000	774000000]

	2021-12-31	2021-09-30	\
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Research Development	None	None	
Effect Of Accounting Charges	None	None	
Income Before Tax	13480000000.0	10120000000.0	
Minority Interest	7375000000.0	7684000000.0	
Net Income	7740000000.0	6940000000.0	
Selling General Administrative	6540000000.0	6910000000.0	
Gross Profit	32540000000.0	29280000000.0	
Ebit	16100000000.0	12080000000.0	
Operating Income	16100000000.0	12080000000.0	
Other Operating Expenses	1770000000.0	1930000000.0	
Interest Expense	-3020000000.0	-3130000000.0	
Extraordinary Items	None	None	
Non Recurring	None	None	
Other Items	None	None	
Income Tax Expense	2430000000.0	-180000000.0	
Total Revenue	35438000000.0	32491000000.0	
Total Operating Expenses	33828000000.0	31283000000.0	
Cost Of Revenue	32184000000.0	29563000000.0	
Total Other Income Expense Net	-2620000000.0	-1960000000.0	
Discontinued Operations	NaN	NaN	
Net Income From Continuing Ops	11050000000.0	10300000000.0	
Net Income Applicable To Common Shares	7720000000.0	6940000000.0	

	2021-06-30	2021-03-31	\
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Research Development	None	None	
Effect Of Accounting Charges	None	None	
Income Before Tax	5930000000.0	-1360000000.0	
Minority Interest	7772000000.0	7887000000.0	
Net Income	8512000000.0	-2420000000.0	
Selling General Administrative	6810000000.0	5750000000.0	
Gross Profit	25570000000.0	17040000000.0	
Ebit	8160000000.0	1230000000.0	
Operating Income	8160000000.0	1230000000.0	
Other Operating Expenses	1890000000.0	1620000000.0	
Interest Expense	-3180000000.0	-3340000000.0	
Extraordinary Items	None	None	
Non Recurring	None	None	
Other Items	None	None	
Income Tax Expense	5000000.0	34000000.0	
Total Revenue	29734000000.0	22788000000.0	
Total Operating Expenses	28918000000.0	22665000000.0	
Cost Of Revenue	27177000000.0	21084000000.0	
Total Other Income Expense Net	-2230000000.0	-2590000000.0	
Discontinued Operations	8214000000.0	2340000000.0	
Net Income From Continuing Ops	5880000000.0	-1700000000.0	
Net Income Applicable To Common Shares	8512000000.0	-2420000000.0	

	Holder	Shares	Date Reported	\
--	--------	--------	---------------	---

0	Select Sector SPDR Fund-Energy Select	18103056	2022-01-30	
1	Vanguard Total Stock Market Index Fund	17494854	2021-12-30	
2	Vanguard 500 Index Fund	13037019	2021-12-30	
3	Vanguard Mid-Cap Index Fund	6960433	2021-12-30	
4	SPDR S&P 500 ETF Trust	6540311	2022-01-30	
5	Fidelity 500 Index Fund	6304109	2022-02-27	
6	iShares Core S&P 500 ETF	5120813	2022-01-30	
7	Vanguard Index-Value Index Fund	4704115	2021-12-30	
8	Vanguard Institutional Index Fund-Institutional...	4638261	2021-12-30	
9	iShares Select Dividend ETF	4127022	2022-01-30	

% Out	Value
0 0.0335	1298894268
1 0.0323	1119495707
2 0.0241	834238845
3 0.0129	445398107
4 0.0121	469267314
5 0.0117	490900967
6 0.0095	367418332
7 0.0087	301016318

```

8 0.0086 296802321
9 0.0076 296113828 ]
['options', ('2022-07-15', '2022-09-16', '2023-01-20', '2024-01-19')]
['sustainability',
2022-5
palmOil False
controversialWeapons False
gambling False
socialScore 7.01
nuclear False
furLeather False
alcoholic False
gmo False
catholic False
socialPercentile 0
peerCount 39
governanceScore 5.87
environmentPercentile 0
animalTesting False
tobacco False
totalEsg 28.78
highestControversy 3
esgPerformance None
coal False
pesticides False
adult False
percentile 57.14
peerGroup Refiners & Pipelines
smallArms False
environmentScore 15.91
governancePercentile 0
militaryContract False]
symbol: DVN
sector: Energy
Index: SP500
vol_30d_2yr: 121752263500.0
Sector 1YMF: 43.869985580444336
1YMF: 0.0019605729958359253
risk trend factor: 1.6693295757310957
    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 13.089866 2805625088 0.56522

    grossProfits heldPercentInstitutions industry marketCap \
DVN 7414000000 0.86307 Oil & Gas E&P 46347419648

    operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
DVN 4898999808 0.25288 0.4991 0.43 5.193446

    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
DVN 3.533386 0.21445 1.207 0.13402

    returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \
DVN 0.45627 2.003 19.784 Energy 677000000

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

    trailingPE
DVN 33.992058

    Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDDev 90d_lower 90d_upper
2022-06-14 70.589996 67.376962 73.555238 79.733514 65.418095 6.714301 51.989493 78.846697

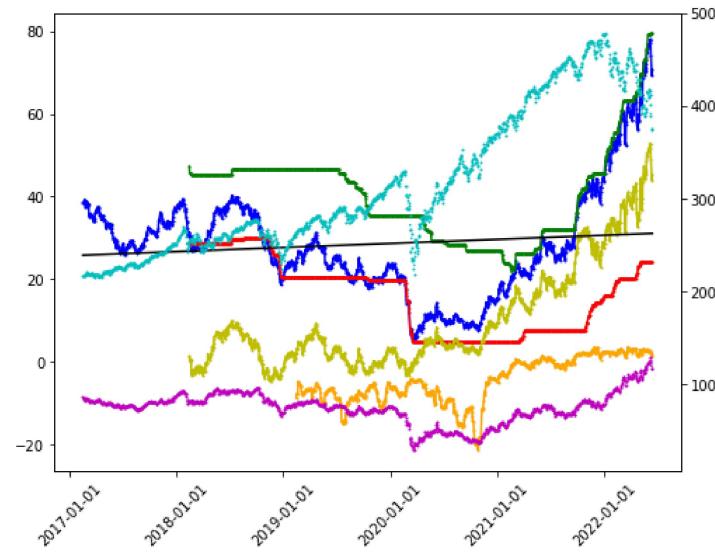
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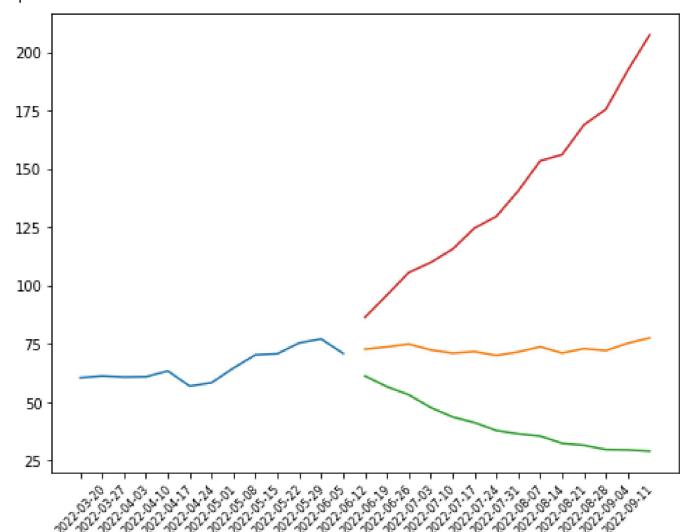
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legend	legend
blue symbol	magenta sector
green trailing_1yr_max	cyan index
red trailing_1yr_min	
orange risk_trend_factor	
black linear	
yellow supply_trend_1yr	

Sector 1YMF: 43.219993591308594
 Sector Volume Factor: 0.0015231818763778249
 Sector Risk Trend Factor: 1.395093250744777
 Index 1YMF: -263.8100280761719
 Index Volume Factor: 0.0022075805827187875
 Index Risk Trend Factor: -3.321707170400029

C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
 ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



ets next 13 weeks
 inner cv scores: [72.45773206347532, 72.45773270555088, 72.45773206278174, 72.45773206246297]
 inner cv sdevs: [107.35588927580905, 107.35589112807962, 107.35588927630698, 107.35588927605704]
 best model: ['F', 'T']
 best inner cv score, sdev (11 folds): 72.45773206246297 107.35588927605704
 test cv mean error, stdev (10 folds): [79.15100023628148, 110.38576884398293]
 sell date: 2022-09-18
 expected return: 0.0975423634225949
 discounted return: 0.000980200768888162
 quarter return: 1.094321244565625



```

['options', ('2022-07-15', '2023-01-20', '2024-01-19')]
[sustainability] Value
2022-5
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: VLO
sector: Energy
Index: SP500
vol_30d_2yr: 46297639500.0
Sector 1YMF: 81.58000183105469
1YMF: 0.0022898921229018597
risk trend factor: 1.6283433995151604
    beta currentRatio debtToEquity dividendRate dividendYield \
VLO 1.762704 1.178 64.483 3.92 0.0279

    ebitda ebitdaMargins forwardPE freeCashflow grossMargins \
VLO 6672999936 0.05306 12.590502 4647625216 0.05998

    grossProfits heldPercentInstitutions industry \
VLO 5487000000 0.80473 Oil & Gas Refining & Marketing

    marketCap operatingCashflow operatingMargins payoutRatio pegRatio \
VLO 57341566976 6498999808 0.0341 0.6312 0.42

    priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
VLO 3.04675 0.455942 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 22.619123

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

```

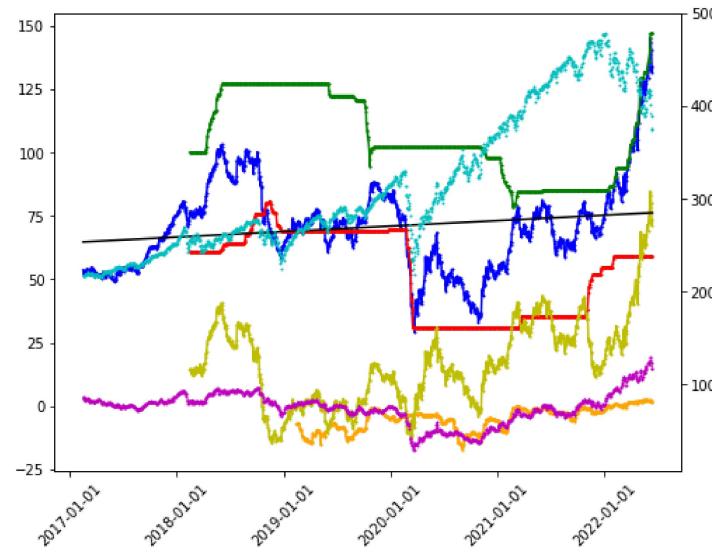
2022-06-14 133.75 118.374391 131.868413 145.362434 114.833016 15.68235 83.468316 146.197716

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
VLO	0.00229	133.75	46297639500.0	0.882733	0.922874	0.537334

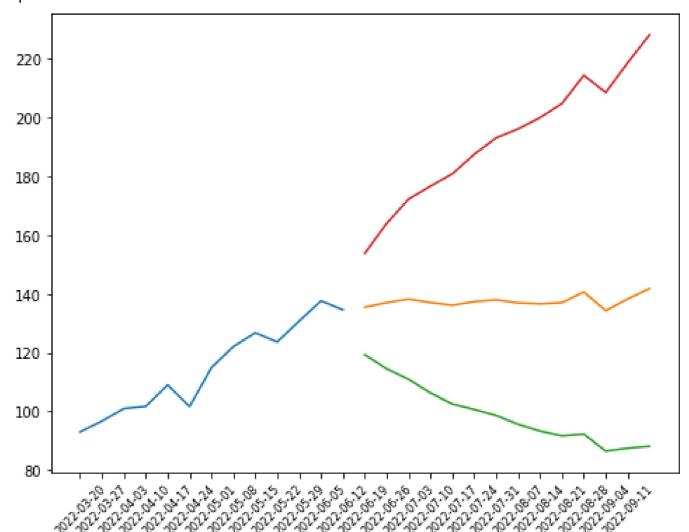
l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	risk_trend_factor		
black	linear		
yellow	supply_trend_1yr		

Sector 1YMF: 43.219993591308594
 Sector Volume Factor: 0.0015231818763778249
 Sector Risk Trend Factor: 1.395093250744777
 Index 1YMF: -263.8100280761719
 Index Volume Factor: 0.0022075805827187875
 Index Risk Trend Factor: -3.321707170400029

C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
 ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



ets next 13 weeks
 inner cv scores: [257.7262983647111, 257.72629846446995, 257.72629841987816, 257.7262983647111]
 inner cv sdevs: [325.6413838220487, 325.64138377693934, 325.64138378699107, 325.6413838220486]
 best model: ['T', 'T']
 best inner cv score, sdev (11 folds): 257.7262983647111 325.6413838220487
 test cv mean error, stdev (10 folds): [275.4331745013099, 336.4486199287141]
 sell date: 2022-09-18
 expected return: 0.06026008051768396
 discounted return: 0.0006161290665045449
 quarter return: 1.058302721823071



```

['options', ('2022-06-17', '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: COP
sector: Energy
Index: SP500
vol_30d_2yr: 96861604200.0
Sector 1YMF: 57.459999084472656
1YMF: 0.0016468341745675941
risk trend factor: 1.6273007828392883
    beta currentRatio debtToEquity dividendRate dividendYield \
COP 1.350272      1.513      38.088      1.92      0.0164

    earningsGrowth      ebitda ebitdaMargins forwardPE freeCashflow \
COP 4.853      25497999360      0.46444     10.115151    10752749568

    grossMargins grossProfits heldPercentInstitutions industry \
COP 0.52295      22936000000      0.81342     Oil & Gas E&P

    marketCap operatingCashflow operatingMargins payoutRatio pegRatio \
COP 151113760768      19983998976      0.33401      0.2348      0.53

    priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
COP 3.070272      2.752527      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

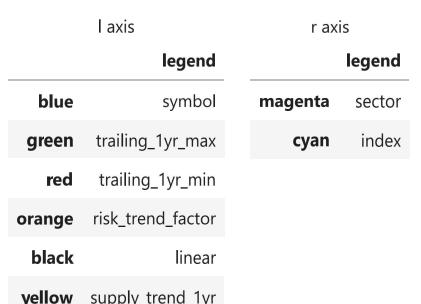
    totalRevenue trailingPE
COP 54899998720      12.1105

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

```

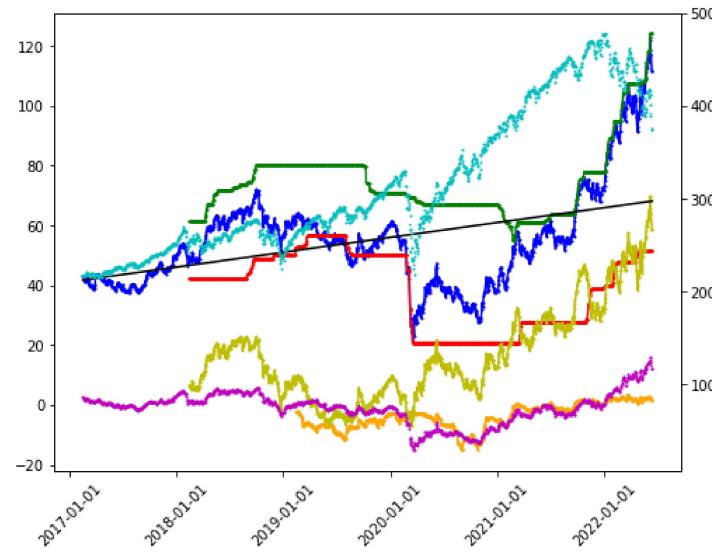
2022-06-14 111.489998 101.783141 112.579841 123.376542 104.161111 7.447975 89.265162 119.057061

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
COP	0.001647	111.489998	96861604200.0	0.869601	0.980711	0.490397

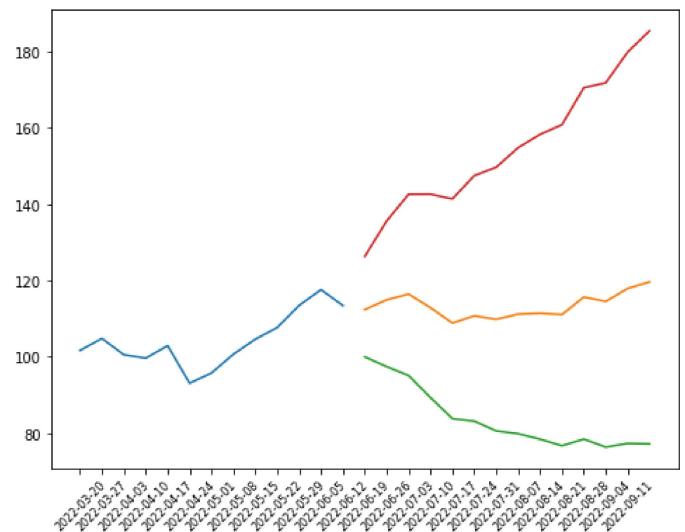


```
Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -263.8100280761719
Index Volume Factor: 0.0022075805827187875
Index Risk Trend Factor: -3.321707170400029
```

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
  ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [142.66282142500023, 142.66282125088935, 142.66282139000796, 142.662821406029]
inner cv sdevs: [159.52917913729667, 159.52917896274553, 159.5291789832317, 159.5291791316207]
best model: ['T', 'F']
best inner cv score, sdev (11 folds): 142.66282125088935 159.52917896274553
test cv mean error, stdev (10 folds): [156.2099386481347, 161.16993079080987]
sell date: 2022-09-18
expected return: 0.07326279381718037
discounted return: 0.0007445227952111999
quarter return: 1.0708691530958148
```



```

['options', ('2022-08-19', '2023-01-20', '2024-01-19')]
['sustainability',                                     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: LNTH
sector: Healthcare
Index: SP600
vol_30d_2yr: 7190737100.0
Sector 1YMF: 30.951007843017578
1YMF: 0.0033967310527873423
risk trend factor: 1.6221703910285028
    beta currentRatio debtToEquity earningsGrowth      ebitda \
LNTH  0.750453      1.828      36.846      3.692  108329000

    ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
LNTH  0.20002  21.648647    77142872    0.50913  187695000

    heldPercentInstitutions           industry marketCap \
LNTH  1.01214  Diagnostics & Research  4947831808

    operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
LNTH  54362000      0.11518      0      0.63  9.582613

    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
LNTH  9.135937      -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      2  105355000      1.535  190072992

    totalRevenue
LNTH  541579008

    Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper
2022-06-14 62.580002 59.930496 66.714857 73.499217 61.429841 5.416784 50.596273 72.26341

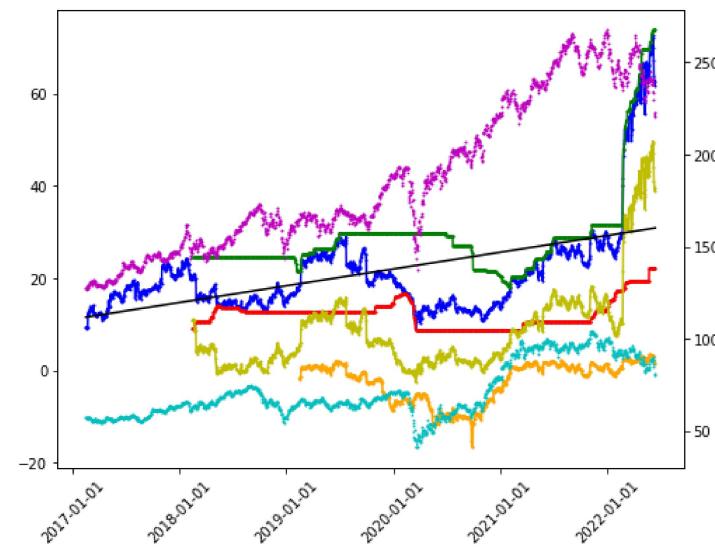
```

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
LNTH	0.003397	62.580002	7190737100.0	0.822953	0.98634	0.532554

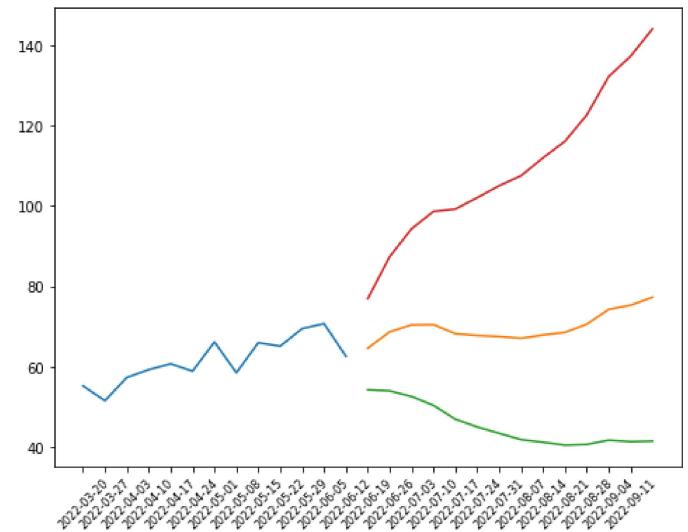
l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	risk_trend_factor		
black	linear		
yellow	supply_trend_1yr		

Sector 1YMF: -120.76998901367188
 Sector Volume Factor: 0.0022806018349254167
 Sector Risk Trend Factor: -2.889924965769055
 Index 1YMF: -69.3499984741211
 Index Volume Factor: 0.0022254315395940014
 Index Risk Trend Factor: -4.866666559587445

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
  ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [41.47571884662523, 41.47571808695382, 41.47571711948716, 41.47571867786617]
inner cv sdevs: [60.17941329621828, 60.17941093965518, 60.17941238182742, 60.17941282730593]
best model: ['F', 'F']
best inner cv score, sdev (11 folds): 41.47571711948716 60.17941238182742
test cv mean error, stdev (10 folds): [42.46377726297496, 63.031572318563285]
sell date: 2022-09-18
expected return: 0.2345017785138825
discounted return: 0.0022200129084550824
quarter return: 1.226316319376961
```



```
[ 'options', ('2022-07-15',) ]
symbol: MRO
sector: Energy
Index: SP500
vol_30d_2yr: 252220800100.0
Sector 1YMF: 16.26000213623047
1YMF: 0.0017287471922503032
risk trend factor: 1.5649663240109462
    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  14.321428  1785500032      0.77546

    grossProfits heldPercentInstitutions industry marketCap \
MRO 4355000000      0.802    Oil & Gas E&P 21853534208

    operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
MRO 3239000064      0.20495    0.0769      0.59      2.051451

    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
MRO 3.891299      0.16845      1.052      0.04117

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

    shortRatio totalCash totalCashPerShare totalDebt totalRevenue
MRO 0.93 580000000      0.794 4112000000 5616000000

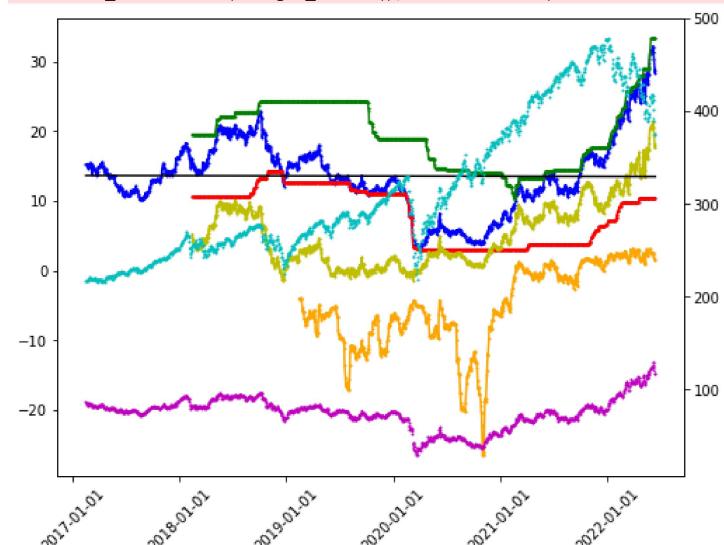
Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper
2022-06-14 28.79001 26.107532 29.696984 33.286436 26.793597 2.531289 21.731019 31.856176
```

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
MRO	0.001729	28.79001	252220800100.0	0.849204	0.948885	0.544141

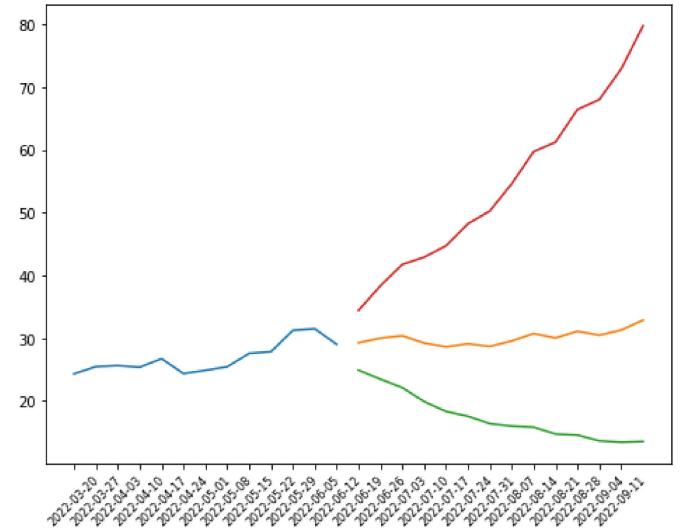
l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	risk_trend_factor		
black	linear		
yellow	supply_trend_1yr		

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -263.8100280761719
Index Volume Factor: 0.0022075805827187875
Index Risk Trend Factor: -3.32170717040029

C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



```
ets next 13 weeks
inner cv scores: [12.317458407807123, 12.317458404973321, 12.317458410406248, 12.317458383180918]
inner cv sdevs: [17.508607401612696, 17.508607402408582, 17.508607400987618, 17.50860741582898]
best model: ['F', 'T']
best inner cv score, sdev (11 folds): 12.317458383180918 17.50860741582898
test cv mean error, stdev (10 folds): [13.299649960609571, 18.07193303764845]
sell date: 2022-09-18
expected return: 0.1419256804340833
discounted return: 0.0013979871235636487
quarter return: 1.137149847565985
```



```
[{'quarterly_balance_sheet': 2021-12-31 2021-09-30 2021-06-30 \
    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 ]

[{'quarterly_cashflow': 2021-12-31 2021-09-30 \
    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 2000000.0 10100000.0
    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 60000000.0 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 ]
['quarterly_earnings', Revenue Earnings
Quarter
1Q2021 118000000 9700000
2Q2021 125900000 1600000
3Q2021 143900000 18400000
4Q2021 173800000 64900000]
['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 61000000.0 70000000.0
Gross Profit 1393000000.0 1089000000.0
Ebit 755000000.0 254000000.0
Operating Income 755000000.0 254000000.0
Other Operating Expenses 94000000.0 167000000.0
Interest Expense -74000000.0 -57000000.0
Extraordinary Items None None
Non Recurring None None
Other Items None None
Income Tax Expense 34000000.0 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 -72000000.0 -66000000.0
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 966000000.0 907000000.0
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]
['mutualfund_holders',
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')]
['sustainability',
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: APA
sector: Energy
Index: SP500
vol_30d_2yr: 105341198700.0
Sector 1YMF: 24.150001525878906
1YMF: 0.001859298189284797
risk trend factor: 1.5255842534713018
    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

```

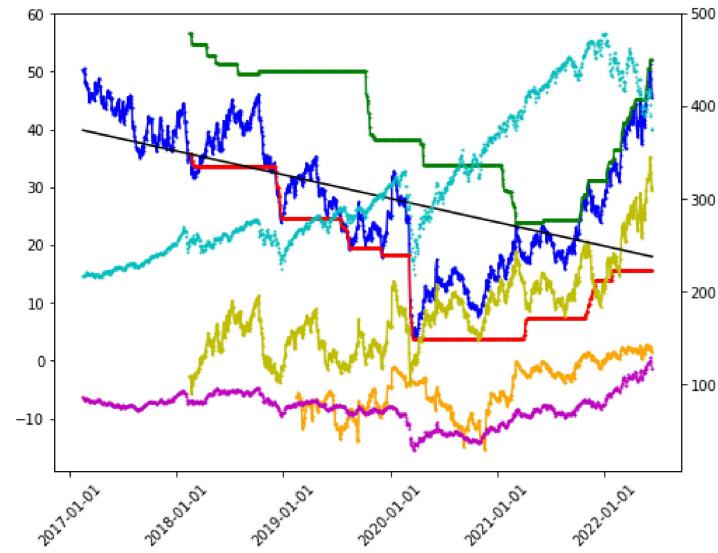
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	46.0	39.761978	46.000952	52.239927	42.767936	3.39058	35.986776	49.549097

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
APA	0.001859	46.0	105341198700.0	0.866292	0.413628	0.447575

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

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395003250744777
Index 1YMF: -263.8100280761719
Index Volume Factor: 0.0022075805827187875
Index Risk Trend Factor: -3.321707170400029

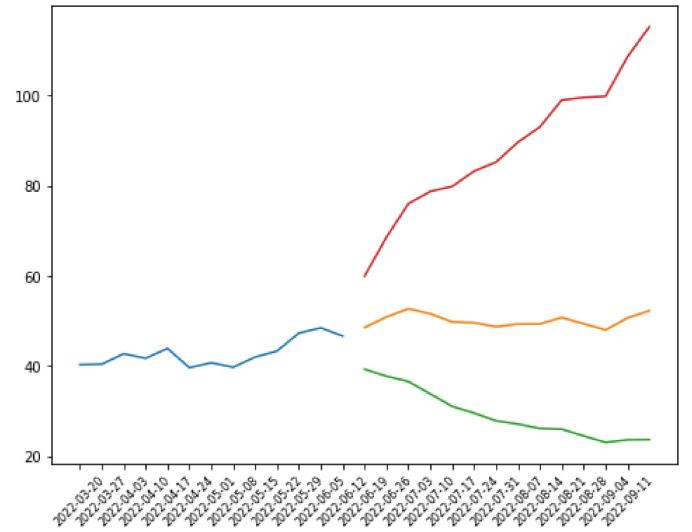
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



```

ets next 13 weeks
inner cv scores: [36.429421833060225, 36.429421799205734, 36.42942183722904, 36.4294218355459]
inner cv sdevs: [45.103085849758756, 45.10308576480753, 45.10308584972008, 45.10308584704238]
best model: ['T', 'F']
best inner cv score, sdev (11 folds): 36.429421799205734 45.10308576480753
test cv mean error, stdev (10 folds): [39.791599274418246, 45.97141046196568]
sell date: 2022-07-03
expected return: 0.14608942044497636
discounted return: 0.0076040788081128685
quarter return: 2.007577647633649

```



	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	1.330300e+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	2.000000e+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	-21000000.0
Change To Liabilities	82000000.0	75000000.0
Total Cashflows From Investing Activities	-126000000.0	-267000000.0
Net Borrowings	-79000000.0	-58000000.0
Total Cash From Financing Activities	-132000000.0	-128000000.0
Change To Operating Activities	104000000.0	-79000000.0
Net Income	316000000.0	388000000.0
Change In Cash	711000000.0	276000000.0
Repurchase Of Stock	-847000000.0	-847000000.0
Total Cash From Operating Activities	969000000.0	671000000.0

```

Depreciation 382000000.0 388000000.0
Other Cashflows From Investing Activities 5000000.0 7000000.0
Dividends Paid -1000000.0 -900000.0
Change To Inventory 2300000.0 -3000000.0
Change To Account Receivables 300000.0 -16800000.0
Other Cashflows From Financing Activities -4300000.0 -6100000.0
Change To Netincome 59000000.0 70000000.0
Capital Expenditures -30600000.0 -25600000.0 ]
['quarterly_earnings', Revenue Earnings
Quarter
1Q2021 1932000000 388000000
2Q2021 1830000000 316000000
3Q2021 2099000000 -113000000
4Q2021 2164000000 382000000]

```

```

['quarterly_financials',
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 ]
['mutualfund_holders',
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: XOM

```

```

sector: Energy
Index: SP500
vol_30d_2yr: 282584082100.0
Sector 1YMF: 39.93998718261719
1YMF: 0.0020610251493001558
risk trend factor: 1.5197864930679341
    beta currentRatio debtToEquity dividendRate dividendYield \
XOM 1.040834      1.072      26.929      3.52      0.0341

    earningsGrowth      ebitda ebitdaMargins forwardPE freeCashflow \
XOM      1.003 53895000064      0.17427 11.818078 31484874752

    grossMargins grossProfits heldPercentInstitutions      industry \
XOM      0.31806 90045000000      0.56852 Oil & Gas Integrated

    marketCap operatingCashflow operatingMargins payoutRatio pegRatio \
XOM 440658558976      53653000192      0.10859      0.5804      0.36

    priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
XOM 2.603749      1.424839      0.08339      0.739

    returnOnAssets returnOnEquity revenueGrowth revenuePerShare sector \
XOM 0.06097      0.1559      0.525      72.369 Energy

    sharesOutstanding shortRatio      totalCash totalCashPerShare      totalDebt \
XOM 4213199872      1.13 11073999872      2.629 47537000448

    totalRevenue trailingPE
XOM 309269004288      17.34494

```

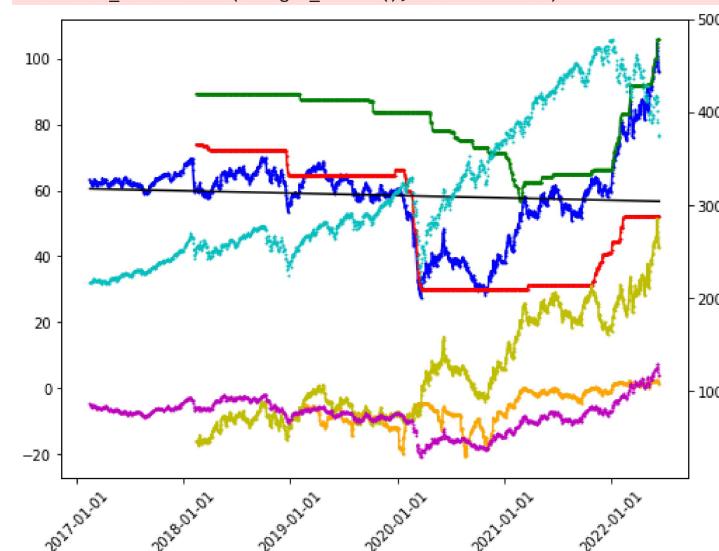
	Adj	Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	96.099998	88.636597	96.527143	104.417688	88.279133	6.843087	74.592959	101.965306	

volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
XOM	0.002061	96.099998	282584082100.0	0.872818	0.958139	0.535838

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

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -263.8100280761719
Index Volume Factor: 0.0022075805827187875
Index Risk Trend Factor: -3.321707170400029

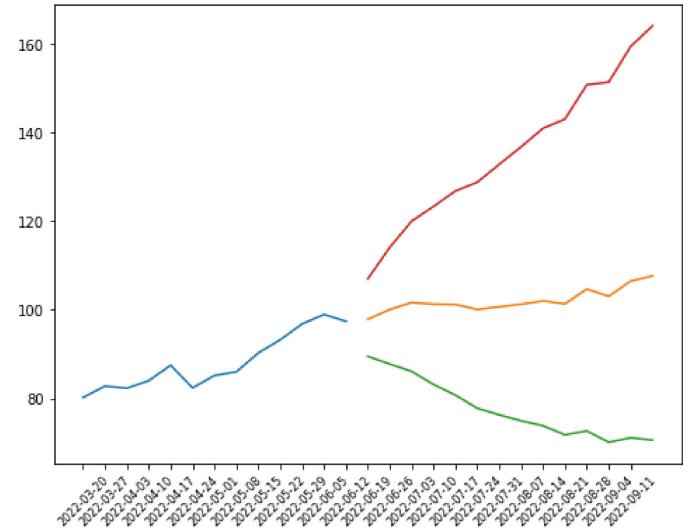
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



6/16/22, 6:53 PM

AnalyzeSP1500

```
ets next 13 weeks
inner cv scores: [103.87700682186569, 103.87700686349449, 103.87679704529982, 103.87700674846839]
inner cv sdevs: [112.52048911380237, 112.5204891506597, 112.51998151928628, 112.5204891289752]
best model: ['F', 'F']
best inner cv score, sdev (11 folds): 103.87679704529982 112.51998151928628
test cv mean error, stdev (10 folds): [113.90546698814754, 113.22842761976527]
sell date: 2022-09-18
expected return: 0.11985006730797623
discounted return: 0.0011922344404722285
quarter return: 1.1158542275924708
```



```

['options', ('2022-06-17', '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: NTUS
sector: Healthcare
Index: SP600
vol_30d_2yr: 2379907100.0
Sector 1YMF: 2.740001678466797
1YMF: 0.0031686951141916423
risk trend factor: 1.497267178627711
    beta currentRatio debtToEquity earningsGrowth ebitda \
NTUS 0.468627      2.42      2.823     -0.67  57332000

    ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
NTUS 0.1211  22.167833  64596752  0.59126  279923000

    heldPercentInstitutions industry marketCap operatingCashflow \
NTUS 0.96202  Medical Devices 1082627968  63995000

    operatingMargins payoutRatio pegRatio priceToBook \
NTUS 0.06206      0  1.04  2.53377

    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
NTUS 2.286736  0.02783  1.635  0.03153

    returnOnEquity revenueGrowth revenuePerShare sector \
NTUS 0.03153      0.084  14.061  Healthcare

    sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
NTUS 34152300  0.94  75595000  2.219  11992000

    totalRevenue trailingPE
NTUS 473438016 64.040405

    Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper
2022-06-14 31.790001 32.345473 32.709047 33.072622 30.362698 3.500362 23.361974 37.363423

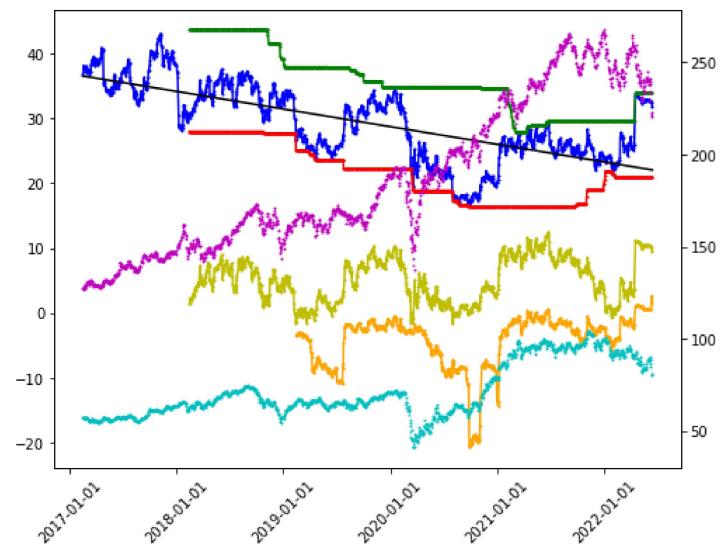
```

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
NTUS	0.003169	31.790001	2379907100.0	0.878063	0.159539	0.413711

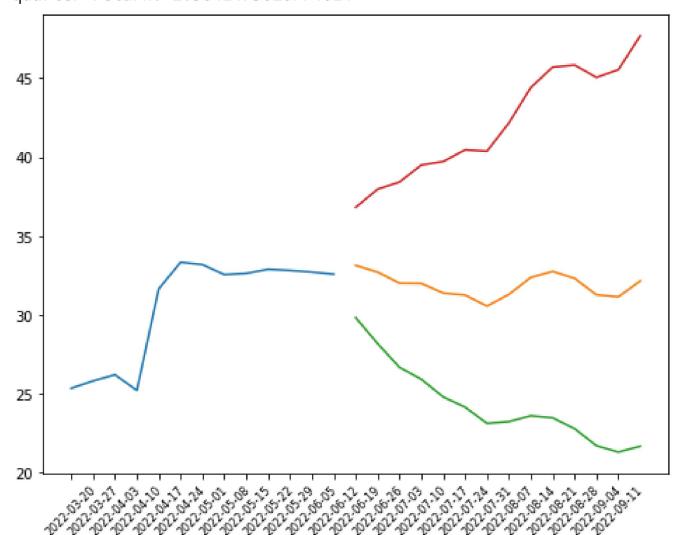
l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	risk_trend_factor		
black	linear		
yellow	supply_trend_1yr		

```
Sector 1YMF: -120.76998901367188
Sector Volume Factor: 0.0022806018349254167
Sector Risk Trend Factor: -2.889924965769055
Index 1YMF: -69.3499984741211
Index Volume Factor: 0.0022254315395940014
Index Risk Trend Factor: -4.866666559587445
```

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
  ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [10.031460111932823, 10.03146010370428, 10.031460112611635, 10.031460157233939]
inner cv sdevs: [11.985534852801937, 11.98553484402916, 11.985534852320097, 11.985534828774774]
best model: ['T', 'F']
best inner cv score, sdev (11 folds): 10.03146010370428 11.98553484402916
test cv mean error, stdev (10 folds): [10.626461212846028, 12.414671180945913]
sell date: 2022-06-19
expected return: 0.04214188919670076
discounted return: 0.010372955969947029
quarter return: 2.5841493820794614
```



```
[{'quarterly_balance_sheet',
  Intangible Assets           65513000.0  73602000.0  80054000.0
  Total Liab                 139538000.0 138729000.0 138391000.0
  Total Stockholder Equity    424750000.0 422522000.0 417827000.0
  Other Current Liab         43591000.0   30250000.0   29267000.0
  Total Assets                564288000.0 561251000.0 556218000.0
  Common Stock                353737000.0 350457000.0 347818000.0
  Retained Earnings            84486000.0   82742000.0   77169000.0
  Other Liab                 18140000.0   27558000.0   27867000.0
  Good Will                   148657000.0 149293000.0 150482000.0
  Treasury Stock              -13473000.0  -10677000.0  -7160000.0
  Other Assets                41756000.0   43902000.0   45485000.0
  Cash                        75595000.0   68779000.0   62494000.0
  Total Current Liabilities  114601000.0 103801000.0 102463000.0
  Deferred Long Term Asset Charges 23161000.0 26296000.0 26349000.0
  Other Stockholder Equity    -13473000.0  -10677000.0  -7160000.0
  Property Plant Equipment   31071000.0   32783000.0   34498000.0
  Total Current Assets       277291000.0 261671000.0 245699000.0
  Net Tangible Assets         210580000.0 199627000.0 187291000.0
  Net Receivables             111760000.0 97370000.0   92793000.0
  Inventory                   67745000.0   71545000.0   68350000.0
  Accounts Payable            36405000.0   28322000.0   26892000.0
  Short Long Term Debt       NaN          NaN          NaN]
```

```
2021-03-31
Intangible Assets           85001000.0
Total Liab                  172436000.0
Total Stockholder Equity    408932000.0
Other Current Liab          28465000.0
Total Assets                 581368000.0
Common Stock                 344696000.0
Retained Earnings            73705000.0
Other Liab                  2779000.0
Good Will                   149761000.0
Treasury Stock               -9469000.0
Other Assets                 46729000.0
Cash                        80549000.0
Total Current Liabilities  136476000.0
Deferred Long Term Asset Charges 26321000.0
Other Stockholder Equity    -9469000.0
Property Plant Equipment   34058000.0
Total Current Assets       265819000.0
Net Tangible Assets         174170000.0
Net Receivables              91326000.0
Inventory                   69467000.0
Accounts Payable            24486000.0
Short Long Term Debt       36523000.0 ]
```

```
2021-12-31 2021-09-30 2021-06-30 \
[{'quarterly_cashflow',
  Change To Liabilities      7070000.0   2754000.0   3065000.0
  Total Cashflows From Investing Activities -671000.0   1692000.0  -2236000.0
  Net Borrowings              -84000.0   -1100000.0  -37091000.0
  Total Cash From Financing Activities -2694000.0  -120000.0  -36573000.0
  Change To Operating Activities 2313000.0  -3885000.0  2041000.0
  Issuance Of Stock            243000.0   243000.0   612000.0
  Net Income                  1744000.0   5573000.0   3464000.0
  Change In Cash               6816000.0   6285000.0  -18055000.0
  Repurchase Of Stock          -2853000.0  -10000.0   -94000.0
  Effect Of Exchange Rate     -2602000.0  -2403000.0  1361000.0
  Total Cash From Operating Activities 12783000.0 7116000.0 19393000.0
  Depreciation                 6729000.0   6863000.0   7151000.0
  Change To Inventory          1175000.0  -3379000.0  2895000.0
  Change To Account Receivables -12683000.0  -2631000.0  -2759000.0
  Change To Netincome           6410000.0   1797000.0   3494000.0
  Capital Expenditures        -671000.0   -982000.0  -1236000.0
  Investments                  NaN          NaN          -1000000.0 }
```

```
2021-03-31
Change To Liabilities      5099000.0
Total Cashflows From Investing Activities -731000.0
Net Borrowings              -20125000.0
Total Cash From Financing Activities -21275000.0
Change To Operating Activities -2856000.0
Issuance Of Stock            612000.0
Net Income                  2396000.0
Change In Cash               -1533000.0
Repurchase Of Stock          -1150000.0
Effect Of Exchange Rate     -4230000.0
Total Cash From Operating Activities 24703000.0
```

```
Depreciation                 7207000.0
Change To Inventory          4139000.0
Change To Account Receivables 4962000.0
Change To Netincome           3706000.0
Capital Expenditures         -731000.0
Investments                  -1000000.0 ]
```

['quarterly_earnings', Revenue Earnings
Quarter

```

1Q2021 114927000 2396000
2Q2021 115978000 3464000
3Q2021 113877000 5573000
4Q2021 128656000 1744000]
[ quarterly_financials',
Research Development 2021-12-31 2021-09-30 2021-06-30 \
Effect Of Accounting Charges None None None
Income Before Tax 3630000.0 7497000.0 5363000.0
Minority Interest None None None
Net Income 1744000.0 5573000.0 3464000.0
Selling General Administrative 41832000.0 41113000.0 42098000.0
Gross Profit 74660000.0 69390000.0 68135000.0
Ebit 13733000.0 8687000.0 6135000.0
Operating Income 13733000.0 8687000.0 6135000.0
Other Operating Expenses None None None
Interest Expense -217000.0 -332000.0 -556000.0
Extraordinary Items None None None
Non Recurring None None None
Other Items None None None
Income Tax Expense 18860000.0 19240000.0 18990000.0
Total Revenue 128656000.0 113877000.0 115978000.0
Total Operating Expenses 114923000.0 105190000.0 109843000.0
Cost Of Revenue 53996000.0 44487000.0 47843000.0
Total Other Income Expense Net -10103000.0 -1190000.0 -772000.0
Discontinued Operations None None None
Net Income From Continuing Ops 1744000.0 5573000.0 3464000.0
Net Income Applicable To Common Shares 1744000.0 5573000.0 3464000.0

```

```
2021-03-31
```

```

Research Development 14040000.0
Effect Of Accounting Charges None
Income Before Tax 2864000.0
Minority Interest None
Net Income 2396000.0
Selling General Administrative 43826000.0
Gross Profit 68239000.0
Ebit 4725000.0
Operating Income 4725000.0
Other Operating Expenses None
Interest Expense -766000.0
Extraordinary Items None
Non Recurring None
Other Items None
Income Tax Expense 468000.0
Total Revenue 114927000.0
Total Operating Expenses 110202000.0
Cost Of Revenue 4668000.0
Total Other Income Expense Net -1861000.0
Discontinued Operations None
Net Income From Continuing Ops 2396000.0
Net Income Applicable To Common Shares 2396000.0 ]

```

```
Holder Shares Date Reported \
```

```

0 iShares Core S&P Smallcap ETF 2399004 2022-01-30
1 Victory Portfolios-Sycamore Small Company Oppo... 1931300 2022-01-30
2 Allspring Special Small Cap Value Fund 1094467 2022-02-27
3 Janus Henderson Small Cap Value Fund 1029275 2021-12-30
4 Vanguard Total Stock Market Index Fund 975293 2021-12-30
5 iShares Russell 2000 ETF 768101 2022-01-30
6 Pax World Small Cap Fund 656049 2021-12-30
7 iShares S&P Smallcap 600 Value ETF 567510 2022-01-30
8 Vanguard Extended Market Index Fund 483201 2021-12-30
9 Vanguard Small-Cap Index Fund 435072 2021-12-30

```

```
% Out Value
0 0.0694 55273052
1 0.0558 44497152
2 0.0316 30448071
3 0.0298 24424695
4 0.0282 23143702
5 0.0222 17697047
6 0.0190 15568042
7 0.0164 13075430
8 0.0140 11466359
9 0.0126 10324258 ]
```

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

```
symbol: BANF
sector: error
sector: error
Index: SP600
vol_30d_2yr: 1269485800.0
Sector 1YMF: 24.899993896484375
1YMF: 0.0020800547749332842
risk trend factor: 1.4928053621652477
```

```
Empty DataFrame
Columns: []
Index: [BANF]
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	91.309998	78.439849	88.336826	98.233802	85.050318	3.918382	77.213553	92.887082

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
BANF	0.00208	91.309998	1269485800.0	0.908755	0.916616	0.536421

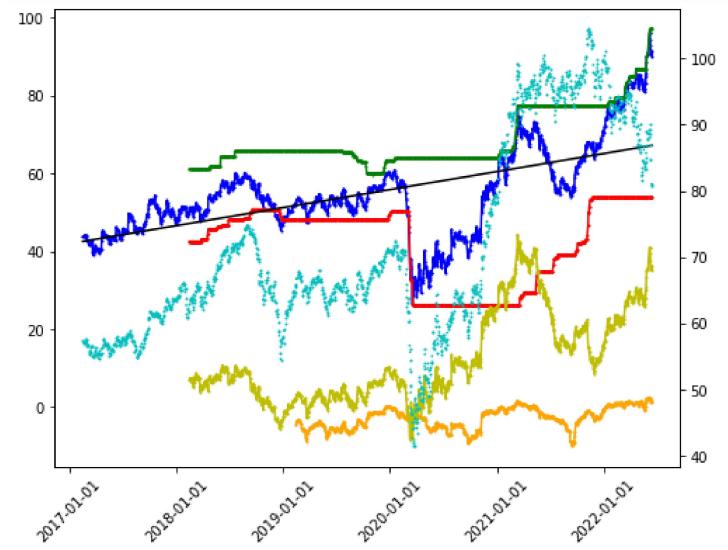
l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	risk_trend_factor		
black	linear		
yellow	supply_trend_1yr		

Index 1YMF: -69.3499984741211

Index Volume Factor: 0.0022254315395940014

Index Risk Trend Factor: -4.866666559587445

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



ets next 13 weeks

inner cv scores: [55.05037811240374, 55.050606271872645, 55.050378267465184, 55.050378826915384]

inner cv sdevs: [38.40696138777089, 38.40684785417371, 38.40696123455406, 38.40696220978185]

best model: ['T', 'T']

best inner cv score, sdev (11 folds): 55.05037811240374 38.40696138777089

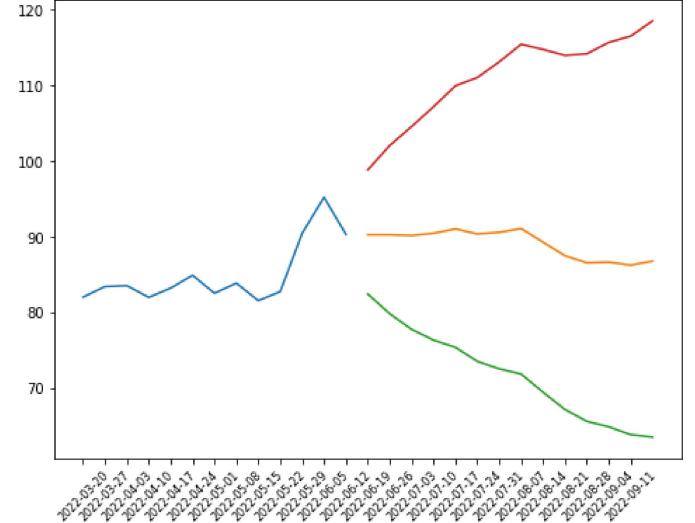
test cv mean error, stdev (10 folds): [57.95567696588894, 39.112074882464576]

sell date: 2022-08-07

expected return: -0.00302382327859786

discounted return: -5.7138069981199635e-05

quarter return: 0.9947569404468798



```

['options', ('2022-06-17',)]
symbol: SM
sector: Energy
Index: SP600
vol_30d_2yr: 43971070600.0
Sector 1YMF: 33.88000297546387
1YMF: 0.0011477728268003554
risk trend factor: 1.48271332961936
          beta currentRatio debtToEquity dividendRate dividendYield      ebitda \
SM  5.179219        0.717       93.916        0.02        0.0004  1315937024

          ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
SM  0.45427   5.310769   570353344     0.8671    2136878000

          heldPercentInstitutions      industry marketCap operatingCashflow \
SM  0.88365   Oil & Gas E&P  6310117888    1396240000

          operatingMargins payoutRatio pegRatio priceToBook \
SM  0.18012        0.007       0.17     2.983406

          priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
SM  2.178288        0.11608       0.7       0.06264

          returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \
SM  0.17312        0.931       23.974   Energy  121864000

          shortRatio totalCash totalCashPerShare totalDebt totalRevenue trailingPE
SM  1.89  419887008        3.446  1986428032  2896824064  19.444235

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

```

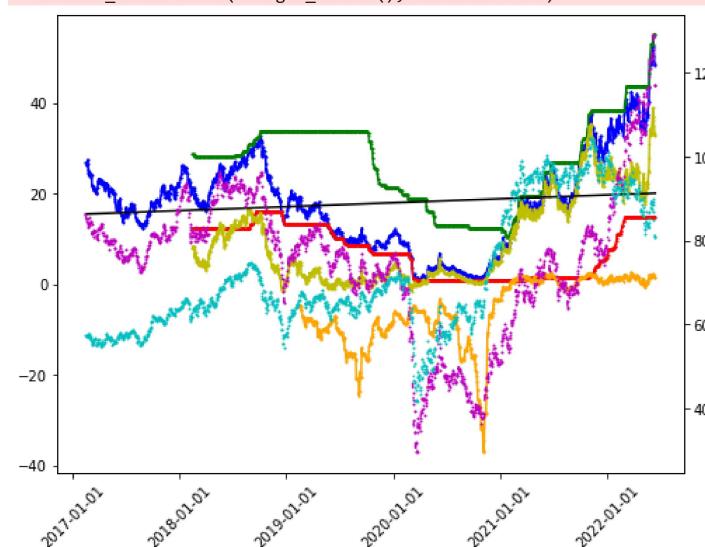
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	48.68	33.61221	45.55127	57.49033	40.799365	5.375314	30.048737	51.549994

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
SM	0.001148	48.68	43971070600.0	0.882715	0.962497	0.477599

	I axis		r axis
	legend		legend
blue	symbol		
green	trailing_1yr_max	magenta	sector
red	trailing_1yr_min		
orange	risk_trend_factor	cyan	index
black	linear		
yellow	supply_trend_1yr		

```
Sector 1YMF: 43.219993591308594  
Sector Volume Factor: 0.0015231818763778249  
Sector Risk Trend Factor: 1.395093250744777  
Index 1YMF: -69.3499984741211  
Index Volume Factor: 0.0022254315395940014  
Index Risk Trend Factor: -4.866666559587445
```

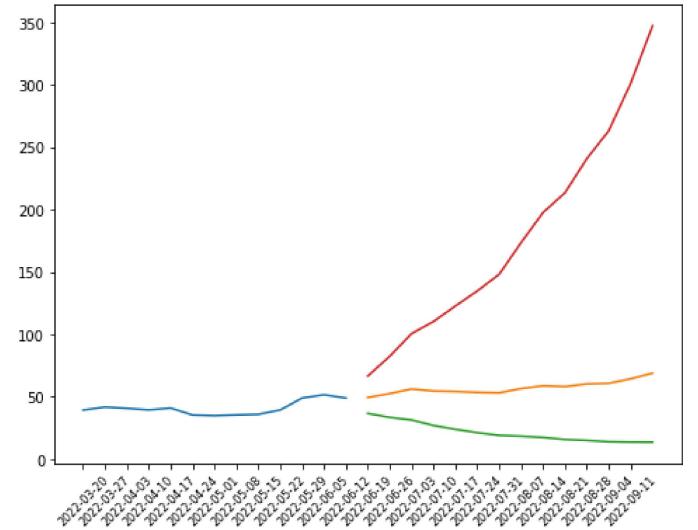
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



```

ets next 13 weeks
inner cv scores: [54.55830160170929, 54.55830160179843, 54.55830165642794, 54.55830162553305]
inner cv sdevs: [81.76295272236173, 81.76295272218053, 81.76295270166503, 81.76295273415829]
best model: ['T', 'T']
best inner cv score, sdev (11 folds): 54.55830160170929 81.76295272236173
test cv mean error, stdev (10 folds): [59.85979191105109, 83.9317263444906]
sell date: 2022-09-18
expected return: 0.4161785870352987
discounted return: 0.0036694751318810948
quarter return: 1.400702408289501

```



```

['options', ('2022-08-19', '2023-01-20', '2024-01-19')]
symbol: FANG
sector: Energy
Index: SP500
vol_30d_2yr: 30862818500.0
Sector 1YMF: 60.80000305175781
1YMF: 0.001977333984690054
risk trend factor: 1.4312617289808671
    beta currentRatio debtToEquity dividendRate dividendYield \
FANG 2.181941      0.72      42.218       2.8      0.018

```

```

earningsGrowth      ebitda ebitdaMargins forwardPE freeCashflow \
FANG      2.278  5041999872      0.65762  6.810776  953625024

```

```

grossMargins grossProfits heldPercentInstitutions      industry \
FANG      0.86683  5577000000      0.91795  Oil & Gas E&P

```

```

marketCap operatingCashflow operatingMargins payoutRatio pegRatio \
FANG  27598387200      4572000256      0.48611      0.1272      0.38

```

```

priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
FANG  2.166474      3.599633      0.35751      0.656

```

```

returnOnAssets returnOnEquity revenueGrowth revenuePerShare sector \
FANG  0.10278      0.22396      1.034      42.596  Energy

```

```

sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
FANG  177492992      2.63  149000000      0.839  5848000000

```

```

totalRevenue trailingPE
FANG  7666999808      10.25592

```

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

2022-06-14	149.630005	123.836715	145.664128	167.49154	138.967619	9.402199	120.16322	157.772017
------------	------------	------------	------------	-----------	------------	----------	-----------	------------

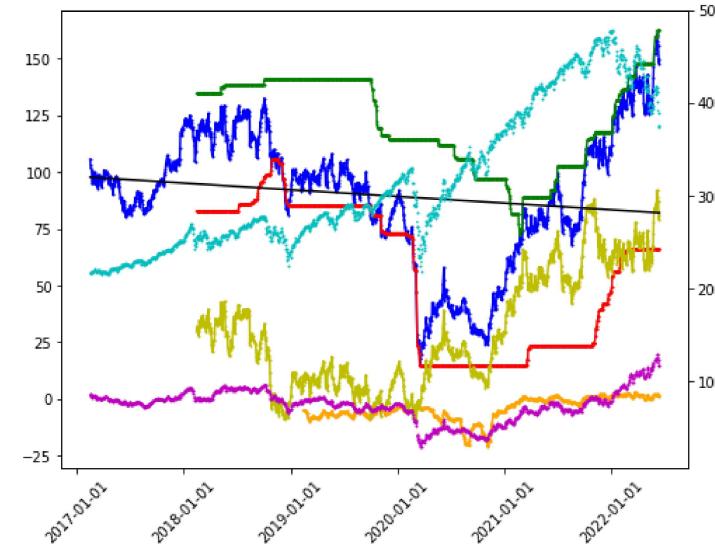
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
--	---------------	----------	-------------	---------	-----	-------

FANG	0.001977	149.630005	30862818500.0	0.909025	0.795622	0.471983
------	----------	------------	---------------	----------	----------	----------

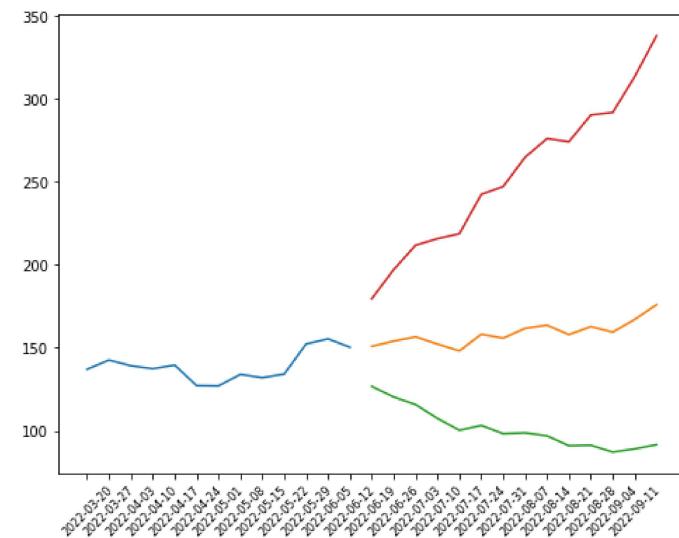
l axis	r axis
legend	legend
blue symbol	magenta sector
green trailing_1yr_max	cyan index
red trailing_1yr_min	
orange risk_trend_factor	
black linear	
yellow supply_trend_1yr	

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -263.8100280761719
Index Volume Factor: 0.0022075805827187875
Index Risk Trend Factor: -3.321707170400029

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [420.9911806742642, 420.99118528006517, 420.9911809362091, 420.99118095605337]
inner cv sdevs: [399.94354296448176, 399.9435472710125, 399.94354269150665, 399.9435426878695]
best model: ['T', 'T']
best inner cv score, sdev (11 folds): 420.9911806742642 399.94354296448176
test cv mean error, stdev (10 folds): [452.09101009939167, 406.58471198735367]
sell date: 2022-09-18
expected return: 0.17649982474330506
discounted return: 0.001712451733919984
quarter return: 1.1704763687697823
```



```
[options, ('2022-06-17', '2023-01-20', '2024-01-19')]
symbol: MUSA
sector: Consumer Cyclical
Index: SP400
vol_30d_2yr: 2942817400.0
Sector 1YMF: 48.60003662109375
1YMF: 0.002574811471483076
risk trend factor: 1.4091055489095428
    beta currentRatio debtToEquity dividendRate dividendYield \
MUSA  0.820982      1.083     283.285      1.24      0.005

    earningsGrowth ebitda ebitdaMargins forwardPE freeCashflow \
MUSA      2.025  950200000      0.05637  19.691177  451787488

    grossMargins grossProfits heldPercentInstitutions industry \
MUSA      0.07071  1064700000      0.86324  Specialty Retail

    marketCap operatingCashflow operatingMargins payoutRatio pegRatio \
MUSA  6157129216      846800000      0.04334      0.0569      3.33

    priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
MUSA  7.779171      0.365287      0.02931      0.733

    returnOnAssets returnOnEquity revenueGrowth revenuePerShare \
MUSA      0.11155      0.62846      0.501      658.653

    sector sharesOutstanding shortRatio totalCash \
MUSA  Consumer Cyclical      24201600      4.6  356200000

    totalCashPerShare totalDebt totalRevenue trailingPE
MUSA      14.718  2242200064  16855600128  13.386478
```

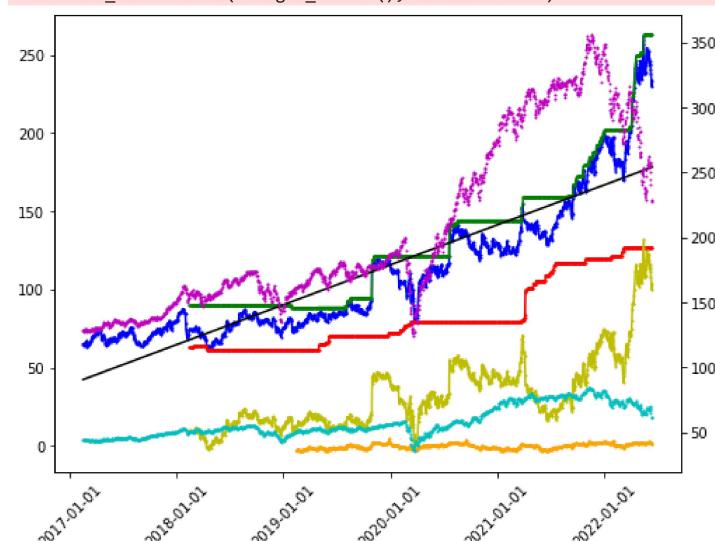
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSD	90d_lower	90d_upper
2022-06-14	233.460007	230.598967	244.042699	257.486431	228.747143	20.577404	187.592334	269.901951

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
MUSA	0.002575	233.460007	2942817400.0	0.810256	0.994555	0.410124

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

Sector 1YMF: -352.9100036621094
Sector Volume Factor: 0.0021034643160444764
Sector Risk Trend Factor: -4.247321632052965
Index 1YMF: -63.869998931884766
Index Volume Factor: 0.0011014613124698796
Index Risk Trend Factor: -4.591660649354175

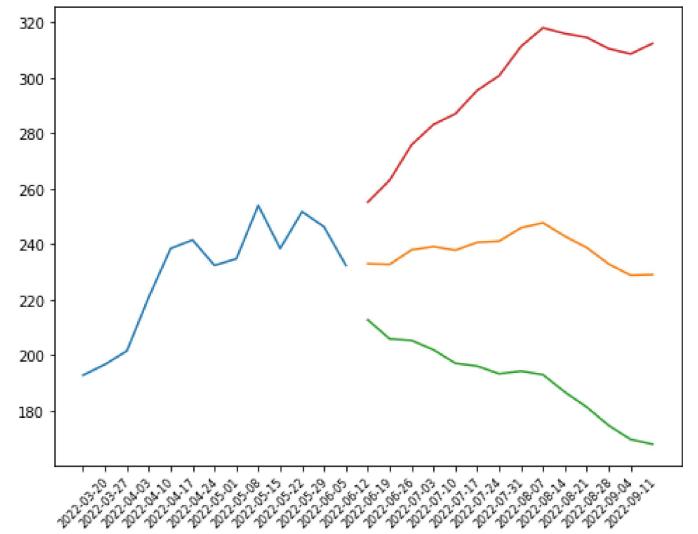
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



```

ets next 13 weeks
inner cv scores: [765.2570051310021, 765.2570033166005, 765.2570037428297, 765.2570027051701]
inner cv sdevs: [851.4887196937432, 851.4887360733575, 851.4887359941931, 851.4887207691525]
best model: ['F', 'T']
best inner cv score, sdev (11 folds): 765.2570027051701 851.4887207691525
test cv mean error, stdev (10 folds): [734.658522916889, 887.264017863509]
sell date: 2022-08-14
expected return: 0.06110424655904528
discounted return: 0.0009889905276616595
quarter return: 1.0952056627369904

```



```

['options', ('2022-07-15', '2022-11-18')]
symbol: PDCE
sector: Energy
Index: SP400
vol_30d_2yr: 12710569500.0
Sector 1YMF: 36.480003356933594
1YMF: 0.0023445054920631214
risk trend factor: 1.3709132852384265
    beta currentRatio debtToEquity dividendRate dividendYield \
PDCE 2.922058      0.498     32.834       1      0.0155

    ebitda ebitdaMargins forwardPE freeCashflow grossMargins \
PDCE 1278352000      0.53439   7.909181    661902144      0.88251

    grossProfits heldPercentInstitutions industry marketCap \
PDCE 2111095000      0.96343   Oil & Gas E&P 7717452288

    operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
PDCE 1547795968      0.26364     0.1225     0.14     3.034538

    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
PDCE 3.226148      0.21834     0.47      0.07455

    returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \
PDCE 0.18904       1.41        24.275   Energy      97381104

    shortRatio totalCash totalCashPerShare totalDebt totalRevenue trailingPE
PDCE 7.65 33829000      0.351  955555008  2392156928 186.03287
Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper
2022-06-14 81.650002 61.282943 76.301429 91.319914 73.603492 5.718236 62.16702 85.039964

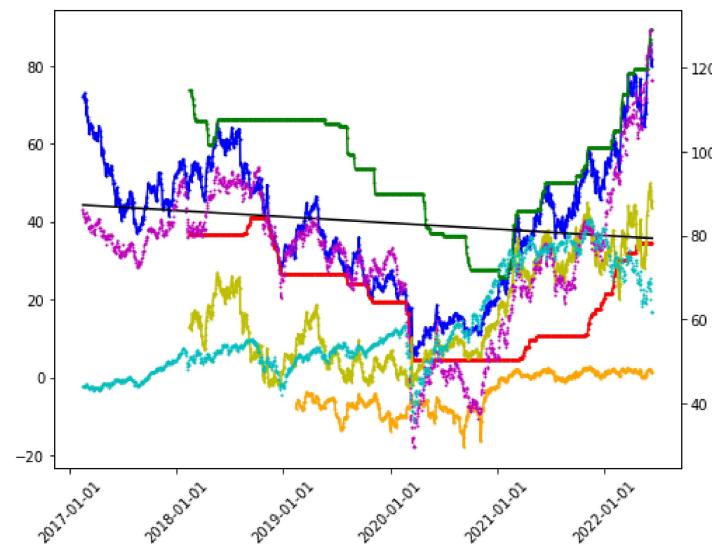
```

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
PDCE	0.002345	81.650002	12710569500.0	0.903714	0.723739	0.494349

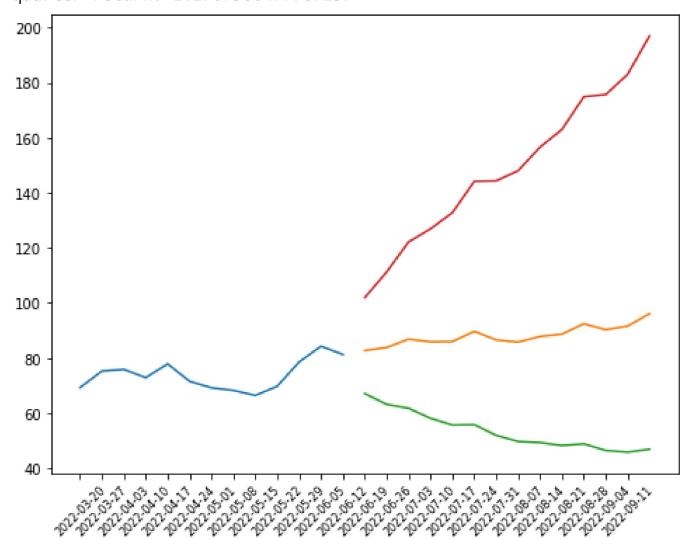
l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	risk_trend_factor		
black	linear		
yellow	supply_trend_1yr		

Sector 1YMF: 43.219993591308594
 Sector Volume Factor: 0.0015231818763778249
 Sector Risk Trend Factor: 1.395093250744777
 Index 1YMF: -63.869998931884766
 Index Volume Factor: 0.0011014613124698796
 Index Risk Trend Factor: -4.591660649354175

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
  ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [75.09304092740071, 75.09303415841248, 75.09303481621937, 75.09303269656365]
inner cv sdevs: [73.28977152907441, 73.2897722693622, 73.28977185668765, 73.28977285124697]
best model: ['F', 'T']
best inner cv score, sdev (11 folds): 75.09303269656365 73.28977285124697
test cv mean error, stdev (10 folds): [75.00694977102849, 76.86643139553966]
sell date: 2022-09-18
expected return: 0.1767714303828707
discounted return: 0.0017148857126882966
quarter return: 1.1707380497787239
```



```
[ 'quarterly_balance_sheet', 2021-12-31 2021-09-30 2021-06-30 \
Capital Surplus 3.161941e+09 3.267261e+09 3.333168e+09
Total Liab 2.426419e+09 2.823041e+09 2.869083e+09
Total Stockholder Equity 2.910247e+09 2.544224e+09 2.464906e+09
Deferred Long Term Liab 1.690000e+07 5.600000e+06 6.400000e+06
Other Current Liab 6.228770e+08 7.500000e+08 6.521060e+08
Total Assets 5.336666e+09 5.367265e+09 5.333989e+09
Common Stock 9.650000e+05 9.740000e+05 9.890000e+05
Other Current Assets 1.790000e+07 7.559000e+06 5.146000e+06
Retained Earnings -2.499540e+08 -7.230170e+08 -8.683380e+08
Other Liab 5.579650e+08 5.186080e+08 4.555700e+08
Treasury Stock -2.705000e+06 -9.940000e+05 -9.130000e+05
Other Assets 5.559800e+07 4.755700e+07 4.764500e+07
Cash 3.382900e+07 9.992200e+07 1.097490e+08
Total Current Liabilities 9.200960e+08 1.053438e+09 1.161964e+09
Property Plant Equipment 4.822495e+09 4.835014e+09 4.856531e+09
Total Current Assets 4.585730e+08 4.846940e+08 4.298130e+08
Net Tangible Assets 2.910247e+09 2.544224e+09 2.464906e+09
Net Receivables 3.986050e+08 3.686110e+08 3.072010e+08
Long Term Debt 9.420840e+08 1.243235e+09 1.242676e+09
Accounts Payable 1.278910e+08 1.439310e+08 1.770990e+08
Short Long Term Debt NaN NaN 1.979190e+08
```

```
2021-03-31
Capital Surplus 3.369272e+09
Total Liab 2.653589e+09
Total Stockholder Equity 2.587068e+09
Deferred Long Term Liab 7.300000e+06
Other Current Liab 4.411260e+08
Total Assets 5.240657e+09
Common Stock 9.940000e+05
Other Current Assets 8.032000e+06
Retained Earnings -7.813910e+08
Other Liab 4.580310e+08
Treasury Stock -1.897000e+06
Other Assets 6.254900e+07
Cash 5.906700e+07
Total Current Liabilities 9.435670e+08
Property Plant Equipment 4.842849e+09
Total Current Assets 3.352590e+08
Net Tangible Assets 2.587068e+09
Net Receivables 2.568370e+08
Long Term Debt 1.242108e+09
Accounts Payable 1.206470e+08
Short Long Term Debt 1.954510e+08 ]
```

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

```

```
Change To Liabilities 40183000.0 0.0
Total Cashflows From Investing Activities -154330000.0 -188348000.0
Net Borrowings -308979000.0 -200414000.0
Total Cash From Financing Activities -431738999.0 -271933000.0
Change To Operating Activities 168409000.0 33962000.0
Net Income 473063000.0 145321000.0
Change In Cash -66093000.0 -9827000.0
Repurchase Of Stock -49679000.0 -59804000.0
Total Cash From Operating Activities 519976000.0 450454000.0
Depreciation 159870000.0 172469000.0
Dividends Paid -11401627.0 -11715000.0
Change To Account Receivables -153717000.0 -153717000.0
Other Cashflows From Financing Activities -13066000.0 -13066000.0
Change To Netincome -162105000.0 95221000.0
Capital Expenditures -154808000.0 -188654000.0
```

```
2021-06-30 2021-03-31
Change To Liabilities 0.0 0.0
Total Cashflows From Investing Activities -131379000.0 -104747000.0
Net Borrowings -434000.0 -168445000.0
Total Cash From Financing Activities -42246000.0 -191868000.0
Change To Operating Activities -118700000.0 53068000.0
Net Income -87037000.0 -9036000.0
Change In Cash 50682000.0 56444000.0
Repurchase Of Stock -29927000.0 -23423000.0
Total Cash From Operating Activities 224307000.0 353059000.0
Depreciation 165442000.0 149891000.0
Dividends Paid -11885000.0 -11885000.0
Change To Account Receivables -153717000.0 -153717000.0
Other Cashflows From Financing Activities -13066000.0 -13066000.0
Change To Netincome 260725000.0 155299000.0
Capital Expenditures -131423000.0 -109117000.0 ]
```

```
[ 'quarterly_earnings', Revenue Earnings
```

```
Quarter
```

```
IQ2021 43780000 -9036000
2Q2021 510154000 -87037000
3Q2021 659386000 145321000
4Q2021 784817000 473063000]
```

```
[ 'quarterly_financials', 2021-12-31 2021-09-30 2021-06-30 \

```

```
Research Development None None None
```

Effect Of Accounting Charges	None	None	None
Income Before Tax	499536000.0	145531000.0	-87192000.0
Minority Interest	None	None	None
Net Income	473063000.0	145321000.0	-87037000.0
Selling General Administrative	31366000.0	30847000.0	32843000.0
Gross Profit	708056000.0	587005000.0	441770000.0
Ebit	522355000.0	165486000.0	-67199000.0
Operating Income	522355000.0	165486000.0	-67199000.0
Other Operating Expenses	-2836000.0	220806000.0	313630000.0
Interest Expense	-16572000.0	-20098000.0	-20060000.0
Extraordinary Items	None	None	None
Non Recurring	None	None	None
Other Items	None	None	None
Income Tax Expense	26473000.0	210000.0	-155000.0
Total Revenue	784817000.0	659386000.0	510154000.0
Total Operating Expenses	262462000.0	493900000.0	577353000.0
Cost Of Revenue	76761000.0	72381000.0	68384000.0
Total Other Income Expense Net	-22819000.0	-19955000.0	-19993000.0
Discontinued Operations	None	None	None
Net Income From Continuing Ops	473063000.0	145321000.0	-87037000.0
Net Income Applicable To Common Shares	473063000.0	145321000.0	-87037000.0

2021-03-31

Research Development	None
Effect Of Accounting Charges	None
Income Before Tax	-8981000.0
Minority Interest	None
Net Income	-9036000.0
Selling General Administrative	32677000.0
Gross Profit	374264000.0
Ebit	10038000.0
Operating Income	10038000.0
Other Operating Expenses	184432000.0
Interest Expense	-19041000.0
Extraordinary Items	None
Non Recurring	None
Other Items	None
Income Tax Expense	55000.0
Total Revenue	437800000.0
Total Operating Expenses	427762000.0
Cost Of Revenue	63536000.0
Total Other Income Expense Net	-19019000.0
Discontinued Operations	None
Net Income From Continuing Ops	-9036000.0
Net Income Applicable To Common Shares	-9036000.0]

Holder Shares Date Reported \

0	iShares Core S&P Smallcap ETF	6850630	2022-01-30
1	Vanguard Total Stock Market Index Fund	2768637	2021-12-30
2	Vanguard Small-Cap Index Fund	2452337	2021-12-30
3	Oakmark Equity and Income Fund	2387591	2021-12-30
4	Delaware Group Equity Fds V-Small Cap Core Fund	2303183	2022-02-27
5	iShares Russell 2000 ETF	2232757	2022-01-30
6	DFA U.S. Small Cap Value Series	2118368	2022-01-30
7	Victory Portfolios-Sycamore Small Company Oppo...	1970000	2022-01-30
8	Vanguard Small-Cap Growth Index Fund	1526296	2021-12-30
9	SPDR (R) Ser Tr-SPDR (R) S&P (R) Oil & Gas Exp...	1385684	2022-01-30

% Out	Value
0 0.0718	406036840
1 0.0290	135054112
2 0.0257	119624998
3 0.0250	116466688
4 0.0241	148601367
5 0.0234	132335507
6 0.0222	125555671
7 0.0206	116761900
8 0.0160	74452718
9 0.0145	82129490]

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

symbol: MTDR

sector: Energy

Index: SP400

vol_30d_2yr: 25155623800.0

Sector 1YMF: 31.859996795654297

1YMF: 0.001225813370607013

risk trend factor: 1.3241895273706934

beta currentRatio debtToEquity dividendRate dividendYield \
 MTDR 3.830762 0.997 64.085 0.2 0.003

earningsGrowth ebitda ebitdaMargins forwardPE freeCashflow \
 MTDR 2.392 1377725952 0.67726 6.607179 33695376

grossMargins grossProfits heldPercentInstitutions industry \
 MTDR 0.85318 1462239000 0.94319 Oil & Gas E&P

marketCap operatingCashflow operatingMargins payoutRatio pegRatio \

```

MTDR 7609612288      1212914048      0.49636      0.0245      0.57
MTDR priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
MTDR 3.590058          3.740739          0.35956          0.801
MTDR returnOnAssets returnOnEquity revenueGrowth revenuePerShare sector \
MTDR 0.15195          0.40598          0.966          17.345 Energy
MTDR sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
MTDR 118125000         4.68   63001000          0.533 1497975040
MTDR totalRevenue trailingPE
MTDR 2034253952 10.514118
Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper
2022-06-14 61.389999 46.07128 58.382381 70.693483 54.852223 5.232355 44.387512 65.316933

```

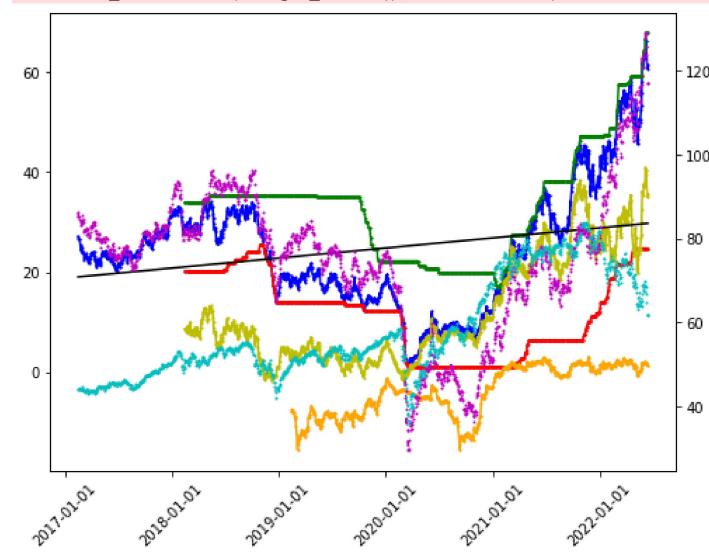
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
MTDR	0.001226	61.389999	25155623800.0	0.896081	0.97374	0.466991

l axis r axis

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

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -63.869998931884766
Index Volume Factor: 0.0011014613124698796
Index Risk Trend Factor: -4.591660649354175

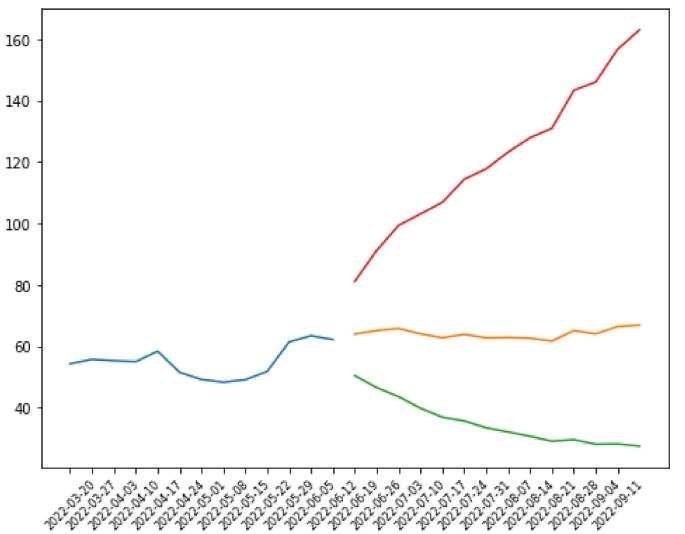
```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```

ets next 13 weeks
inner cv scores: [54.44452294015202, 54.44452282954308, 54.44452293384688, 54.44452283616049]
inner cv sdevs: [60.67444204726364, 60.674441930999386, 60.674442048608405, 60.67444192961734]
best model: ['T', 'F']
best inner cv score, sdev (11 folds): 54.44452282954308 60.674441930999386
test cv mean error, stdev (10 folds): [59.493003553515294, 61.393550047501805]
sell date: 2022-09-18
expected return: 0.08933209186492223
discounted return: 0.0009010873003929554
quarter return: 1.0863926409175153

```



```
['options', ('2022-06-17', '2022-07-15', '2023-01-20')]
symbol: CVX
sector: Energy
Index: SP500
vol_30d_2yr: 121494374800.0
Sector 1YMF: 39.81001281738281
1YMF: 0.001862212142516412
risk trend factor: 1.2825393501347189
    beta currentRatio debtToEquity dividendRate dividendYield \
CVX 1.078947      1.433      19.941      5.68      0.0315
```

```
earningsGrowth      ebitda ebitdaMargins forwardPE freeCashflow \
CVX      3.473 38521999360      0.21783 12.431709 21073375232
```

```
grossMargins grossProfits heldPercentInstitutions industry \
CVX 0.40935 66234000000      0.71587 Oil & Gas Integrated
```

```
marketCap operatingCashflow operatingMargins payoutRatio pegRatio \
CVX 355886039040      33045999616      0.12219      0.5113      0.6
```

```
priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
CVX 2.433922      2.012429      0.11596      1.119
```

```
returnOnAssets returnOnEquity revenueGrowth revenuePerShare sector \
CVX 0.05505      0.1469      0.683      92.025 Energy
```

```
sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
CVX 1964809984      2.03 11704000512      5.957 29333000192
```

```
totalRevenue trailingPE
CVX 176843997184      17.0187
```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSD	90d_lower	90d_upper
2022-06-14	167.550003	165.754118	174.02664	182.299162	166.848085	6.732398	153.383289	180.31288

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
CVX	0.001862	167.550003	121494374800.0	0.873337	0.949121	0.497243

l axis r axis

legend	
blue	symbol
green	trailing_1yr_max
red	trailing_1yr_min
orange	risk_trend_factor
black	linear

legend	
magenta	sector
cyan	index

Sector 1YMF: 43.219993591308594

Sector Volume Factor: 0.0015231818763778249

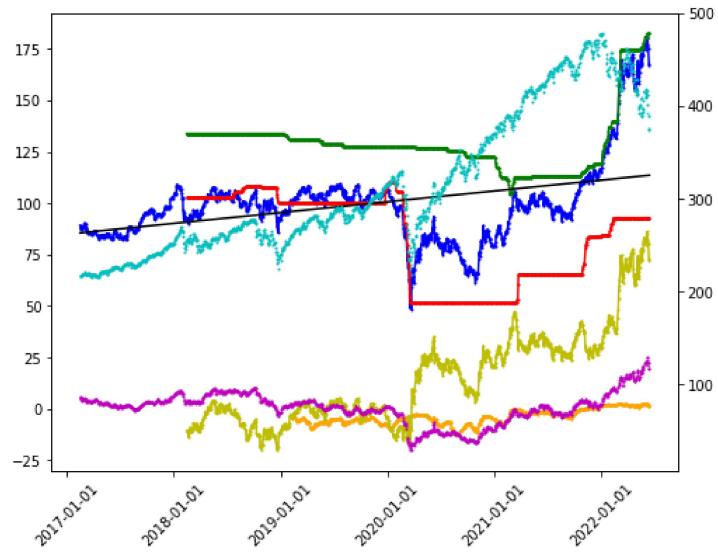
Sector Risk Trend Factor: 1.395093250744777

Index 1YMF: -263.8100280761719

Index Volume Factor: 0.0022075805827187875

Index Risk Trend Factor: -3.321707170400029

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```

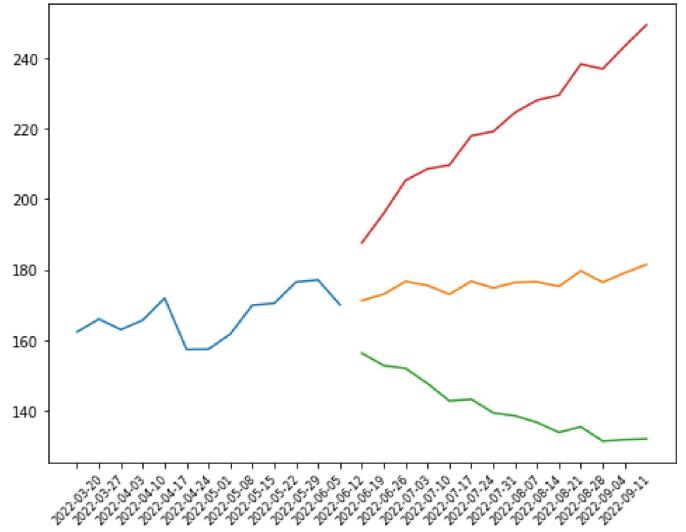
ets next 13 weeks
inner cv scores: [151.81724559834186, 151.81724556629135, 151.81724566025434, 151.81724572933933]
inner cv sdevs: [130.67142203588728, 130.67142201961119, 130.67142194988855, 130.67142195964368]
best model: ['T', 'F']
best inner cv score, sdev (11 folds): 151.81724556629135 130.67142201961119
test cv mean error, stdev (10 folds): [165.40839539167862, 129.42414651195193]

```

```

C:\Users\User\AppData\Local\Programs\Python\Python39\lib\site-packages\statsmodels\tsa\statespace\exponential_smoothing.py:348: RuntimeWarning: overflow encountered in exp
  1 / (1 + np.exp(-unconstrained[0])) * (high - low) + low)
C:\Users\User\AppData\Local\Programs\Python\Python39\lib\site-packages\statsmodels\tsa\statespace\exponential_smoothing.py:356: RuntimeWarning: overflow encountered in exp
  1 / (1 + np.exp(-unconstrained[i])) * (high - low) + low)
C:\Users\User\AppData\Local\Programs\Python\Python39\lib\site-packages\statsmodels\tsa\statespace\exponential_smoothing.py:364: RuntimeWarning: overflow encountered in exp
  1 / (1 + np.exp(-unconstrained[i])) * (high - low) + low)
sell date: 2022-09-18
expected return: 0.08280129850502214
discounted return: 0.0008377346824555154
quarter return: 1.0800845509968897

```



```

['options', ('2022-06-17', '2023-01-20', '2024-01-19')]
['sustainability',                                     Value
2022-5
palmOil          False
controversialWeapons  False
gambling          False
socialScore        10.63
nuclear           False
furLeather        False
alcoholic          False
gmo                False
catholic           False
socialPercentile  None
peerCount          66
governanceScore   9.95
environmentPercentile  None
animalTesting     True
tobacco            False
totalEsg           43
highestControversy 3
esgPerformance    LEAD_PERF
coal               False
pesticides         False
adult              False
percentile         92.22
peerGroup          Oil & Gas Producers
smallArms          False
environmentScore   22.42
governancePercentile  None
militaryContract  False]
symbol: DINO
sector: Energy
Index: SP400
vol_30d_2yr: 26318648400.0
Sector 1YMF: 29.75
1YMF: 0.0019388343665854815
risk trend factor: 1.2605933018437596
    beta currentRatio debtToEquity dividendRate dividendYield \
DINO 1.639705      1.822      57.138      1.6      0.0341

    ebitda ebitdaMargins freeCashflow grossMargins grossProfits \
DINO 1137624960      0.06186     -771616128      0.08786    1615735000

    heldPercentInstitutions           industry \
DINO          0.62529  Oil & Gas Refining & Marketing

    operatingCashflow operatingMargins payoutRatio pegRatio profitMargins \
DINO        406681984      0.04193      0.1032      0.35      0.03036

    quickRatio returnOnAssets returnOnEquity revenueGrowth revenuePerShare \
DINO      0.762      0.03946      0.11039      0.938      113.116

    sector shortRatio totalCash totalCashPerShare totalDebt totalRevenue
DINO  Energy       3.3  234444000      1.438  3596556032  18389141504

```

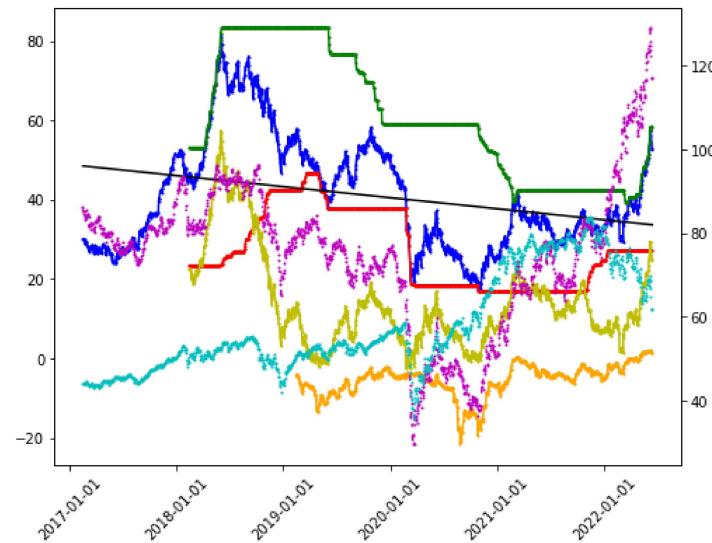
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	52.709999	43.053372	50.814127	58.574881	43.209524	6.300526	30.608473	55.810575

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
DINO	0.001939	52.709999	26318648400.0	0.861118	0.358718	0.56268

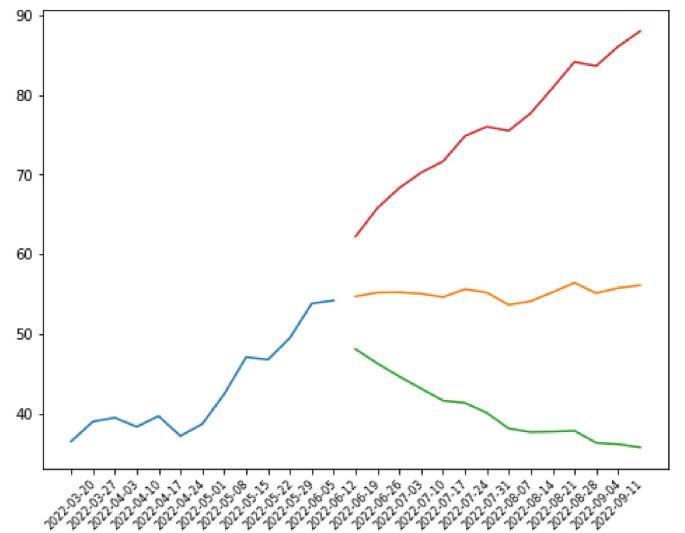
l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	risk_trend_factor		
black	linear		
yellow	supply_trend_1yr		

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -63.869998931884766
Index Volume Factor: 0.0011014613124698796
Index Risk Trend Factor: -4.591660649354175

C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



ets next 13 weeks
 inner cv scores: [64.68803451378928, 64.68803453398992, 64.68803464738129, 64.6880344998633]
 inner cv sdevs: [71.44587844890935, 71.44587844396875, 71.44587835677216, 71.44587845532286]
 best model: ['F', 'T']
 best inner cv score, sdev (11 folds): 64.6880344998633 71.44587845532286
 test cv mean error, stdev (10 folds): [70.46772015759147, 72.43971615287474]
 sell date: 2022-08-28
 expected return: 0.07016034770763921
 discounted return: 0.0009167509719176792
 quarter return: 1.0879579003349393



```
[ 'quarterly_balance_sheet', 2021-12-31 2021-09-30 2021-06-30 \
Intangible Assets 2.990580e+08 6.410410e+08 6.546840e+08
Capital Surplus 4.220075e+09 4.232504e+09 4.225032e+09
Total Liab 6.622148e+09 6.567642e+09 6.519789e+09
Total Stockholder Equity 5.687885e+09 5.726740e+09 5.443375e+09
Minority Interest 6.065800e+08 6.027990e+08 5.968690e+08
Deferred Long Term Liab 3.973850e+08 3.453140e+08 3.037070e+08
Other Current Liab 2.699100e+07 1.499010e+08 2.866900e+07
Total Assets 1.291661e+10 1.289718e+10 1.256003e+10
Common Stock 2.560000e+06 2.560000e+06 2.560000e+06
Other Current Assets 6.463000e+06 1.967000e+06 1.563000e+06
Retained Earnings 4.413836e+09 4.453366e+09 4.172560e+09
Other Liab 1.118644e+09 1.136432e+09 1.078211e+09
Good Will 2.293044e+09 2.293305e+09 2.293544e+09
Treasury Stock -2.948586e+09 -2.961690e+09 -2.956777e+09
Other Assets 7.510120e+08 3.453140e+08 3.037070e+08
Cash 2.344440e+08 1.481562e+09 1.398280e+09
Total Current Liabilities 2.065464e+09 2.044208e+09 2.012771e+09
Other Stockholder Equity 2.671000e+06 4.460000e+06 9.653000e+06
Property Plant Equipment 5.811045e+09 5.262498e+09 5.163648e+09
Total Current Assets 3.762454e+09 4.355023e+09 4.144450e+09
Net Tangible Assets 3.095783e+09 2.792394e+09 2.495147e+09
Net Receivables 1.339270e+09 9.475650e+08 9.962990e+08
Long Term Debt 3.072737e+09 3.072352e+09 3.100969e+09
Inventory 2.122128e+09 1.887080e+09 1.700605e+09
Accounts Payable 1.613484e+09 1.460769e+09 1.480820e+09
```

2021-03-31

```
Intangible Assets 6.498000e+08
Capital Surplus 4.216816e+09
Total Liab 6.096771e+09
Total Stockholder Equity 5.259187e+09
Minority Interest 5.788590e+08
Deferred Long Term Liab 3.087260e+08
Other Current Liab 4.575800e+07
Total Assets 1.193482e+10
Common Stock 2.560000e+06
Other Current Assets 2.445000e+06
Retained Earnings 4.003733e+09
Other Liab 9.379000e+08
Good Will 2.293422e+09
Treasury Stock -2.963922e+09
Other Assets 3.087260e+08
Cash 1.193428e+09
Total Current Liabilities 1.757308e+09
Other Stockholder Equity 4.658000e+06
Property Plant Equipment 4.982533e+09
Total Current Assets 3.700276e+09
Net Tangible Assets 2.315905e+09
Net Receivables 8.440410e+08
Long Term Debt 3.126091e+09
Inventory 1.616848e+09
Accounts Payable 1.266690e+09 ]
```

2021-12-31 2021-09-30 \

```
[ 'quarterly_cashflow', 2021-12-31 2021-09-30 \
Investments 6.480000e+05 410000.0
Change To Liabilities 1.738690e+08 -28662000.0
Total Cashflows From Investing Activities -8.887430e+08 -116164000.0
Net Borrowings -2.443000e+06 -30251000.0
Total Cash From Financing Activities -2.763400e+07 -45691000.0
Change To Operating Activities -1.612560e+08 72162000.0
Net Income -3.953000e+07 280787000.0
Change In Cash -1.247118e+09 83282000.0
Repurchase Of Stock -6.445000e+06 -122000.0
Effect Of Exchange Rate 2.071000e+06 -4276000.0
Total Cash From Operating Activities -3.328120e+08 249413000.0
Depreciation -2.702000e+06 121220000.0
Change To Inventory 5.507100e+07 -19492000.0
Change To Account Receivables -3.937620e+08 72256000.0
Other Cashflows From Financing Activities -1.874600e+07 -15318000.0
Change To Netincome -1.073170e+08 -58845000.0
Capital Expenditures -2.650640e+08 -215504000.0
Other Cashflows From Investing Activities NaN NaN
Dividends Paid NaN NaN
```

2021-06-30 2021-03-31

```
Investments 3107000.0 3107000.0
Change To Liabilities 201040000.0 266163000.0
Total Cashflows From Investing Activities -175248000.0 -147064000.0
Net Borrowings -26623000.0 -18173000.0
Total Cash From Financing Activities -48917000.0 -89561000.0
Change To Operating Activities 55153000.0 98871000.0
Net Income 168850000.0 148217000.0
Change In Cash 204852000.0 -174890000.0
Repurchase Of Stock -479000.0 -12000.0
Effect Of Exchange Rate 1262000.0 -591000.0
Total Cash From Operating Activities 427755000.0 62326000.0
```

```

Depreciation          124042000.0 124079000.0
Change To Inventory   36530000.0 -241238000.0
Change To Account Receivables -147010000.0 -145891000.0
Other Cashflows From Financing Activities -21815000.0 -13713000.0
Change To Netincome    -82000.0 -224054000.0
Capital Expenditures -182880000.0 -149961000.0
Other Cashflows From Investing Activities -2897000.0 2897000.0
Dividends Paid          NaN -57663000.0 ]
['quarterly_earnings',      Revenue   Earnings
Quarter

```

```

1Q2021 3504293000 148217000
2Q2021 4577123000 168850000
3Q2021 4685059000 280787000
4Q2021 5622667000 -39530000

```

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

```

	2021-12-31	2021-09-30
Research Development	None	None
Effect Of Accounting Charges	None	None
Income Before Tax	-43150000.0	357507000.0
Minority Interest	606580000.0	602799000.0
Net Income	-39530000.0	280787000.0
Selling General Administrative	92633000.0	87686000.0
Gross Profit	225010000.0	509881000.0
Ebit	-1821000.0	300975000.0
Operating Income	-1821000.0	300975000.0
Other Operating Expenses	None	None
Interest Expense	-30955000.0	-26892000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	-26046000.0	54766000.0
Total Revenue	5622667000.0	4685059000.0
Total Operating Expenses	5624488000.0	4384084000.0
Cost Of Revenue	5397657000.0	4175178000.0
Total Other Income Expense Net	-41329000.0	56532000.0
Discontinued Operations	None	None
Net Income From Continuing Ops	-17104000.0	302741000.0
Net Income Applicable To Common Shares	-39107000.0	277234000.0

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

	2021-06-30	2021-03-31
Research Development	None	None
Effect Of Accounting Charges	None	None
Income Before Tax	318252000.0	154543000.0
Minority Interest	596869000.0	578859000.0
Net Income	168850000.0	148217000.0
Selling General Administrative	78686000.0	73245000.0
Gross Profit	536228000.0	344616000.0
Ebit	333500000.0	147292000.0
Operating Income	333500000.0	147292000.0
Other Operating Expenses	None	None
Interest Expense	-28942000.0	-38386000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	123485000.0	-28307000.0
Total Revenue	4577123000.0	3504293000.0
Total Operating Expenses	4243623000.0	3357001000.0
Cost Of Revenue	4040895000.0	3159677000.0
Total Other Income Expense Net	-15248000.0	7251000.0
Discontinued Operations	None	None
Net Income From Continuing Ops	194767000.0	182850000.0
Net Income Applicable To Common Shares	166627000.0	146175000.0

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

```

	Holder	Shares	Date Reported
0	iShares Core S&P Midcap ETF	4158265	2022-01-30
1	Vanguard Total Stock Market Index Fund	4157166	2021-12-30
2	Fidelity Low-Priced Stock Fund	3753790	2022-02-27
3	Vanguard Small-Cap Index Fund	3681912	2021-12-30
4	John Hancock Fds III-Disciplined Value Mid Cap Fd	2884974	2021-12-30
5	SPDR (R) Ser Tr-SPDR (R) S&P (R) Oil & Gas Exp...	2700673	2022-01-30
6	Vanguard Small Cap Value Index Fund	2335086	2021-12-30
7	DFA U.S. Small Cap Value Series	1999592	2022-01-30
8	Vanguard Extended Market Index Fund	1980785	2021-12-30
9	John Hancock Mutual Fds III-Disciplined Value Fd	1734416	2021-12-30

% Out	Value
0 0.0186	146204597
1 0.0186	136271901
2 0.0168	114302905
3 0.0165	120693075
4 0.0129	94569447
5 0.0121	94955662
6 0.0105	76544119
7 0.0090	70305654
8 0.0089	64930132
9 0.0078	56854156

symbol: MCK
sector: Healthcare

```

Index: SP500
vol_30d_2yr: 11748608200.0
Sector 1YMF: 45.5699462890625
1YMF: 0.0018464059427907385
risk trend factor: 1.2529544241683812
    beta currentRatio dividendRate dividendYield earningsGrowth \
MCK  0.663839      0.954     1.88      0.0059      -0.406

    ebitda ebitdaMargins forwardPE freeCashflow grossMargins \
MCK  3191000064      0.01209   12.411926   2685625088      0.04957

    grossProfits heldPercentInstitutions industry marketCap \
MCK  13084000000      0.9152  Medical Distribution 45990576128

    operatingCashflow operatingMargins payoutRatio pegRatio \
MCK      4433999872      0.00965     0.2521      1

    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
MCK      0.174229      0.00422     0.456      0.02481

    revenueGrowth revenuePerShare sector sharesOutstanding shortRatio \
MCK      0.118       1733.198 Healthcare 145364992      2.18

    totalCash totalCashPerShare totalDebt totalRevenue trailingPE
MCK  3532000000      24.297   7616999936 263965999104 43.771442

```

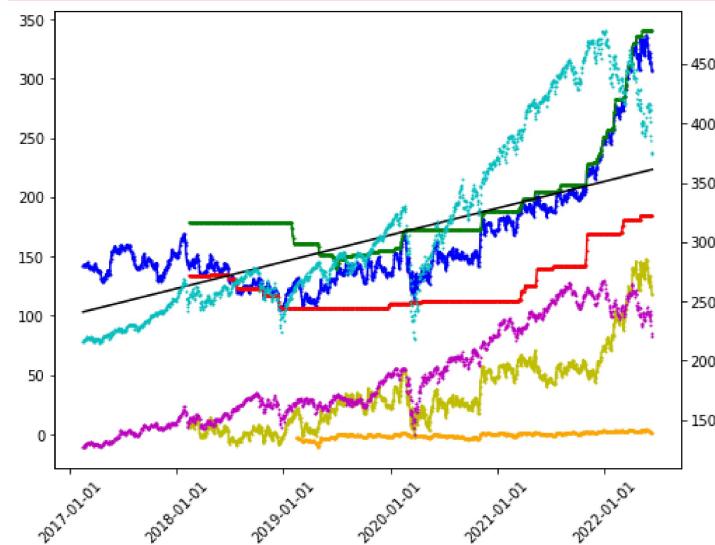
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	306.519989	305.867308	321.912697	337.958087	317.366349	10.865668	295.635013	339.097684

volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
MCK	0.001846	306.519989	11748608200.0	0.83305	0.998289	0.462444

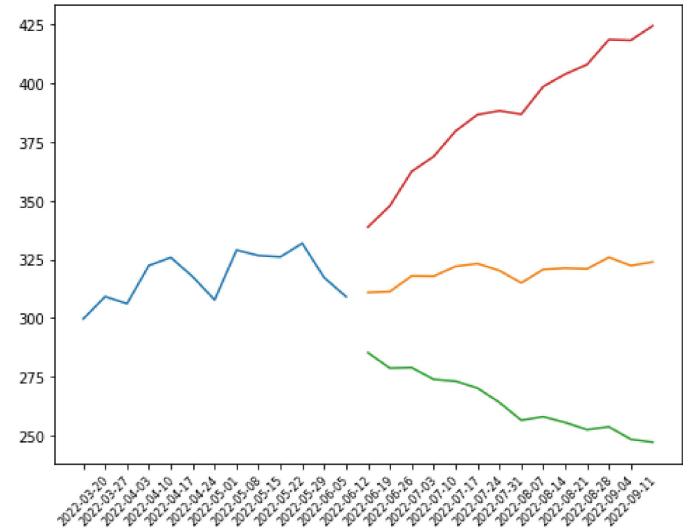
l axis	r axis
legend	legend
blue symbol	magenta sector
green trailing_1yr_max	cyan index
red trailing_1yr_min	
orange risk_trend_factor	
black linear	
yellow supply_trend_1yr	

Sector 1YMF: -120.76998901367188
Sector Volume Factor: 0.0022806018349254167
Sector Risk Trend Factor: -2.889924965769055
Index 1YMF: -263.8100280761719
Index Volume Factor: 0.0022075805827187875
Index Risk Trend Factor: -3.321707170400029

C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



```
ets next 13 weeks
inner cv scores: [460.05208126937055, 460.0520748585798, 460.05224789481287, 460.05217972923657]
inner cv sdevs: [630.9192856360353, 630.9192650513498, 630.9192056098149, 630.9192346359147]
best model: ['T', 'F']
best inner cv score, sdev (11 folds): 460.0520748585798 630.9192650513498
test cv mean error, stdev (10 folds): [494.6143127590634, 651.7093168256196]
sell date: 2022-09-04
expected return: 0.06314634669239352
discounted return: 0.0007562458488148405
quarter return: 1.0720238639935127
```



```

['options', ('2022-08-19', '2023-01-20', '2024-01-19')]
['sustainability',                                Value
2022-5
palmOil          False
controversialWeapons  False
gambling          False
socialScore        7.37
nuclear           False
furLeather        False
alcoholic          False
gmo                False
catholic           False
socialPercentile  None
peerCount          58
governanceScore   5.52
environmentPercentile  None
animalTesting     False
tobacco            False
totalEsg           15.17
highestControversy 3
esgPerformance    UNDER_PERF
coal               False
pesticides         False
adult              False
percentile         10.18
peerGroup          Healthcare
smallArms          False
environmentScore   2.29
governancePercentile  None
militaryContract  False]
symbol: PXD
sector: Energy
Index: SP500
vol_30d_2yr: 24263857900.0
Sector 1YMF: 85.80996704101562
1YMF: 0.002081342555175449
risk trend factor: 1.2479635528837139
    beta currentRatio debtToEquity dividendRate dividendYield \
PXD 1.535843      1.541      25.456      12.34      0.0456

    ebitda ebitdaMargins forwardPE freeCashflow grossMargins \
PXD 9187000320      0.43846  9.925613  2404124928      0.53944

    grossProfits heldPercentInstitutions industry marketCap \
PXD 9392000000      0.922      Oil & Gas E&P  65539436544

    operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
PXD 8265999872      0.31175  0.3288      0.5      2.769122

    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
PXD 3.127926      0.2003      1.404      0.12148

    returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \
PXD 0.20075      1.006      86.852  Energy      241959008

    shortRatio totalCash totalCashPerShare totalDebt totalRevenue \
PXD 2.87      3256000000      13.457  6024999936  20952999936

    trailingPE
PXD 16.633099

Adj Close  21dBOLD  21dMA-TP  21dBOLU  90dSMA  90dSDev  90d_lower  90d_upper
2022-06-14 264.549988 261.401114 274.131746 286.862377 256.653492 15.192129 226.269234 287.03775

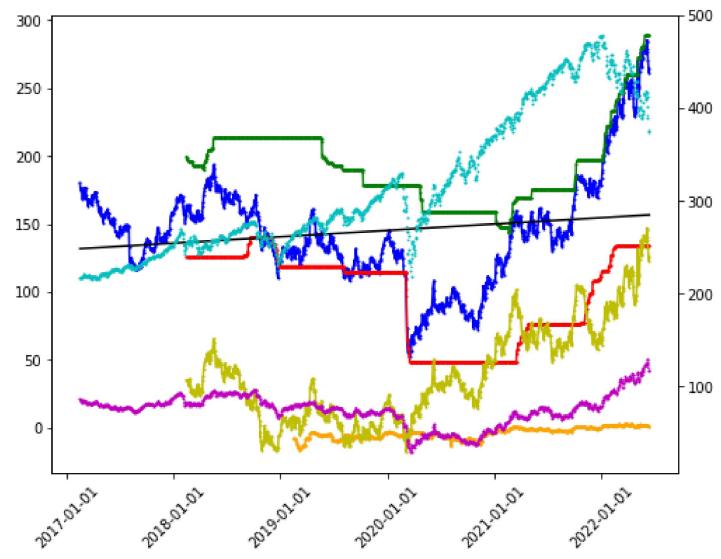
```

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
PXD	0.002081	264.549988	24263857900.0	0.887153	0.912273	0.497407

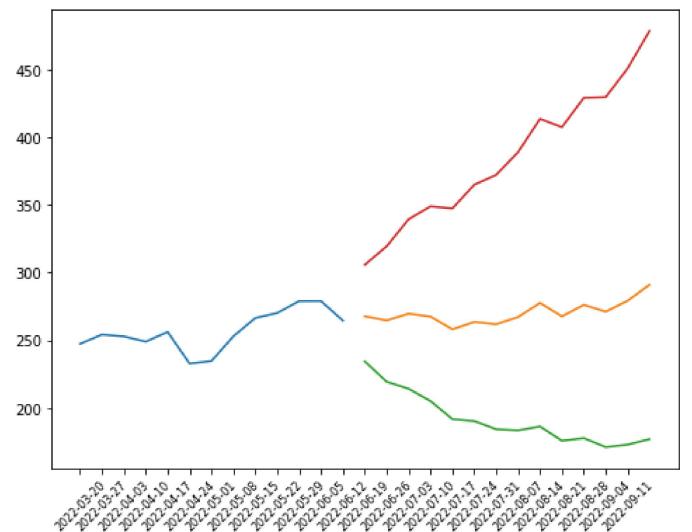
l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	risk_trend_factor		
black	linear		
yellow	supply_trend_1yr		

Sector 1YMF: 43.219993591308594
 Sector Volume Factor: 0.0015231818763778249
 Sector Risk Trend Factor: 1.395093250744777
 Index 1YMF: -263.8100280761719
 Index Volume Factor: 0.0022075805827187875
 Index Risk Trend Factor: -3.321707170400029

C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
 ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



ets next 13 weeks
 inner cv scores: [892.5062948284675, 892.5062924862012, 892.5062947368207, 892.506292562174]
 inner cv sdevs: [977.0648262253535, 977.0648206428641, 977.0648262138556, 977.0648206123301]
 best model: ['T', 'F']
 best inner cv score, sdev (11 folds): 892.5062924862012 977.0648206428641
 test cv mean error, stdev (10 folds): [969.3279521995831, 992.574432743306]
 sell date: 2022-09-18
 expected return: 0.1003102962268565
 discounted return: 0.001006740396978012
 quarter return: 1.0969937957034677



```

['options', ('2022-06-17', '2023-01-20', '2024-01-19')]
['sustainability',                                     Value
2022-5
palmOil          False
controversialWeapons  False
gambling          False
socialScore        8.97
nuclear           False
furLeather        False
alcoholic          False
gmo                False
catholic           False
socialPercentile  None
peerCount          66
governanceScore   9.1
environmentPercentile  None
animalTesting     False
tobacco            False
totalEsg          36.53
highestControversy 1
esgPerformance    OUT_PERF
coal               False
pesticides         False
adult              False
percentile         81.93
peerGroup          Oil & Gas Producers
smallArms          False
environmentScore   18.46
governancePercentile  None
militaryContract  False]
symbol: HRB
sector: Consumer Cyclical
Index: SP400
vol_30d_2yr: 27760839000.0
Sector 1YMF: 16.200002670288086
1YMF: 0.002252709293116105
risk trend factor: 1.229135049377601
    beta currentRatio debtToEquity dividendRate dividendYield \
HRB 0.695099      1.103      5314.905      1.08      0.0298

    earningsGrowth    ebitda ebitdaMargins forwardPE grossMargins \
HRB -0.008 806428032      0.30238      9.67663      0.472

    grossProfits heldPercentInstitutions      industry marketCap \
HRB 1400058000      0.93154 Personal Services 5683142656

    operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
HRB 80728000      0.25066      0.3344      1.05      126.72598

    priceToSalesTrailing12Months profitMargins quickRatio revenueGrowth \
HRB 2.130946      0.16063      0.971      0.039

    revenuePerShare      sector sharesOutstanding shortRatio \
HRB 15.645 Consumer Cyclical 159594000      4.71

    totalCash totalCashPerShare      totalDebt totalRevenue trailingPE
HRB 1041740032      6.527 2384054016 2666958080 14.570376
Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper
2022-06-14 34.380001 32.299965 34.590476 36.880987 29.356349 4.009761 21.336827 37.375872

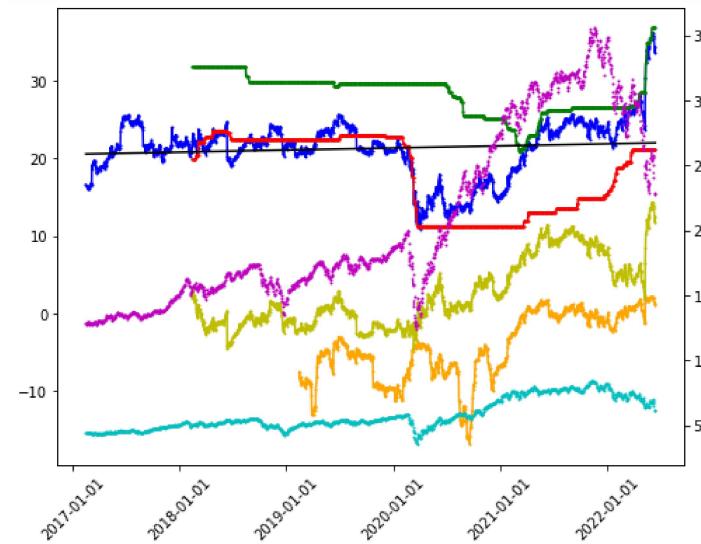
```

volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
HRB	0.002253	34.380001	27760839000.0	0.896972	0.725167	0.435532

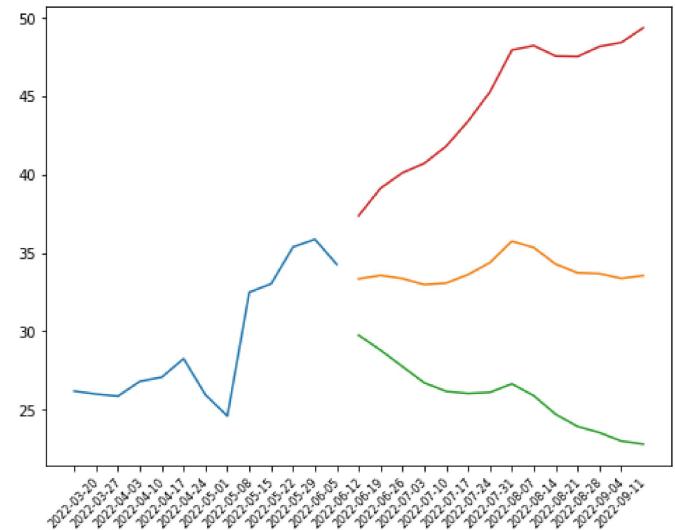
l axis	r axis
legend	legend
blue symbol	magenta sector
green trailing_1yr_max	cyan index
red trailing_1yr_min	
orange risk_trend_factor	
black linear	
yellow supply_trend_1yr	

Sector 1YMF: -352.910036621094
Sector Volume Factor: 0.0021034643160444764
Sector Risk Trend Factor: -4.247321632052965
Index 1YMF: -63.869998931884766
Index Volume Factor: 0.0011014613124698796
Index Risk Trend Factor: -4.591660649354175

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
  ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [7.879964442872336, 7.87996540432114, 7.879964573246037, 7.879964572890064]
inner cv sdevs: [7.164695090272689, 7.164694992608824, 7.164695029804184, 7.164695416232627]
best model: ['T', 'T']
best inner cv score, sdev (11 folds): 7.879964442872336 7.164695090272689
test cv mean error, stdev (10 folds): [8.086119047023693, 7.483224159904639]
sell date: 2022-08-07
expected return: 0.039744142922428415
discounted return: 0.0007356415169794683
quarter return: 1.0699951738206512
```



```
[ 'options', ('2022-07-15', '2023-01-20', '2024-01-19') ]
symbol: SWX
sector: Utilities
Index: SP400
vol_30d_2yr: 4573768600.0
Sector 1YMF: 11.229995727539062
1YMF: 0.002194579760768833
risk trend factor: 1.1064033536257658
    beta currentRatio debtToEquity dividendRate dividendYield \
SWX 0.108035      0.778     174.475      2.48      0.0263

earningsGrowth ebitda ebitdaMargins forwardPE freeCashflow \
SWX -0.222 786628992 0.19366 19.052631 -470833120

grossMargins grossProfits heldPercentInstitutions \
SWX 0.21709 853431000 0.89023

industry marketCap operatingCashflow operatingMargins \
SWX Utilities-Regulated Gas 6292110336 350460000 0.09512

payoutRatio pegRatio priceToBook priceToSalesTrailing12Months \
SWX 0.8123 5.02 1.803307 1.549036

profitMargins quickRatio returnOnAssets returnOnEquity revenueGrowth \
SWX 0.04423 0.551 0.02178 0.05621 0.431

revenuePerShare sector sharesOutstanding shortRatio totalCash \
SWX 67.779 Utilities 66852000 1.78 624665984

totalCashPerShare totalDebt totalRevenue trailingPE
SWX 9.344 6324827136 4061953024 31.40474
```

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

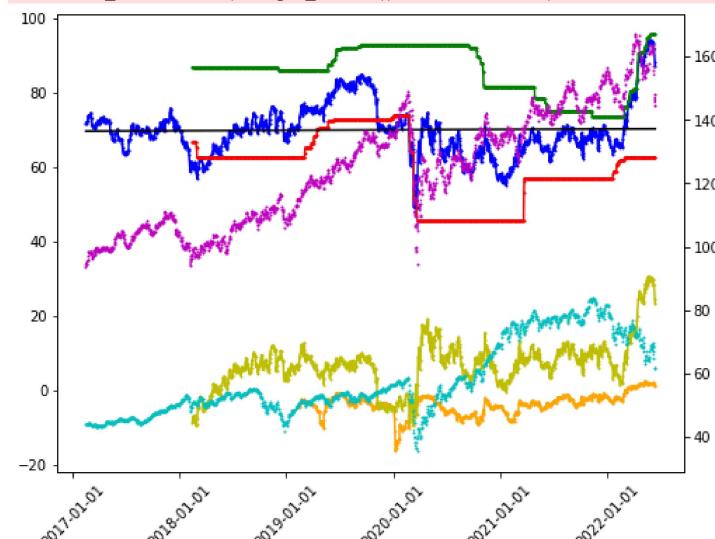
2022-06-14 87.040001 89.230089 92.435079 95.640069 86.673809 6.07931 74.51519 98.832428

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
SWX	0.002195	87.040001	4573768600.0	0.777835	0.145807	0.399565

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

Sector 1YMF: -49.86000061035156
Sector Volume Factor: 0.002030212702591272
Sector Risk Trend Factor: -2.0367650862888413
Index 1YMF: -63.869998931884766
Index Volume Factor: 0.0011014613124698796
Index Risk Trend Factor: -4.591660649354175

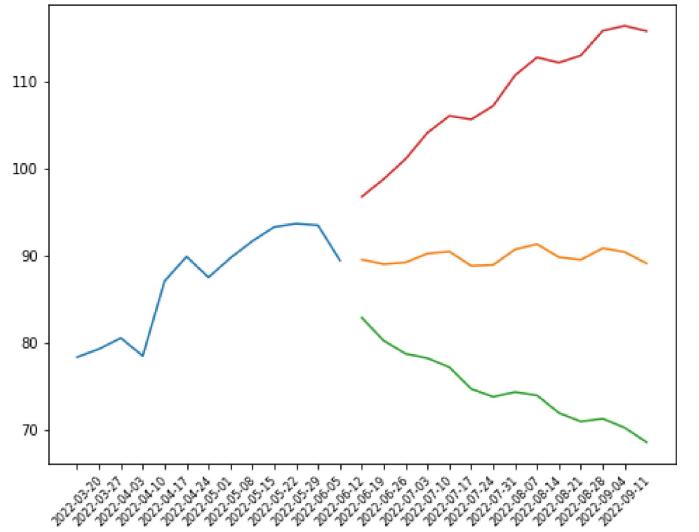
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



```

ets next 13 weeks
inner cv scores: [40.85251490496256, 40.85251404388559, 40.85251485750529, 40.8525148569703]
inner cv sdevs: [45.99035856804874, 45.990358557509346, 45.99035859790528, 45.99035859814881]
best model: ['T', 'F']
best inner cv score, sdev (11 folds): 40.85251404388559 45.990358557509346
test cv mean error, stdev (10 folds): [42.239784165390134, 48.01514839154868]
sell date: 2022-08-14
expected return: 0.04870860708533844
discounted return: 0.0007929727235971296
quarter return: 1.0756494092256728

```



```

['options', ('2022-07-15',)]
symbol: CIVI
sector: Energy
Index: SP600
vol_30d_2yr: 5736171600.0
Sector 1YMF: 32.53000259399414
1YMF: 0.002990670641722085
risk trend factor: 1.0993578314473855
    beta currentRatio debtToEquity dividendRate dividendYield      ebitda \
CIVI  1.69646      0.505     11.399      1.85      0.0222  910931008

```

```

ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
CIVI  0.54408  5.807773  855249152  0.79951  731177000

```

```

heldPercentInstitutions      industry   marketCap operatingCashflow \
CIVI  1.04378  Oil & Gas E&P  7110930432  764176000

```

```

operatingMargins payoutRatio pegRatio priceToBook \
CIVI  0.26443  0.2792      0.4  1.532868

```

```

priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
CIVI  4.247195  0.16167  0.477  0.06714

```

```

returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \
CIVI  0.09524  10.028  31.498  Energy  84967504

```

```

shortRatio totalCash totalCashPerShare totalDebt totalRevenue \
CIVI  6.57  154348992  1.817  528631008  1674264960

```

```

trailingPE
CIVI  16.671316

```

	Adj	Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	72.260002	59.517328	73.726826	87.936323	65.140952	7.841204	49.458544	80.82336	

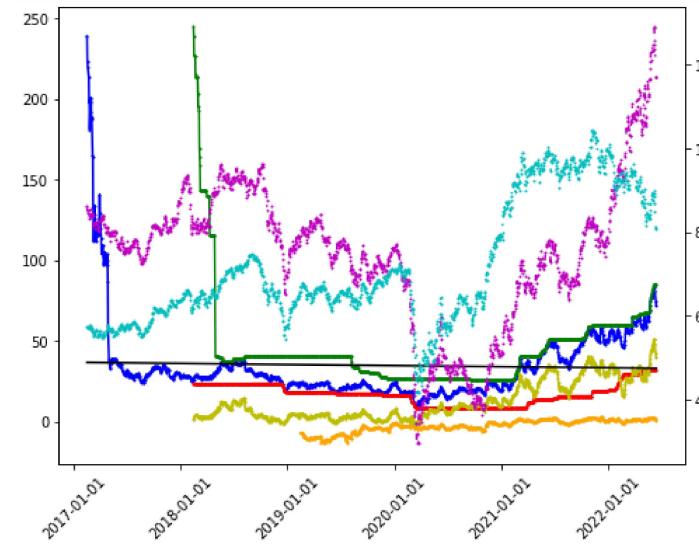
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
CIVI	0.002991	72.260002	5736171600.0	0.823297	0.000891	0.485954

ADFuller H0 rejected @ .05, Mean Reverting TS
Month Mean Reverting buy signal

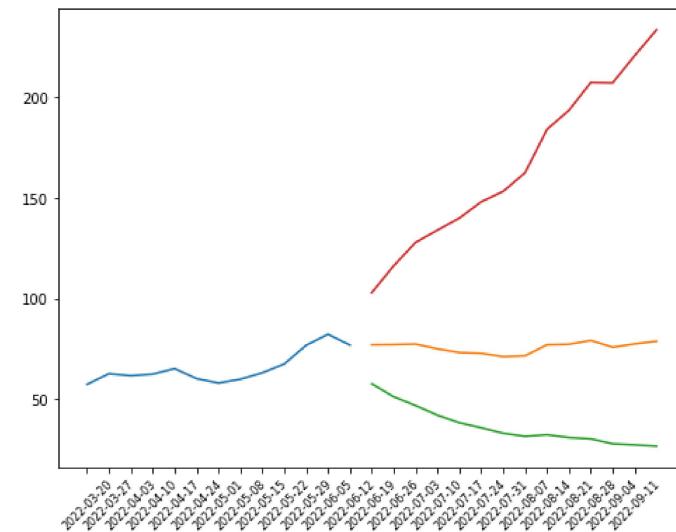
l axis	r axis
legend	legend
blue symbol	magenta sector
green trailing_1yr_max	cyan index
red trailing_1yr_min	
orange risk_trend_factor	
black linear	
yellow supply_trend_1yr	

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -69.3499984741211
Index Volume Factor: 0.0022254315395940014
Index Risk Trend Factor: -4.86666559587445

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
  ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



ets next 13 weeks
inner cv scores: [51.372232152287275, 51.37223262366982, 51.37223220954063, 51.37223251010233]
inner cv sdevs: [46.68892014635354, 46.68892026084118, 46.6889202409121, 46.688920193884556]
best model: ['T', 'T']
best inner cv score, sdev (11 folds): 51.372232152287275 46.68892014635354
test cv mean error, stdev (10 folds): [55.240649879687474, 47.257059140146964]
sell date: 2022-08-28
expected return: 0.09487096410260844
discounted return: 0.0012255681702533217
quarter return: 1.1192773292028735



```
[ 'options', ('2022-07-15', '2022-12-16') ]
symbol: CEIX
sector: Energy
Index: SP600
vol_30d_2yr: 5252640900.0
Sector 1YMF: 22.279998779296875
1YMF: 0.00282585470482096
risk trend factor: 1.0878905897116047
    beta currentRatio debtToEquity earningsGrowth ebitda \
CEIX 2.379059      0.868     100.167      5.642 282313984

    ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
CEIX 0.22235 9.824903 196007120 0.33279 422536000

    heldPercentInstitutions industry marketCap operatingCashflow \
CEIX 0.86884 Thermal Coal 1741250048 305568992

    operatingMargins payoutRatio priceToBook priceToSalesTrailing12Months \
CEIX 0.04547 0 3.593283 1.371392

    profitMargins quickRatio returnOnAssets returnOnEquity revenueGrowth \
CEIX 0.02686 0.586 0.01416 0.05563 0.249

    revenuePerShare sector sharesOutstanding shortRatio totalCash \
CEIX 36.905 Energy 34480200 1.85 149912992

    totalCashPerShare totalDebt totalRevenue
CEIX 4.348 673937984 1269694976
```

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

2022-06-14 48.619999 48.146945 52.563492 56.980039 45.915397 7.098116 31.719165 60.111629

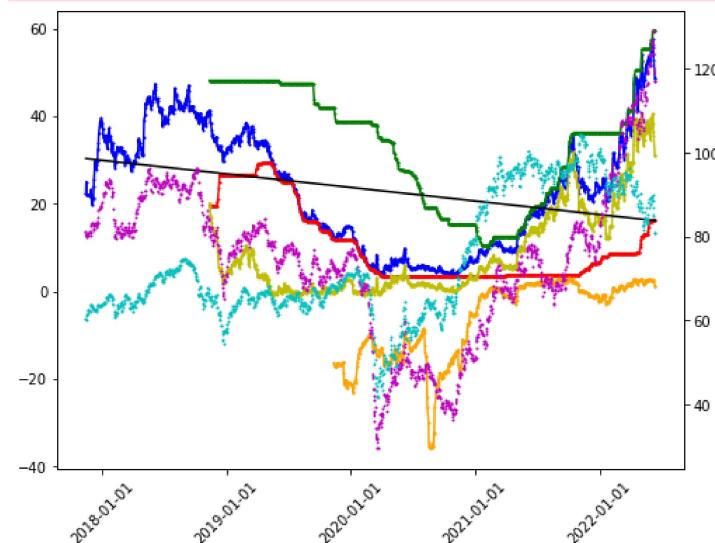
	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
CEIX	0.002826	48.619999	5252640900.0	0.806892	0.88812	0.521633

l axis r axis

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

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -69.3499984741211
Index Volume Factor: 0.0022254315395940014
Index Risk Trend Factor: -4.866666559587445

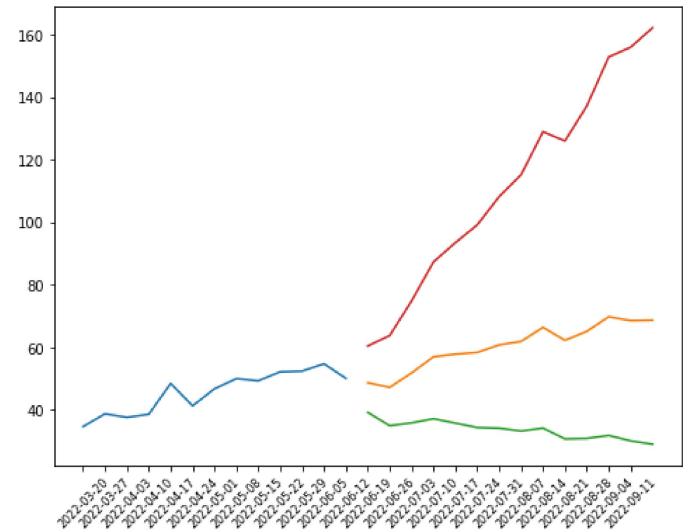
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



6/16/22, 6:53 PM

AnalyzeSP1500

```
ets next 13 weeks
inner cv scores: [37.17757965786298, 37.177599654259346, 37.17758346919223, 37.177582876349014]
inner cv sdevs: [60.594009313268195, 60.594010488534494, 60.594019423616295, 60.59401174988886]
best model: ['T', 'T']
best inner cv score, sdev (11 folds): 37.17757965786298 60.594009313268195
test cv mean error, stdev (10 folds): [37.17759591773493, 60.59400035675132]
sell date: 2022-09-04
expected return: 0.4354238131587394
discounted return: 0.004472442586290981
quarter return: 1.5076427315207657
```



```
[{'quarterly_balance_sheet', 2021-12-31 2021-09-30 2021-06-30 \
Capital Surplus 6.469450e+08 6.449200e+08 6.430330e+08
Total Liab 1.900704e+09 2.105167e+09 1.965198e+09
Total Stockholder Equity 6.728130e+08 4.845800e+08 5.927330e+08
Other Current Liab 1.790310e+08 2.688430e+08 1.451780e+08
Total Assets 2.573517e+09 2.589747e+09 2.557931e+09
Common Stock 3.450000e+05 3.450000e+05 3.450000e+05
Other Current Assets 3.747200e+07 4.242800e+07 3.166900e+07
Retained Earnings 2.809600e+08 1.636370e+08 2.774260e+08
Other Liab 8.455480e+08 9.379920e+08 9.285180e+08
Treasury Stock -2.554370e+08 -3.243220e+08 -3.280710e+08
Other Assets 5.153480e+08 5.008660e+08 4.742010e+08
Cash 1.499130e+08 1.619810e+08 1.466670e+08
Total Current Liabilities 4.452320e+08 5.156760e+08 3.702570e+08
Deferred Long Term Asset Charges 5.701100e+07 1.113720e+08 6.965600e+07
Short Long Term Debt 3.658900e+07 2.765100e+07 3.139500e+07
Other Stockholder Equity -2.554370e+08 -3.243220e+08 -3.280710e+08
Property Plant Equipment 1.671829e+09 1.704640e+09 1.711778e+09
Total Current Assets 3.863400e+08 3.842410e+08 3.719520e+08
Net Tangible Assets 6.728130e+08 4.845800e+08 5.927330e+08
Net Receivables 1.108630e+08 9.881800e+07 1.153080e+08
Long Term Debt 5.680520e+08 5.976970e+08 6.093260e+08
Inventory 6.287600e+07 5.601500e+07 5.929900e+07
Accounts Payable 8.034300e+07 7.839200e+07 6.807300e+07

2021-03-31
Capital Surplus 6.420540e+08
Total Liab 1.937495e+09
Total Stockholder Equity 5.830650e+08
Other Current Liab 1.260430e+08
Total Assets 2.520560e+09
Common Stock 3.440000e+05
Other Current Assets 3.030000e+05
Retained Earnings 2.732540e+08
Other Liab 9.485460e+08
Treasury Stock -3.325870e+08
Other Assets 4.475660e+08
Cash 9.117400e+07
Total Current Liabilities 3.711940e+08
Deferred Long Term Asset Charges 6.226100e+07
Short Long Term Debt 2.888900e+07
Other Stockholder Equity -3.325870e+08
Property Plant Equipment 1.736252e+09
Total Current Assets 3.367420e+08
Net Tangible Assets 5.830650e+08
Net Receivables 1.662310e+08
Long Term Debt 5.504440e+08
Inventory 5.520900e+07
Accounts Payable 7.538200e+07 ]

['quarterly_cashflow', 2021-12-31 2021-09-30 \
Change To Liabilities 5226000.0 13242000.0
Total Cashflows From Investing Activities -35758000.0 -45884000.0
Net Borrowings -30768000.0 -22550000.0
Total Cash From Financing Activities -30768000.0 -22551000.0
Change To Operating Activities -27258000.0 1564000.0
Net Income 117323000.0 -113789000.0
Change In Cash -14100000.0 12103000.0
Total Cash From Operating Activities 52426000.0 80538000.0
Depreciation 56510000.0 55977000.0
Other Cashflows From Investing Activities -7843000.0 -156000.0
Change To Inventory -6861000.0 3284000.0
Change To Account Receivables -9263000.0 8877000.0
Change To Netincome -85331000.0 109242000.0
Capital Expenditures -29434000.0 -45863000.0
Repurchase Of Stock NaN -1000.0
Other Cashflows From Financing Activities NaN NaN

2021-06-30 2021-03-31
Change To Liabilities -6922000.0 -73000.0
Total Cashflows From Investing Activities -40225000.0 -5494000.0
Net Borrowings 56940000.0 -29803000.0
Total Cash From Financing Activities 54342000.0 -31875000.0
Change To Operating Activities -14728000.0 -3098000.0
Net Income 4172000.0 26404000.0
Change In Cash 108726000.0 40627000.0
Total Cash From Operating Activities 94609000.0 7796000.0
Depreciation 52199000.0 59897000.0
Other Cashflows From Investing Activities -156000.0 -182000.0
Change To Inventory -3574000.0 475000.0
Change To Account Receivables 50857000.0 -5764000.0
Change To Netincome 10414000.0 -1985000.0
Capital Expenditures -43655000.0 -13800000.0
Repurchase Of Stock -230000.0 -2072000.0
Other Cashflows From Financing Activities -2368000.0 -2368000.0 ]

['quarterly_earnings', Revenue Earnings
Quarter
```

```

1Q2021 332361000 26404000
2Q2021 303895000 4172000
3Q2021 294837000 -113789000
4Q2021 338602000 117323000]

[ quarterly_financials',
Research Development None None None
Effect Of Accounting Charges None None None
Income Before Tax 162586000.0 -154047000.0 -4721000.0
Minority Interest None None None
Net Income 117323000.0 -113789000.0 4172000.0
Selling General Administrative 20131000.0 22476000.0 22542000.0
Gross Profit 111053000.0 86408000.0 102837000.0
Ebit 150330000.0 -139095000.0 7904000.0
Operating Income 150330000.0 -139095000.0 7904000.0
Other Operating Expenses -115918000.0 147050000.0 20192000.0
Interest Expense -15849000.0 -16045000.0 -16187000.0
Extraordinary Items None None None
Non Recurring None None None
Other Items None None None
Income Tax Expense 45263000.0 -40258000.0 -8893000.0
Total Revenue 338602000.0 294837000.0 303895000.0
Total Operating Expenses 188272000.0 433932000.0 295991000.0
Cost Of Revenue 227549000.0 208429000.0 201058000.0
Total Other Income Expense Net 12256000.0 -14952000.0 -12625000.0
Discontinued Operations None None None
Net Income From Continuing Ops 117323000.0 -113789000.0 4172000.0
Net Income Applicable To Common Shares 117323000.0 -113789000.0 4172000.0

```

```

2021-03-31
Research Development None
Effect Of Accounting Charges None
Income Before Tax 31589000.0
Minority Interest None
Net Income 26404000.0
Selling General Administrative 23964000.0
Gross Profit 120238000.0
Ebit 36592000.0
Operating Income 36592000.0
Other Operating Expenses -215000.0
Interest Expense -15261000.0
Extraordinary Items None
Non Recurring None
Other Items None
Income Tax Expense 5185000.0
Total Revenue 332361000.0
Total Operating Expenses 295769000.0
Cost Of Revenue 212123000.0
Total Other Income Expense Net -5003000.0
Discontinued Operations None
Net Income From Continuing Ops 26404000.0
Net Income Applicable To Common Shares 26404000.0 ]

```

```

[ mutualfund_holders',
0 iShares Core S&P Smallcap ETF 2228007 2022-01-30
1 SPDR (R) Ser Tr-SPDR (R) S&P (R) Metals & Mini... 1914035 2022-01-30
2 iShares Russell 2000 ETF 792575 2022-01-30
3 Vanguard Total Stock Market Index Fund 735685 2021-12-30
4 Victory Portfolios-Victory Integrity Small Cap... 704300 2021-12-30
5 DFA U.S. Small Cap Value Series 629572 2022-01-30
6 iShares S&P Smallcap 600 Value ETF 526608 2022-01-30
7 Vanguard Extended Market Index Fund 430229 2021-12-30
8 iShares Russell 2000 Value ETF 366723 2022-01-30
9 Pacer Small Cap U.S. Cash Cows 100 ETF 323552 2022-01-30

```

```

% Out Value
0 0.0640 48436872
1 0.0550 41611120
2 0.0228 17230580
3 0.0211 16707406
4 0.0202 15994653
5 0.0181 13686895
6 0.0151 11448457
7 0.0124 9770500
8 0.0105 7972558
9 0.0093 7034020 ]

```

```
['options', ('2022-06-17', '2022-08-19')]
```

```

symbol: CTRA
sector: Energy
Index: SP500
vol_30d_2yr: 85091501400.0
Sector 1YMF: 10.370002746582031
1YMF: 0.002488228513029857
risk trend factor: 1.0757264941030475
beta currentRatio debtToEquity dividendRate dividendYield \
CTRA -0.189215 1.751 29.377 0.6 0.0201

```

```
earningsGrowth ebitda ebitdaMargins forwardPE freeCashflow \
```

```

CTRA      2.487 2364999936      0.64441 8.591037 1148249984

grossMargins grossProfits heldPercentInstitutions industry \
CTRA      0.77684 2851000000      0.94558 Oil & Gas E&P

marketCap operatingCashflow operatingMargins payoutRatio pegRatio \
CTRA 24952436736      1667000064      0.45559 0.182 0.09

priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
CTRA 5.269759      6.799029      0.31553 1.699

returnOnAssets returnOnEquity revenueGrowth revenuePerShare sector \
CTRA 0.08557 0.16538 4.191 7.296 Energy

sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
CTRA 813577984      3.2 1036000000      1.273 3463000064

totalRevenue trailingPE
CTRA 3670000128 34.891922

```

	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSD	90d_lower	90d_upper
2022-06-14	31.110001	29.591317	33.487619	37.383921	30.099841	3.173533	23.752774	36.446908

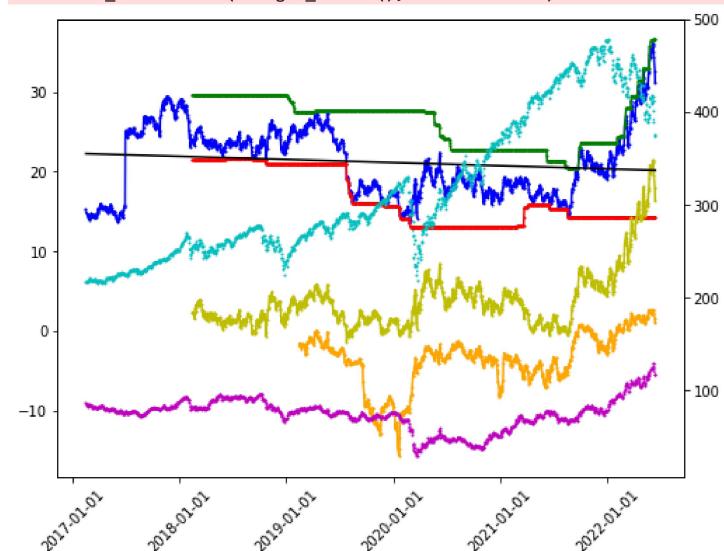
volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst	
CTRA	0.002488	31.110001	85091501400.0	0.755725	0.297053	0.466999

l axis r axis

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

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -263.8100280761719
Index Volume Factor: 0.0022075805827187875
Index Risk Trend Factor: -3.321707170400029

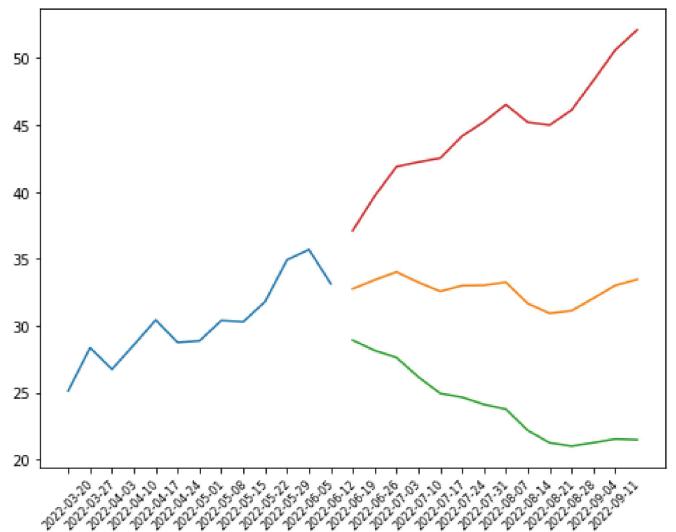
```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```

ets next 13 weeks
inner cv scores: [8.49092190559953, 8.49092190559995, 8.49091938114321, 8.49091959997832]
inner cv sdevs: [13.61240965411061, 13.61240965411061, 13.612411037707153, 13.612410995807492]
best model: ['F', 'F']
best inner cv score, sdev (11 folds): 8.49091938114321 13.612411037707153
test cv mean error, stdev (10 folds): [9.248663628059463, 14.053882917359559]
sell date: 2022-07-03
expected return: 0.09349971914706096
discounted return: 0.004978088843464068
quarter return: 1.5790888440851625

```



```
[{'quarterly_balance_sheet': 2021-12-31 2021-09-30 2021-06-30 \
Capital Surplus 1.091100e+10 1.823373e+09 1.815770e+09
Total Liab 8.112000e+09 2.404585e+09 2.310672e+09
Total Stockholder Equity 1.173800e+10 2.326112e+09 2.299895e+09
Deferred Long Term Liab 5.000000e+06 5.329000e+06 5.844000e+06
Other Current Liab 1.880000e+08 2.128940e+08 7.719900e+07
Total Assets 1.990000e+10 4.730697e+09 4.610567e+09
Common Stock 8.900000e+07 4.786200e+07 4.786200e+07
Other Current Assets 2.400000e+07 1.323500e+07 1.540000e+07
Retained Earnings 2.563000e+09 2.276071e+09 2.257320e+09
Other Liab 3.512000e+09 9.658310e+08 9.577370e+08
Treasury Stock -1.825000e+09 -1.821194e+09 -1.821057e+09
Other Assets 7.200000e+07 3.109900e+07 3.170800e+07
Cash 1.036000e+09 7.627000e+07 1.581470e+08
Total Current Liabilities 1.220000e+09 4.668100e+08 3.786840e+08
Other Stockholder Equity 1.000000e+06 2.007000e+06 2.144000e+06
Property Plant Equipment 1.769200e+10 4.256875e+09 4.182793e+09
Total Current Assets 2.136000e+09 4.427230e+08 3.960660e+08
Net Tangible Assets 1.173800e+10 2.326112e+09 2.299895e+09
Net Receivables 1.037000e+09 3.404370e+08 2.051240e+08
Long Term Debt 3.125000e+09 9.465090e+08 9.463160e+08
Inventory 3.900000e+07 1.278100e+07 1.739500e+07
Accounts Payable 7.470000e+08 2.271920e+08 1.662560e+08
Short Long Term Debt NaN NaN 1.000000e+08

2021-03-31
Capital Surplus 1.808232e+09
Total Liab 2.244882e+09
Total Stockholder Equity 2.305970e+09
Deferred Long Term Liab 6.360000e+06
Other Current Liab 1.989500e+07
Total Assets 4.550852e+09
Common Stock 4.783800e+07
Other Current Assets 2.198400e+07
Retained Earnings 2.270819e+09
Other Liab 9.549700e+08
Treasury Stock -1.820919e+09
Other Assets 3.078400e+07
Cash 1.736590e+08
Total Current Liabilities 3.150920e+08
Other Stockholder Equity 2.282000e+06
Property Plant Equipment 4.108153e+09
Total Current Assets 4.119150e+08
Net Tangible Assets 2.305970e+09
Net Receivables 2.004020e+08
Long Term Debt 9.461230e+08
Inventory 1.587000e+07
Accounts Payable 1.691010e+08
Short Long Term Debt 1.000000e+08 ]
['quarterly_cashflow', 2021-12-31 2021-09-30 \
Change To Liabilities -17390000.0 76262000.0
Total Cashflows From Investing Activities 771721000.0 -183894000.0
Net Borrowings -2000000.0 -100000000.0
Total Cash From Financing Activities -764618000.0 -143963000.0
Change To Operating Activities 17176000.0 -9218000.0
Net Income 938468000.0 62714000.0
Change In Cash 959440000.0 -82663000.0
Repurchase Of Stock -108431000.0 -108431000.0
Total Cash From Operating Activities 952337000.0 245194000.0
Depreciation 410014000.0 97289000.0
Dividends Paid -652187000.0 -43963000.0
Change To Inventory 2511000.0 4614000.0
Change To Account Receivables -159015000.0 -102009000.0
Other Cashflows From Financing Activities -2000000.0 -2000000.0
Change To Netincome -320852000.0 148138000.0
Capital Expenditures -268960000.0 -184101000.0

2021-06-30 2021-03-31
Change To Liabilities -15297000.0 3425000.0
Total Cashflows From Investing Activities -151302000.0 -123525000.0
Net Borrowings -100000000.0 -880000000.0
Total Cash From Financing Activities -43963000.0 -133456000.0
Change To Operating Activities 4956000.0 -13914000.0
Net Income 30464000.0 126354000.0
Change In Cash -16323000.0 33546000.0
Repurchase Of Stock -108431000.0 -5569000.0
Total Cash From Operating Activities 178942000.0 290527000.0
Depreciation 91549000.0 94148000.0
Dividends Paid -43963000.0 -39887000.0
Change To Inventory -1525000.0 -600000.0
Change To Account Receivables 15143000.0 16881000.0
Other Cashflows From Financing Activities -2000000.0 -2000000.0
Change To Netincome 92703000.0 40011000.0
Capital Expenditures -151322000.0 -123617000.0 ]
['quarterly_earnings', Revenue Earnings
Quarter
```

```
1Q2021 472918000 126354000
2Q2021 411788000 30464000
3Q2021 641678000 62714000
4Q2021 2143616000 938468000
[ quarterly_financials',
```

```
2021-12-31 2021-09-30 \
```

Research Development	None	None
Effect Of Accounting Charges	None	None
Income Before Tax	1214465000.0	83216000.0
Minority Interest	None	None
Net Income	938468000.0	62714000.0
Selling General Administrative	95410000.0	24998000.0
Gross Profit	1797984000.0	471530000.0
Ebit	1298389000.0	135756000.0
Operating Income	1298389000.0	135756000.0
Other Operating Expenses	-14836000.0	209489000.0
Interest Expense	-24488000.0	-12577000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	275997000.0	20502000.0
Total Revenue	2143616000.0	641678000.0
Total Operating Expenses	845227000.0	505922000.0
Cost Of Revenue	345632000.0	170148000.0
Total Other Income Expense Net	-83924000.0	-52540000.0
Discontinued Operations	None	None
Net Income From Continuing Ops	938468000.0	62714000.0
Net Income Applicable To Common Shares	935468000.0	62714000.0

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

Research Development	None	None
Effect Of Accounting Charges	None	None
Income Before Tax	41304000.0	163015000.0
Minority Interest	None	None
Net Income	30464000.0	126354000.0
Selling General Administrative	16837000.0	26755000.0
Gross Profit	262146000.0	319340000.0
Ebit	60088000.0	177767000.0
Operating Income	60088000.0	177767000.0
Other Operating Expenses	91304000.0	18043000.0
Interest Expense	-12558000.0	-12377000.0
Extraordinary Items	None	None
Non Recurring	None	None
Other Items	None	None
Income Tax Expense	10840000.0	36661000.0
Total Revenue	411788000.0	472918000.0
Total Operating Expenses	351700000.0	295151000.0
Cost Of Revenue	149642000.0	153578000.0
Total Other Income Expense Net	-18784000.0	-14752000.0
Discontinued Operations	None	None
Net Income From Continuing Ops	30464000.0	126354000.0
Net Income Applicable To Common Shares	30464000.0	126354000.0

```
[ mutualfund_holders',
```

```
Holder Shares Date Reported \
```

0	Select Sector SPDR Fund-Energy Select	23925372	2022-01-30
1	Vanguard Total Stock Market Index Fund	23123140	2021-12-30
2	Vanguard Small-Cap Index Fund	20493160	2021-12-30
3	Vanguard 500 Index Fund	17229139	2021-12-30
4	Washington Mutual Investors Fund	16985001	2022-01-30
5	Vanguard Fenway Funds-Equity Income Fund	16267453	2021-12-30
6	Income Fund of America Inc	13333912	2022-01-30
7	Vanguard Small-Cap Growth Index Fund	12758989	2021-12-30
8	Victory Portfolios-Sycamore Established Value ...	12049383	2022-01-30
9	Fundamental Investors Inc	11357657	2021-12-30

% Out	Value
0 0.0297	523965646
1 0.0287	439339660
2 0.0254	389370040
3 0.0214	327353641
4 0.0211	371971521
5 0.0202	309081607
6 0.0165	292012672
7 0.0158	242420791
8 0.0150	263881487
9 0.0141	215795483

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

```
Value
```

```
2022-5
```

palmoil	False
controversialWeapons	False
gambling	False
socialScore	14.01
nuclear	False
furLeather	False
alcoholic	False
gmo	False
catholic	False

```

socialPercentile      0
peerCount            66
governanceScore     9.28
environmentPercentile 0
animalTesting        False
tobacco              False
totalEsg             46.68
highestControversy   2
esgPerformance      None
coal                 False
pesticides           False
adult                False
percentile          95.93
peerGroup            Oil & Gas Producers
smallArms            False
environmentScore    23.39
governancePercentile 0
militaryContract    False]
symbol: EOG
sector: Energy
Index: SP500
vol_30d_2yr: 49783403200.0
Sector 1YMF: 45.48998260498047
1YMF: 0.0016465607959883304
risk trend factor: 1.0583987680783176
    beta currentRatio debtToEquity dividendRate dividendYield \
EOG  1.778921      2.124     26.632      3      0.0241

earningsGrowth       ebitda ebitdaMargins forwardPE freeCashflow \
EOG      4.838  10099000320      0.51064  12.900809  4534499840

grossMargins grossProfits heldPercentInstitutions industry \
EOG      0.65905  13034000000      0.90667  Oil & Gas E&P

marketCap operatingCashflow operatingMargins payoutRatio pegRatio \
EOG  74575568896      8791000064      0.30935      0.265      0.77

priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
EOG      3.425791      3.770823      0.23583      1.866

returnOnAssets returnOnEquity revenueGrowth revenuePerShare sector \
EOG      0.10329      0.21957      1.047      34.04  Energy

sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
EOG      585089984      2.09  5208999936      8.898  5906999808

totalRevenue trailingPE
EOG  19776999424  24.572971

```

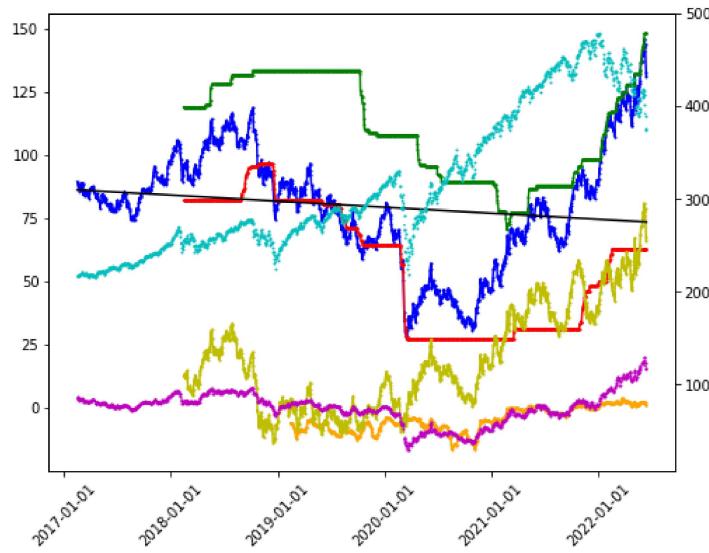
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDev	90d_lower	90d_upper
2022-06-14	131.259995	119.225897	134.415556	149.605215	125.023334	8.717671	107.587992	142.458675

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
EOG	0.001647	131.259995	49783403200.0	0.856727	0.811415	0.485527

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

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -263.8100280761719
Index Volume Factor: 0.0022075805827187875
Index Risk Trend Factor: -3.321707170400029

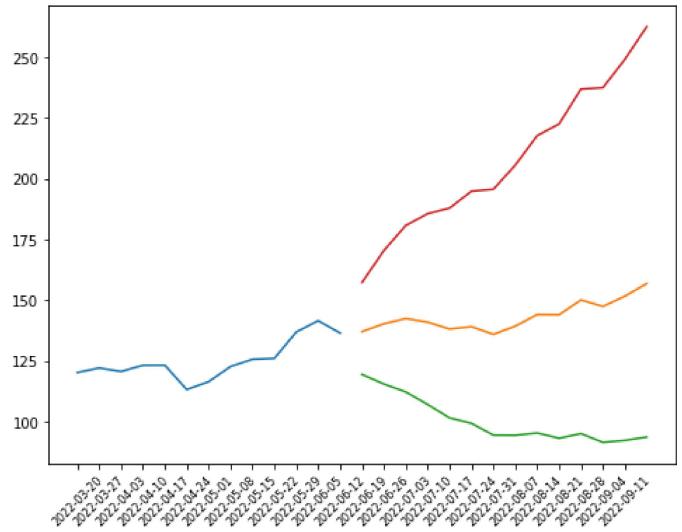
C:/Users/User/AppData/Local/Temp/ipykernel_7384/2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



```

ets next 13 weeks
inner cv scores: [292.9270453853788, 292.9270439336202, 292.92704520194474, 292.932579020314]
inner cv sdevs: [278.02334416296463, 278.0233424023367, 278.02334431198744, 278.0363452309527]
best model: ['T', 'F']
best inner cv score, sdev (11 folds): 292.9270439336202 278.0233424023367
test cv mean error, stdev (10 folds): [320.1641374181127, 277.24759126505654]
sell date: 2022-09-18
expected return: 0.19502048924895965
discounted return: 0.0018771631537259914
quarter return: 1.1883159307933717

```



```
[ 'quarterly_balance_sheet', 2021-12-31 2021-09-30 2021-06-30 \
Capital Surplus 6.087000e+09 6.058000e+09 6.017000e+09
Total Liab 1.605600e+10 1.540700e+10 1.600400e+10
Total Stockholder Equity 2.218000e+10 2.176500e+10 2.088100e+10
Other Current Liab 1.523000e+09 1.224000e+09 1.698000e+09
Total Assets 3.823600e+10 3.717200e+10 3.688500e+10
Common Stock 2.060000e+08 2.000000e+08 2.060000e+08
Other Current Assets 4.560000e+08 3.810000e+08 5.130000e+08
Retained Earnings 1.591900e+10 1.554200e+10 1.468900e+10
Other Liab 6.384000e+09 6.844000e+09 6.916000e+09
Treasury Stock -3.200000e+07 -4.100000e+07 -3.100000e+07
Other Assets 4.830000e+08 1.278000e+09 1.291000e+09
Cash 5.209000e+09 4.293000e+09 3.880000e+09
Total Current Liabilities 4.042000e+09 3.484000e+09 4.002000e+09
Deferred Long Term Asset Charges 1.100000e+07 1.400000e+07 3.000000e+06
Other Stockholder Equity -1.200000e+07 -1.300000e+07 -1.500000e+07
Property Plant Equipment 2.916900e+10 2.854500e+10 2.865900e+10
Total Current Assets 8.584000e+09 7.349000e+09 6.935000e+09
Net Tangible Assets 2.218000e+10 2.176500e+10 2.088100e+10
Net Receivables 2.335000e+09 2.154000e+09 2.026000e+09
Long Term Debt 4.859000e+09 5.079000e+09 5.086000e+09
Inventory 5.840000e+08 5.210000e+08 5.160000e+08
Accounts Payable 2.242000e+09 1.972000e+09 2.012000e+09
Short Long Term Debt NaN 3.800000e+07 3.900000e+07
```

2021-03-31

```
Capital Surplus 5.979000e+09
Total Liab 1.540900e+10
Total Stockholder Equity 2.076200e+10
Other Current Liab 1.059000e+09
Total Assets 3.617100e+10
Common Stock 2.060000e+08
Other Current Assets 4.130000e+08
Retained Earnings 1.460600e+10
Other Liab 7.003000e+09
Treasury Stock -2.900000e+07
Other Assets 1.314000e+09
Cash 3.388000e+09
Total Current Liabilities 3.312000e+09
Deferred Long Term Asset Charges 4.000000e+06
Other Stockholder Equity -1.400000e+07
Property Plant Equipment 2.866600e+10
Total Current Assets 6.191000e+09
Net Tangible Assets 2.076200e+10
Net Receivables 1.828000e+09
Long Term Debt 5.094000e+09
Inventory 5.620000e+08
Accounts Payable 1.945000e+09
Short Long Term Debt 3.900000e+07 ]
```

2021-12-31 2021-09-30 \

```
[ 'quarterly_cashflow', 3.410000e+08 -6.800000e+07
Change To Liabilities 3.410000e+08 -6.800000e+07
Total Cashflows From Investing Activities -8.370000e+08 -9.330000e+08
Net Borrowings -1.000000e+07 -9.000000e+06
Total Cash From Financing Activities -1.414000e+09 -8.500000e+08
Change To Operating Activities 2.000000e+07 -4.800000e+07
Issuance Of Stock 1.000000e+07 1.000000e+07
Net Income 1.985000e+09 1.095000e+09
Change In Cash 9.160000e+08 4.130000e+08
Repurchase Of Stock -8.000000e+06 -2.100000e+07
Effect Of Exchange Rate 1.000000e+06 1.000000e+06
Total Cash From Operating Activities 3.166000e+09 2.196000e+09
Depreciation 1.072000e+09 1.009000e+09
Other Cashflows From Investing Activities 1.000000e+08 -4.500000e+07
Dividends Paid -2.241732e+08 -2.488268e+08
Change To Inventory -1.080000e+08 -6.000000e+06
Change To Account Receivables -1.820000e+08 -1.450000e+08
Change To Netincome 1.200000e+07 1.530000e+08
Capital Expenditures -1.014000e+09 -8.960000e+08
```

2021-06-30 2021-03-31

```
Change To Liabilities 1.100000e+07 1.720000e+08
Total Cashflows From Investing Activities -8.280000e+08 -8.210000e+08
Net Borrowings -9.000000e+06 -7.590000e+08
Total Cash From Financing Activities -2.410000e+08 -9.880000e+08
Change To Operating Activities -1.410000e+08 -2.830000e+08
Issuance Of Stock 9.000000e+06 9.000000e+06
Net Income 9.070000e+08 6.770000e+08
Change In Cash 4.920000e+08 5.900000e+07
Repurchase Of Stock -2.000000e+06 -1.000000e+07
Effect Of Exchange Rate 2.000000e+06 -2.000000e+06
Total Cash From Operating Activities 1.559000e+09 1.870000e+09
Depreciation 9.570000e+08 9.430000e+08
Other Cashflows From Investing Activities 5.400000e+07 9.100000e+07
Dividends Paid -2.390000e+08 -2.190000e+08
Change To Inventory 3.700000e+07 6.400000e+07
Change To Account Receivables -1.860000e+08 -3.080000e+08
```

```

Change To Netincome          1.370000e+08  3.620000e+08
Capital Expenditures        -1.023000e+09 -9.170000e+08 ]
['quarterly_earnings',      Revenue    Earnings
Quarter
1Q2021   4067000000  677000000
2Q2021   4515000000  907000000
3Q2021   5258000000  1095000000
4Q2021   5937000000  1985000000]
['quarterly_financials',
Research Development        None      None
Effect Of Accounting Charges None      None
Income Before Tax           2499000000.0 1429000000.0
Minority Interest            None      None
Net Income                  1985000000.0 1095000000.0
Selling General Administrative 1390000000.0 1420000000.0
Gross Profit                4064000000.0 3440000000.0
Ebit                         2588000000.0 1470000000.0
Operating Income             2588000000.0 1470000000.0
Other Operating Expenses     180000000.0 771000000.0
Interest Expense              -38000000.0 -48000000.0
Extraordinary Items          None      None
Non Recurring                None      None
Other Items                  None      None
Income Tax Expense           514000000.0 334000000.0
Total Revenue                5937000000.0 5258000000.0
Total Operating Expenses     3349000000.0 3788000000.0
Cost Of Revenue              1873000000.0 1818000000.0
Total Other Income Expense Net -89000000.0 -41000000.0
Discontinued Operations      None      None
Net Income From Continuing Ops 1985000000.0 1095000000.0
Net Income Applicable To Common Shares 1985000000.0 1095000000.0

2021-06-30      2021-03-31
Research Development        None      None
Effect Of Accounting Charges None      None
Income Before Tax           1124000000.0 881000000.0
Minority Interest            None      None
Net Income                  907000000.0 677000000.0
Selling General Administrative 120000000.0 110000000.0
Gross Profit                2912000000.0 2618000000.0
Ebit                         1121000000.0 939000000.0
Operating Income             1121000000.0 939000000.0
Other Operating Expenses     666000000.0 582000000.0
Interest Expense              -45000000.0 -47000000.0
Extraordinary Items          None      None
Non Recurring                None      None
Other Items                  None      None
Income Tax Expense           217000000.0 204000000.0
Total Revenue                4515000000.0 4067000000.0
Total Operating Expenses     3394000000.0 3128000000.0
Cost Of Revenue              1603000000.0 1449000000.0
Total Other Income Expense Net -3000000.0 -5800000.0
Discontinued Operations      None      None
Net Income From Continuing Ops 907000000.0 677000000.0
Net Income Applicable To Common Shares 907000000.0 677000000.0]
['mutualfund_holders',
0 Vanguard Total Stock Market Index Fund 16628038 2021-12-30 0.0284
1 Select Sector SPDR Fund-Energy Select 15554415 2022-01-30 0.0266
2 Vanguard 500 Index Fund 12390700 2021-12-30 0.0212
3 Growth Fund Of America Inc 11079049 2022-02-27 0.0189
4 Washington Mutual Investors Fund 10123086 2022-01-30 0.0173
5 American Mutual Fund Inc 9597595 2022-01-30 0.0164
6 Investment Company Of America 8922398 2021-12-30 0.0152
7 JP Morgan Equity Income Fund 7968006 2021-12-30 0.0136
8 Capital World Growth and Income Fund 6235135 2022-02-27 0.0106
9 SPDR S&P 500 ETF Trust 6192774 2022-01-30 0.0106

Value
0 1477068615
1 1734006184
2 1100665881
3 1273204311
4 1128521627
5 1069939890
6 792576614
7 707797972
8 716541714
9 690370445 ]
['options', ('2022-07-15', '2023-01-20', '2024-01-19', '2026-03-20')]
['sustainability',
2022-5
palmOil          False
controversialWeapons False
gambling         False
socialScore       8.13
nuclear          False

```

```

furLeather      False
alcoholic       False
gmo             False
catholic        False
socialPercentile 0
peerCount       66
governanceScore 7.73
environmentPercentile 0
animalTesting   False
tobacco         False
totalEsg        36.25
highestControversy 1
esgPerformance LEAD_PERF
coal            False
pesticides      False
adult           False
percentile     81.37
peerGroup       Oil & Gas Producers
smallArms       False
environmentScore 20.39
governancePercentile 0
militaryContract False]
symbol: ROCC
sector: Energy
Index: SP600
vol_30d_2yr: 6186219000.0
Sector 1YMF: 24.81000518798828
1YMF: 0.0019439660962536243
risk trend factor: 1.0528774421714568
    beta currentRatio debtToEquity    ebitda ebitdaMargins forwardPE \
ROCC  2.866152      0.497     80.978   323780000     0.45632  4.088889

freeCashflow grossMargins grossProfits heldPercentInstitutions \
ROCC  111158752     0.9232   508729000     0.83063

industry marketCap operatingCashflow operatingMargins \
ROCC  Oil & Gas E&P 1051397696      390172992     0.23271

payoutRatio pegRatio priceToBook priceToSalesTrailing12Months \
ROCC  0          0.14     3.345455      1.4818

profitMargins quickRatio returnOnAssets returnOnEquity revenueGrowth \
ROCC  0.06175     0.404     0.08139     0.19205     1.903

revenuePerShare sector sharesOutstanding shortRatio totalCash \
ROCC  39.08      Energy 21163400      2.3     6358000

totalCashPerShare totalDebt totalRevenue trailingPE
ROCC  0.3      525808992  709540992  21.113474

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

```

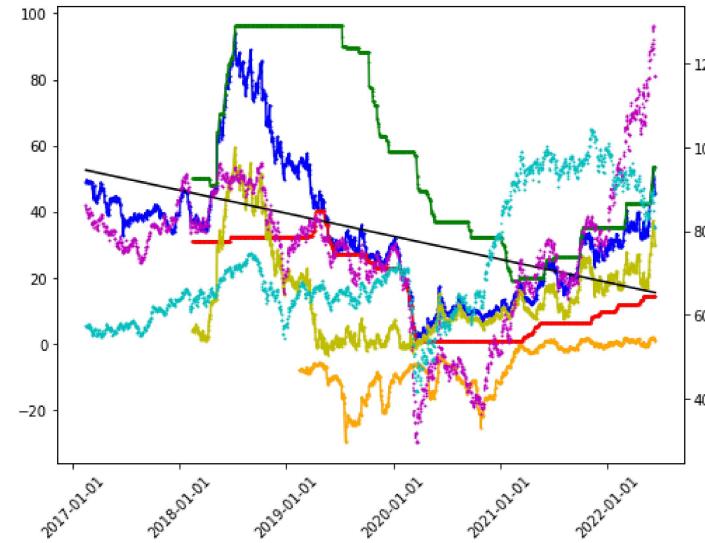
```
2022-06-14 45.240002 29.444383 42.210556 54.976728 37.569365 5.330721 26.907924 48.230807
```

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
ROCC	0.001944	45.240002	6186219000.0	0.823206	0.622824	0.579733

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

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -69.3499984741211
Index Volume Factor: 0.0022254315395940014
Index Risk Trend Factor: -4.866666559587445

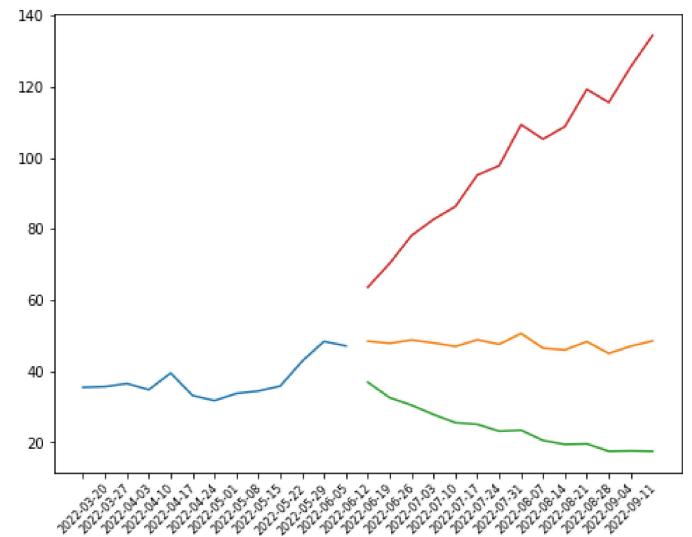
```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```

ets next 13 weeks
inner cv scores: [71.38113556924571, 71.38113547261227, 71.38107197959948, 71.38107197165442]
inner cv sdevs: [76.5678010950792, 76.56780087204898, 76.56781110897751, 76.56781111187205]
best model: ['F', 'T']
best inner cv score, sdev (11 folds): 71.38107197165442 76.56781111187205
test cv mean error, stdev (10 folds): [75.727216744053, 79.00074871051713]
sell date: 2022-08-07
expected return: 0.11902086456874392
discounted return: 0.0021240275552245613
quarter return: 1.2155580840834126

```



```
[ 'options', ('2022-07-15', '2022-12-16') ]
symbol: HES
sector: Energy
Index: SP500
vol_30d_2yr: 24607383000.0
Sector 1YMF: 34.04999542236328
1YMF: 0.0017705417922742942
risk trend factor: 1.0422402625987157
    beta currentRatio debtToEquity dividendRate dividendYield \
HES 1.769607      1.418     122.347      1.5      0.0131

earningsGrowth      ebitda ebitdaMargins forwardPE freeCashflow \
HES      0.634   3804999936      0.49467   25.03419   1165874944

grossMargins grossProfits heldPercentInstitutions      industry \
HES      0.71425   5267000000      0.83247   Oil & Gas E&P

marketCap operatingCashflow operatingMargins payoutRatio pegRatio \
HES 36287619072      2143000064      0.30083      0.4828      0.19

priceToBook priceToSalesTrailing12Months profitMargins quickRatio \
HES 6.429591      4.717579      0.09412      0.595

returnOnAssets returnOnEquity revenueGrowth revenuePerShare sector \
HES 0.07465      0.1547      0.21      24.97 Energy

sharesOutstanding shortRatio totalCash totalCashPerShare totalDebt \
HES 309727008      2.85   1370000000      4.414   8622999552

totalRevenue trailingPE
HES 7692000256 185.08688
```

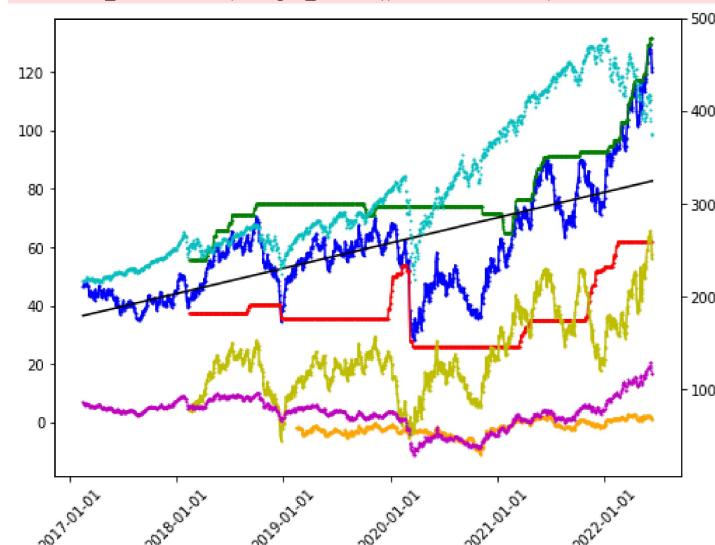
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSDDev	90d_lower	90d_upper
2022-06-14	120.07	111.313564	121.821587	132.32961	112.455397	8.510819	95.433758	129.477035

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
HES	0.001771	120.07	24607383000.0	0.882322	0.938257	0.449035

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

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -263.8100280761719
Index Volume Factor: 0.0022075805827187875
Index Risk Trend Factor: -3.321707170400029

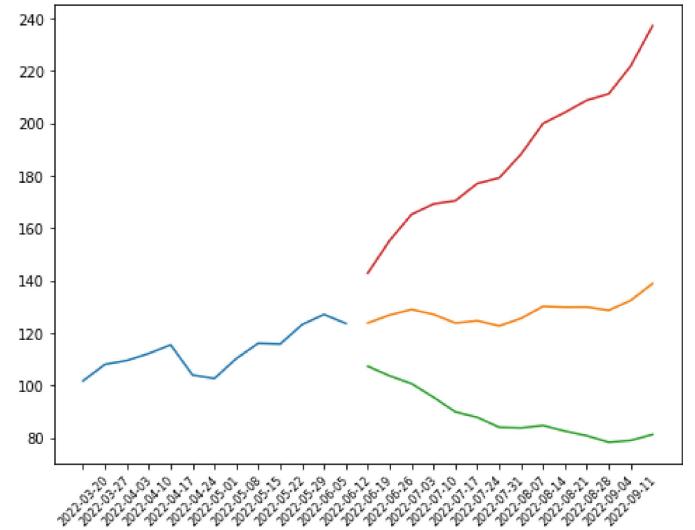
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



6/16/22, 6:53 PM

AnalyzeSP1500

```
ets next 13 weeks
inner cv scores: [189.7450140342545, 189.7450140343074, 189.74501403310452, 189.74501404243793]
inner cv sdevs: [200.65877762564895, 200.6587776221327, 200.65877762593144, 200.6587776288162]
best model: ['F', 'F']
best inner cv score, sdev (11 folds): 189.74501403310452 200.65877762593144
test cv mean error, stdev (10 folds): [207.17371143611325, 202.35855585333596]
sell date: 2022-09-18
expected return: 0.15596163362674056
discounted return: 0.001526770442668024
quarter return: 1.1506830958889815
```



```
[ 'quarterly_balance_sheet', 2022-03-31 2021-12-31 2021-09-30 \
Total Liab 1.275000e+10 1.348900e+10 1.323400e+10
Total Stockholder Equity 6.308000e+09 6.300000e+09 5.609000e+09
Minority Interest 7.400000e+08 7.260000e+08 6.470000e+08
Other Current Liab 2.190000e+09 1.193000e+09 9.330000e+08
Total Assets 1.979800e+10 2.051500e+10 1.949000e+10
Common Stock 7.074000e+09 3.100000e+08 3.100000e+08
Other Current Assets 1.896000e+09 1.990000e+08 1.180000e+08
Other Liab 1.937000e+09 1.890000e+09 1.877000e+09
Treasury Stock -7.660000e+08 -4.060000e+08 -7.960000e+08
Other Assets 1.560000e+09 1.129000e+09 7.660000e+08
Cash 1.370000e+09 2.713000e+09 2.419000e+09
Total Current Liabilities 2.303000e+09 3.064000e+09 2.749000e+09
Short Long Term Debt 2.200000e+07 5.170000e+08 5.140000e+08
Other Stockholder Equity -7.660000e+08 -4.060000e+08 -7.960000e+08
Property Plant Equipment 1.497200e+10 1.467800e+10 1.446800e+10
Total Current Assets 3.266000e+09 4.346000e+09 3.892000e+09
Net Tangible Assets 6.308000e+09 5.940000e+09 5.249000e+09
Long Term Debt 7.934000e+09 7.941000e+09 7.993000e+09
Capital Surplus NaN 6.017000e+09 5.903000e+09
Retained Earnings NaN 3.790000e+08 1.920000e+08
Good Will NaN 3.600000e+08 3.600000e+08
Deferred Long Term Asset Charges NaN 7.100000e+07 2.600000e+07
Long Term Investments NaN 2.000000e+06 4.000000e+06
Net Receivables NaN 1.211000e+09 1.093000e+09
Inventory NaN 2.230000e+08 2.620000e+08
Accounts Payable NaN 2.200000e+08 2.100000e+08
```

2021-06-30

```
Total Liab 1.263400e+10
Total Stockholder Equity 5.488000e+09
Minority Interest 1.044000e+09
Other Current Liab 9.670000e+08
Total Assets 1.916000e+10
Common Stock 3.100000e+08
Other Current Assets 2.960000e+08
Other Liab 1.764000e+09
Treasury Stock -8.360000e+08
Other Assets 6.480000e+08
Cash 2.430000e+09
Total Current Liabilities 2.527000e+09
Short Long Term Debt 5.110000e+08
Other Stockholder Equity -8.360000e+08
Property Plant Equipment 1.418500e+10
Total Current Assets 3.969000e+09
Net Tangible Assets 5.128000e+09
Long Term Debt 7.712000e+09
Capital Surplus 5.859000e+09
Retained Earnings 1.550000e+08
Good Will 3.600000e+08
Deferred Long Term Asset Charges 2.100000e+07
Long Term Investments 4.000000e+06
Net Receivables 1.002000e+09
Inventory 2.410000e+08
Accounts Payable 1.780000e+08 ]
```

2022-03-31 2021-12-31 \

```
[ 'quarterly_cashflow', 2022-03-31 2021-12-31 \
Change To Liabilities 0.000000e+00 7200000.0
Total Cashflows From Investing Activities -5.220000e+08 -51000000.0
Net Borrowings -5.060000e+08 -53000000.0
Total Cash From Financing Activities -6.650000e+08 -95000000.0
Change To Operating Activities -1.108000e+09 -51000000.0
Issuance Of Stock 3.300000e+07 110000000.0
Net Income 4.170000e+08 265000000.0
Change In Cash -1.343000e+09 294000000.0
Total Cash From Operating Activities -1.560000e+08 899000000.0
Depreciation 3.430000e+08 403000000.0
Dividends Paid -1.190000e+08 -77000000.0
Other Cashflows From Financing Activities -7.300000e+07 -75000000.0
Change To Netincome 1.920000e+08 218000000.0
Capital Expenditures -5.460000e+08 -509000000.0
Other Cashflows From Investing Activities NaN -1000000.0
Change To Inventory NaN 3800000.0
Change To Account Receivables NaN -215000000.0
```

2021-09-30 2021-06-30

```
Change To Liabilities 225000000.0 71000000.0
Total Cashflows From Investing Activities -370000000.0 -60000000.0
Net Borrowings 287000000.0 -69000000.0
Total Cash From Financing Activities -256000000.0 -161000000.0
Change To Operating Activities -74000000.0 -37000000.0
Issuance Of Stock 110000000.0 75000000.0
Net Income 115000000.0 -73000000.0
Change In Cash -11000000.0 564000000.0
Total Cash From Operating Activities 615000000.0 785000000.0
Depreciation 207000000.0 538000000.0
Dividends Paid -77000000.0 -77000000.0
```

```
Other Cashflows From Financing Activities -466000000.0 -90000000.0
Change To Netincome 309000000.0 194000000.0
Capital Expenditures -498000000.0 -355000000.0
Other Cashflows From Investing Activities -2000000.0 -2000000.0
Change To Inventory -4000000.0 -2200000.0
Change To Account Receivables -218000000.0 14000000.0 ]
```

```
[ 'quarterly_earnings', Revenue Earnings
```

```
Quarter
```

```
202021 1535000000 -73000000
3Q2021 1717000000 115000000
4Q2021 2188000000 265000000
1Q2022 2252000000 417000000]
```

```
[ 'quarterly_financials',
```

	2022-03-31	2021-12-31	\
Research Development	None	None	
Effect Of Accounting Charges	None	None	
Income Before Tax	702000000.0	568000000.0	
Minority Interest	740000000.0	726000000.0	
Net Income	417000000.0	265000000.0	
Selling General Administrative	423000000.0	402000000.0	
Gross Profit	1570000000.0	1516000000.0	
Ebit	803000000.0	685000000.0	
Operating Income	803000000.0	685000000.0	
Other Operating Expenses	-36000000.0	-14000000.0	
Interest Expense	-123000000.0	-121000000.0	
Extraordinary Items	None	None	
Non Recurring	None	None	
Other Items	None	None	
Income Tax Expense	197000000.0	212000000.0	
Total Revenue	2252000000.0	2188000000.0	
Total Operating Expenses	1449000000.0	1503000000.0	
Cost Of Revenue	682000000.0	672000000.0	
Total Other Income Expense Net	-101000000.0	-117000000.0	
Discontinued Operations	None	None	
Net Income From Continuing Ops	505000000.0	356000000.0	
Net Income Applicable To Common Shares	417000000.0	265000000.0	

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

	2021-09-30	2021-06-30	\
Research Development	None	None	
Effect Of Accounting Charges	None	None	
Income Before Tax	328000000.0	135000000.0	
Minority Interest	647000000.0	1044000000.0	
Net Income	115000000.0	-73000000.0	
Selling General Administrative	409000000.0	399000000.0	
Gross Profit	1195000000.0	1213000000.0	
Ebit	424000000.0	254000000.0	
Operating Income	424000000.0	254000000.0	
Other Operating Expenses	-23000000.0	-20000000.0	
Interest Expense	-125000000.0	-118000000.0	
Extraordinary Items	None	None	
Non Recurring	None	None	
Other Items	None	None	
Income Tax Expense	143000000.0	122000000.0	
Total Revenue	1717000000.0	1535000000.0	
Total Operating Expenses	1293000000.0	1281000000.0	
Cost Of Revenue	522000000.0	322000000.0	
Total Other Income Expense Net	-96000000.0	-119000000.0	
Discontinued Operations	None	None	
Net Income From Continuing Ops	185000000.0	13000000.0	
Net Income Applicable To Common Shares	115000000.0	-73000000.0]

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

	Holder	Shares	Date Reported	% Out	\
0	Select Sector SPDR Fund-Energy Select	8106371	2022-01-30	0.0260	
1	Vanguard Total Stock Market Index Fund	7922572	2021-12-30	0.0255	
2	Dodge & Cox Stock Fund	6588763	2021-12-30	0.0212	
3	Vanguard Mid-Cap Index Fund	6303240	2021-12-30	0.0203	
4	Vanguard/Primecap Fund	6049200	2021-12-30	0.0194	
5	Vanguard 500 Index Fund	5837872	2021-12-30	0.0188	
6	Fidelity Growth Company Fund	3600791	2022-02-27	0.0116	
7	SPDR S&P 500 ETF Trust	2920036	2022-01-30	0.0094	
8	Fidelity 500 Index Fund	2822946	2022-02-27	0.0091	
9	Fidelity Series Large Cap Stock Fund	2618572	2022-02-27	0.0084	

```
Value
```

	Value
0	748136979
1	586508005
2	487766124
3	466628857
4	447822276
5	432177664
6	363895938
7	269490122
8	285286922
9	264632886

```
]
```

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

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

```
2022-5
```

```
palmOil False
```

```

controversialWeapons      False
gambling                  False
socialScore                6.36
nuclear                   False
furLeather                False
alcoholic                 False
gmo                        False
catholic                  False
socialPercentile          0
peerCount                  66
governanceScore            6.97
environmentPercentile      0
animalTesting              False
tobacco                    False
totalEsg                  31.78
highestControversy         2
esgPerformance             LEAD_PERF
coal                       False
pesticides                 False
adult                      False
percentile                 68.13
peerGroup                  Oil & Gas Producers
smallArms                  False
environmentScore            18.44
governancePercentile       0
militaryContract           False]

```

symbol: TVTY
sector: error
sector: error
Index: SP600
vol_30d_2yr: 5611692500.0
Sector 1YMF: 1.1700019836425781
1YMF: 0.0029183887035863065
risk trend factor: 1.0
Empty DataFrame
Columns: []
Index: [TVTY]

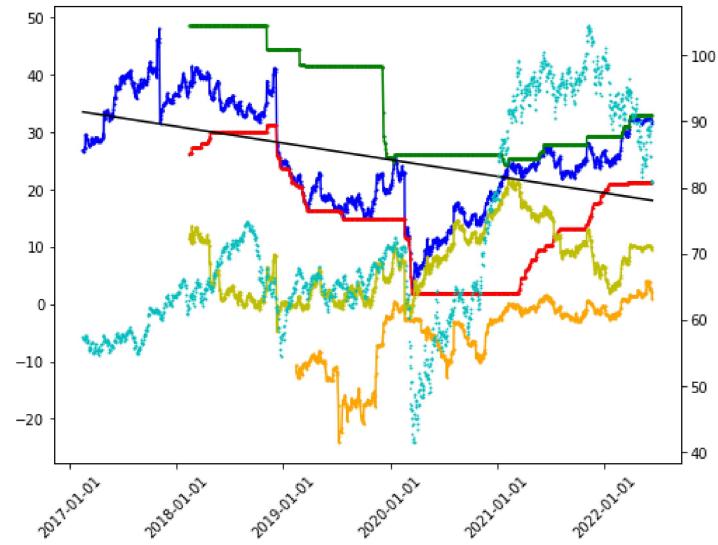
	Adj Close	21dBOLD	21dMA-TP	21dBOLU	90dSMA	90dSD	90d_lower	90d_upper
2022-06-14	31.6	31.867551	32.187619	32.507687	31.740317	0.960049	29.82022	33.660415

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
TVTY	0.002918	31.6	5611692500.0	0.943172	0.510164	0.449517

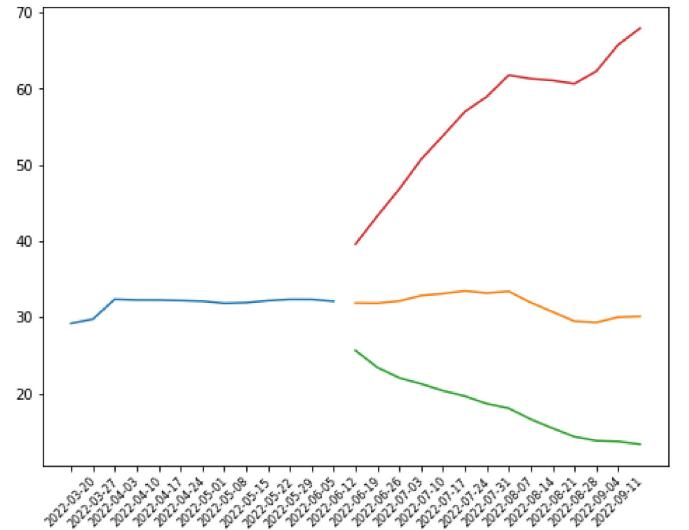
	l axis	r axis
blue	symbol	magenta sector
green	trailing_1yr_max	cyan index
red	trailing_1yr_min	
orange	risk_trend_factor	
black	linear	
yellow	supply_trend_1yr	

Index 1YMF: -69.3499984741211
Index Volume Factor: 0.0022254315395940014
Index Risk Trend Factor: -4.86666559587445

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



ets next 13 weeks
 inner cv scores: [23.437302354648853, 23.437302324695864, 23.43730523304616, 23.43730524319808]
 inner cv sdevs: [20.620170957952805, 20.620170913895695, 20.6201768922314, 20.6201768869547]
 best model: ['T', 'F']
 best inner cv score, sdev (11 folds): 23.437302324695864 20.620170913895695
 test cv mean error, stdev (10 folds): [25.29395733901864, 20.731419404745342]
 sell date: 2022-07-24
 expected return: 0.05897098655315649
 discounted return: 0.0014702507661197295
 quarter return: 1.144724197588399



```
[ 'options', ('2022-08-19',) ]
symbol: OXY
sector: Energy
Index: SP500
vol_30d_2yr: 256214422000.0
Sector 1YMF: 21.77999496459961
1YMF: 0.0022195655324976204
risk trend factor: 0.967569653828447
    beta currentRatio debtToEquity dividendRate dividendYield \
OXY 1.955081      1.156     111.198      0.52      0.0084

    ebitda ebitdaMargins forwardPE freeCashflow grossMargins \
OXY 15392000000      0.53054    7.333333   9129875456      0.64697

    grossProfits heldPercentInstitutions industry marketCap \
OXY 16297000000      0.82163  Oil & Gas E&P  56493871104

    operatingCashflow operatingMargins payoutRatio pegRatio priceToBook \
OXY 12762999808      0.25255     0.0242     0.25     3.730198

    priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
OXY 1.947259      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 9.01181

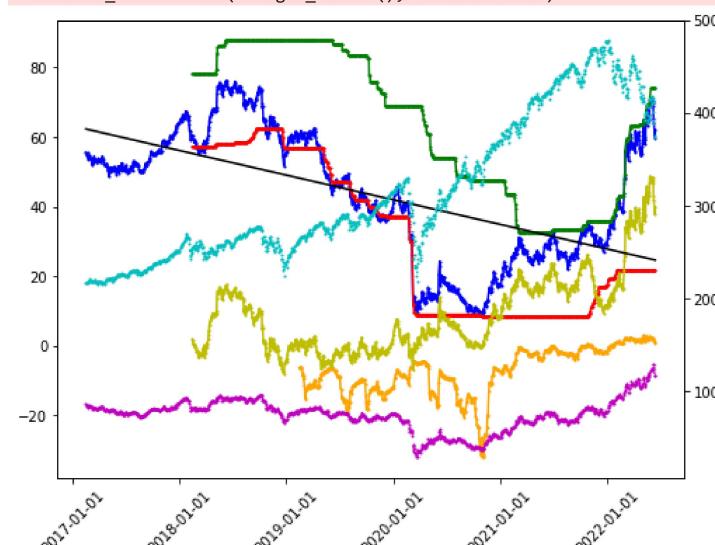
Adj Close 21dBOLD 21dMA-TP 21dBOLU 90dSMA 90dSDev 90d_lower 90d_upper
2022-06-14 62.09 60.915808 66.88381 72.851811 61.294445 4.783614 51.727217 70.861672
```

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
OXY	0.00222	62.09	256214422000.0	0.817613	0.738509	0.544974

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

Sector 1YMF: 43.219993591308594
Sector Volume Factor: 0.0015231818763778249
Sector Risk Trend Factor: 1.395093250744777
Index 1YMF: -263.8100280761719
Index Volume Factor: 0.0022075805827187875
Index Risk Trend Factor: -3.321707170400029

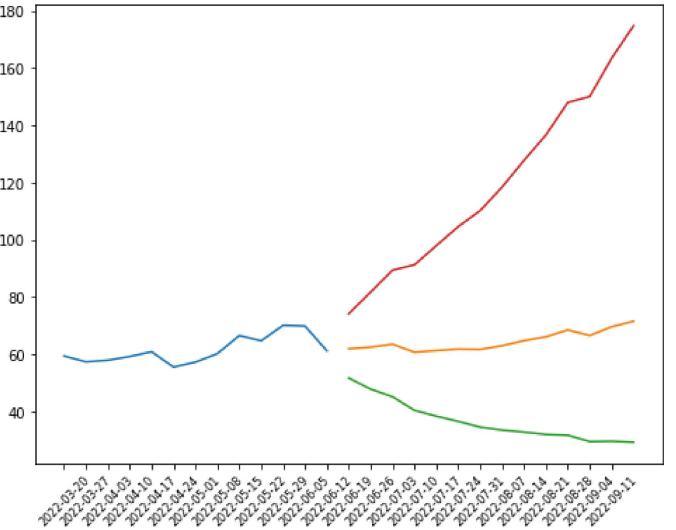
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



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AnalyzeSP1500

```
ets next 13 weeks
inner cv scores: [65.74632537823037, 65.74632526324514, 65.74632563897408, 65.74632473939108]
inner cv sdevs: [72.72855684487484, 72.7285560600168, 72.72855583412783, 72.72855645935246]
best model: ['F', 'T']
best inner cv score, sdev (11 folds): 65.74632473939108 72.72855645935246
test cv mean error, stdev (10 folds): [69.94735867807196, 74.99501086042389]
sell date: 2022-09-18
expected return: 0.15204190134433437
discounted return: 0.001490962320840783
quarter return: 1.1469042757640264
```



```

['options', ('2022-06-17', '2022-08-19', '2023-01-20', '2024-01-19')]
['sustainability',                                     Value
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: MUR
sector: Energy
Index: SP400
vol_30d_2yr: 33077715200.0
Sector 1YMF: 11.920003890991211
1YMF: 0.0010554991416093938
risk trend factor: 0.8435953991460802
      beta currentRatio debtToEquity dividendRate dividendYield      ebitda \
MUR  2.55625       0.6      80.704       0.7       0.0161  1488126976

      ebitdaMargins forwardPE freeCashflow grossMargins grossProfits \
MUR      0.48315  5.593307  1159256320      0.81723  2271014000

      heldPercentInstitutions      industry      marketCap operatingCashflow \
MUR      0.83585  Oil & Gas E&P  6752466944      1522727040

      operatingMargins payoutRatio pegRatio priceToBook \
MUR      0.21109      0.7836      0.18      1.674372

      priceToSalesTrailing12Months profitMargins quickRatio returnOnAssets \
MUR      2.192315      0.03261      0.533      0.03902

      returnOnEquity revenueGrowth revenuePerShare sector sharesOutstanding \
MUR      0.06042      0.471      19.932  Energy      155372000

      shortRatio totalCash totalCashPerShare totalDebt totalRevenue \
MUR      4.37  480587008      3.093  3393031936  3080061952

      trailingPE
MUR      66.96456

      Adj Close  21dBOLD  21dMA-TP  21dBOLU  90dSMA  90dSDev  90d_lower  90d_upper
2022-06-14  41.580002  32.779324  40.32127  47.863216  39.598281  3.268708  33.060864  46.135697

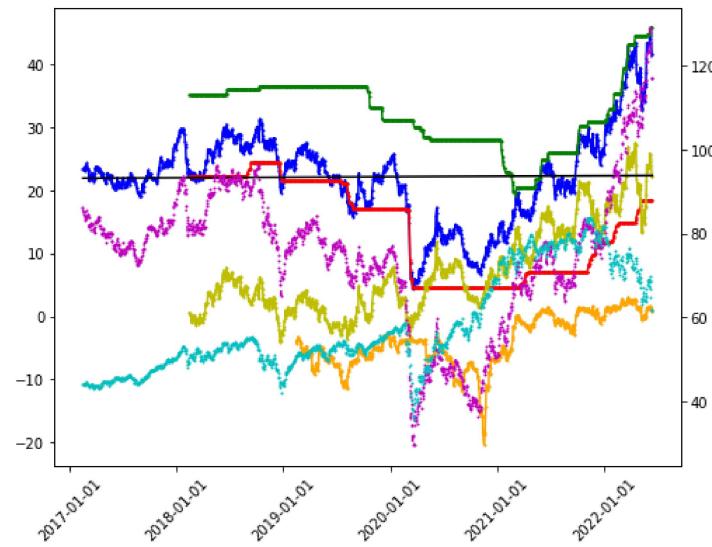
```

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
MUR	0.001055	41.580002	33077715200.0	0.891467	0.791664	0.454943

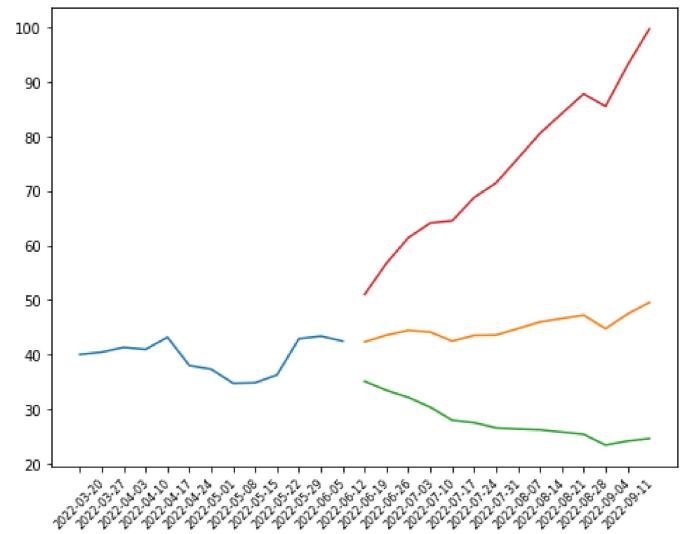
l axis		r axis	
legend		legend	
blue	symbol	magenta	sector
green	trailing_1yr_max	cyan	index
red	trailing_1yr_min		
orange	risk_trend_factor		
black	linear		
yellow	supply_trend_1yr		

Sector 1YMF: 43.219993591308594
 Sector Volume Factor: 0.0015231818763778249
 Sector Risk Trend Factor: 1.395093250744777
 Index 1YMF: -63.869998931884766
 Index Volume Factor: 0.0011014613124698796
 Index Risk Trend Factor: -4.591660649354175

```
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
  ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)
```



```
ets next 13 weeks
inner cv scores: [26.871992144205784, 26.871992150022162, 26.871992150235926, 26.871992144997105]
inner cv sdevs: [29.605645173940232, 29.60564517761439, 29.60564517743851, 29.60564517392599]
best model: ['T', 'T']
best inner cv score, sdev (11 folds): 26.871992144205784 29.605645173940232
test cv mean error, stdev (10 folds): [28.72572118180319, 30.435903535486183]
sell date: 2022-09-18
expected return: 0.1925349142752104
discounted return: 0.0018552053107643296
quarter return: 1.185922273727027
```



```
[ 'options', ('2022-06-17', '2022-07-15', '2022-12-16', '2023-01-20', '2024-01-19') ]
symbol: AZPN
sector: Technology
Index: SP400
vol_30d_2yr: 4840968000.0
Sector 1YMF: 50.989990234375
1YMF: 0.0012578889180841519
risk trend factor: 0.8268198335018307
    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

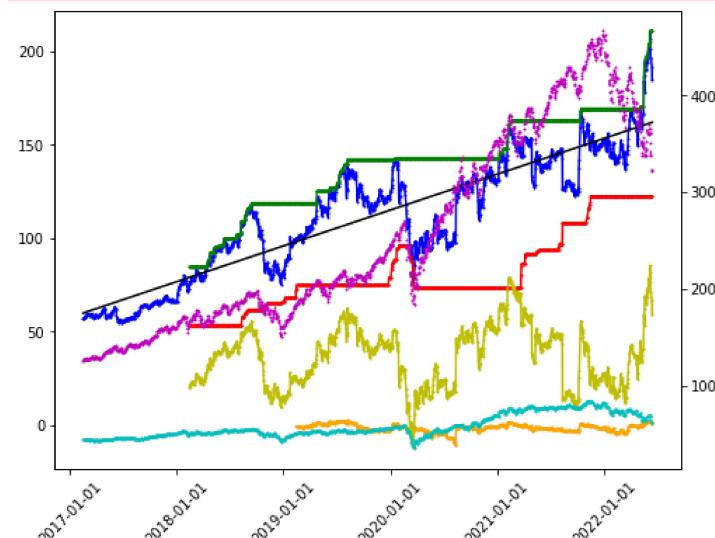
Adj Close  21dBOLD  21dMA-TP  21dBOLU  90dSMA  90dSD  90d_lower  90d_upper
2022-06-14 184.309998 174.372359 193.022857 211.673356 170.678412 18.041759 134.594895 206.761929
```

	volume_factor	latest_p	vol_30d_2yr	pct_2yr	adf	hurst
AZPN	0.001258	184.309998	4840968000.0	0.775395	0.752504	0.381769

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

Sector 1YMF: -353.0699768066406
Sector Volume Factor: 0.00219037124135683
Sector Risk Trend Factor: -4.508044961227624
Index 1YMF: -63.869998931884766
Index Volume Factor: 0.0011014613124698796
Index Risk Trend Factor: -4.591660649354175

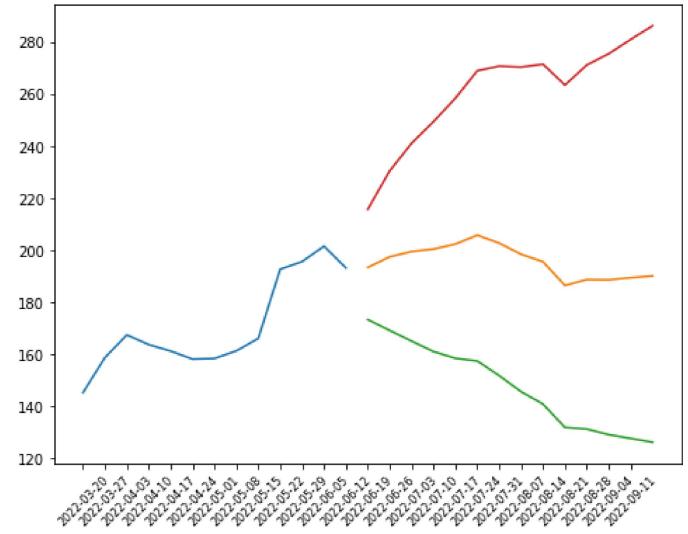
C:\Users\User\AppData\Local\Temp\ipykernel_7384\2930981872.py:165: UserWarning: FixedFormatter should only be used together with FixedLocator
ax1.set_xticklabels(ax1.get_xticks(), rotation = 45)



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AnalyzeSP1500

```
ets next 13 weeks
inner cv scores: [366.7245041926584, 366.72448797471003, 366.7245041926584, 366.7245036735472]
inner cv sdevs: [560.7658577875985, 560.7658611961473, 560.7658577875985, 560.7658580175564]
best model: ['T', 'F']
best inner cv score, sdev (11 folds): 366.72448797471003 560.7658611961473
test cv mean error, stdev (10 folds): [401.82341576592614, 576.5005602318051]
sell date: 2022-07-24
expected return: 0.11635016787519324
discounted return: 0.0028261549197503566
quarter return: 1.296462672251224
```



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

	exp_return	sell_date	days_delta	disc rtn	qtr rtn	outer_cv_avg_rmse_n11	outer_cv_std_n11	mean_revert_flag	price	Sector	Index	error_price_ratio	std_price_ratio
SYMBOL													
VPU	0.045293	2022-06-19	4	0.011136	2.769969	49.980765	50.637006	False	144.529999	error	nan	0.345816	0.350356
NTUS	0.042142	2022-06-19	4	0.010373	2.584149	10.626461	12.414671	False	31.790001	Healthcare	SP600	0.334271	0.390521
APA	0.146089	2022-07-03	18	0.007604	2.007578	39.791599	45.971410	False	46.000000	Energy	SP500	0.865035	0.999378
CTRA	0.093500	2022-07-03	18	0.004978	1.579089	9.248664	14.053883	False	31.110001	Energy	SP500	0.297289	0.451748
CEIX	0.435424	2022-09-04	81	0.004472	1.507643	37.177596	60.594000	False	48.619999	Energy	SP600	0.764656	1.246277
SM	0.416179	2022-09-18	95	0.003669	1.400702	59.859792	83.931726	False	48.680000	Energy	SP600	1.229659	1.724152
AZPN	0.116350	2022-07-24	39	0.002826	1.296463	401.823416	576.500560	False	184.309998	Technology	SP400	2.180150	3.127885
LNTH	0.234502	2022-09-18	95	0.002220	1.226316	42.463777	63.031572	False	62.580002	Healthcare	SP600	0.678552	1.007216
ROCC	0.119021	2022-08-07	53	0.002124	1.215558	75.727217	79.000749	False	45.240002	Energy	SP600	1.673900	1.746259
VAW	0.050287	2022-07-10	25	0.001964	1.197882	228.726728	120.886783	False	169.380005	error	nan	1.350376	0.713702
EOG	0.195020	2022-09-18	95	0.001877	1.188316	320.164137	277.247591	False	131.259995	Energy	SP500	2.439160	2.112202
MUR	0.192535	2022-09-18	95	0.001855	1.185922	28.725721	30.435904	False	41.580002	Energy	SP400	0.690854	0.731984
PDCE	0.176771	2022-09-18	95	0.001715	1.170738	75.006950	76.866431	False	81.650002	Energy	SP400	0.918640	0.941414
FANG	0.176500	2022-09-18	95	0.001712	1.170476	452.091010	406.584712	False	149.630005	Energy	SP500	3.021393	2.717267
HES	0.155962	2022-09-18	95	0.001527	1.150683	207.173711	202.358556	False	120.070000	Energy	SP500	1.725441	1.685338
OXY	0.152042	2022-09-18	95	0.001491	1.146904	69.947359	74.995011	False	62.090000	Energy	SP500	1.126548	1.207844
TVTY	0.058971	2022-07-24	39	0.001470	1.144724	25.293957	20.731419	False	31.600000	error	SP600	0.800442	0.656058
MRO	0.141926	2022-09-18	95	0.001398	1.137150	13.299650	18.071933	False	28.790001	Energy	SP500	0.461954	0.627716
VNQ	0.041482	2022-07-17	32	0.001271	1.123953	42.999334	39.984518	False	87.320000	error	nan	0.492434	0.457908
CIVI	0.094871	2022-08-28	74	0.001226	1.119277	55.240650	47.257059	True	72.260002	Energy	SP600	0.764471	0.653986
PBF	0.048794	2022-07-24	39	0.001222	1.118941	22.654817	23.095485	False	38.919998	Energy	SP600	0.582087	0.593409
XOM	0.119850	2022-09-18	95	0.001192	1.115854	113.905467	113.228428	False	96.099998	Energy	SP500	1.185281	1.178235
VIS	0.029960	2022-07-10	25	0.001181	1.114753	224.843168	189.322891	False	164.399994	error	nan	1.367659	1.151599
VCR	0.046710	2022-07-24	39	0.001171	1.113705	969.516354	924.206924	False	228.220001	error	nan	4.248166	4.049632
SAFM	0.027646	2022-07-10	25	0.001091	1.105564	325.355867	377.509204	False	207.410004	Consumer Defensive	SP400	1.568660	1.820111
VGT	0.043232	2022-07-24	39	0.001086	1.104994	1191.988052	1176.784160	False	323.260010	error	nan	3.687397	3.640364
VDC	0.042087	2022-07-24	39	0.001058	1.102135	78.145570	43.943198	False	178.809998	error	nan	0.437031	0.245754
PXD	0.100310	2022-09-18	95	0.001007	1.096994	969.327952	992.574433	False	264.549988	Energy	SP500	3.664063	3.751935
VDE	0.099494	2022-09-18	95	0.000999	1.096206	174.193511	183.734248	False	117.059998	error	nan	1.488070	1.569573
MUSA	0.061104	2022-08-14	60	0.000989	1.095206	734.658523	887.264018	False	233.460007	Consumer Cyclical	SP400	3.146828	3.800497
DVN	0.097542	2022-09-18	95	0.000980	1.094321	79.151000	110.385769	False	70.589996	Energy	SP500	1.121278	1.563759
DINO	0.070160	2022-08-28	74	0.000917	1.087958	70.467720	72.439716	False	52.709999	Energy	SP400	1.336895	1.374307
MTDR	0.089332	2022-09-18	95	0.000901	1.086393	59.493004	61.393550	False	61.389999	Energy	SP400	0.969099	1.000058
CVX	0.082801	2022-09-18	95	0.000838	1.080085	165.408395	129.424147	False	167.550003	Energy	SP500	0.987218	0.772451
ACC	0.026344	2022-07-17	32	0.000813	1.077625	18.106531	12.470131	False	64.419998	error	SP400	0.281070	0.193575
SWX	0.048709	2022-08-14	60	0.000793	1.075649	42.239784	48.015148	False	87.040001	Utilities	SP400	0.485292	0.551645
MCK	0.063146	2022-09-04	81	0.000756	1.072024	494.614313	651.709317	False	306.519989	Healthcare	SP500	1.613645	2.126156
COP	0.073263	2022-09-18	95	0.000745	1.070869	156.209939	161.169931	False	111.489998	Energy	SP500	1.401112	1.445600
SLY	0.045324	2022-08-14	60	0.000739	1.070331	66.840570	58.040468	False	80.730003	error	nan	0.827952	0.718945
HRB	0.039744	2022-08-07	53	0.000736	1.069995	8.086119	7.483224	False	34.380001	Consumer Cyclical	SP400	0.235198	0.217662
MDYG	0.044351	2022-08-14	60	0.000724	1.068804	39.399144	32.975028	False	61.660000	error	nan	0.638974	0.534788
VOX	0.062358	2022-09-11	88	0.000688	1.065283	106.360931	94.433444	False	92.730003	error	nan	1.146996	1.018370
MTOR	0.017132	2022-07-10	25	0.000680	1.064507	14.849095	9.028333	False	36.000000	Consumer Cyclical	SP600	0.412475	0.250787

	exp_return	sell_date	days_delta	disc_rtn	qtr_rtn	outer_cv_avg_rmse_n11	outer_cv_std_n11	mean_revert_flag	price	Sector	Index	error_price_ratio	std_price_ratio
SYMBOL													
MPC	0.033797	2022-08-28	74	0.000449	1.042189	140.594809	186.039339	False	102.669998	Energy	SP500	1.369386	1.812013
SPTM	0.033776	2022-08-28	74	0.000449	1.042163	14.411596	10.263316	False	46.099998	error	nan	0.312616	0.222632
VFH	0.033377	2022-08-28	74	0.000444	1.041663	50.450414	37.843918	False	76.820000	error	nan	0.656735	0.492631
SPY	0.031070	2022-08-28	74	0.000414	1.038772	944.421057	678.950227	False	373.869995	error	nan	2.526068	1.816006
BANF	-0.003024	2022-08-07	53	-0.000057	0.994757	57.955677	39.112075	False	91.309998	error	SP600	0.634713	0.428344