

Backtest Report

Algotrade

December 28, 2023

1 Stock Filter

In this backtesting report, the following criteria are used to filter stocks.

$$RT = \frac{NetRevenue}{AvgStartEndTradeReceivables}$$

The initial filter recommended by experts is:

$$4 < RT < \infty$$

2 Backtest Settings

In-sample period: from 2018-07-01 to 2020-12-31

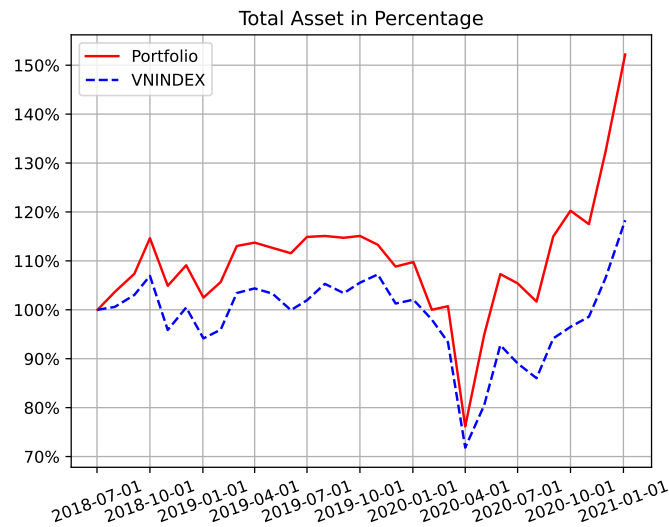
Out-of-sample period: from 2021-01-01 to 2023-11-01

Target number of stocks in portfolio: 5

Using VNINDEX as benchmark to evaluate portfolio performance.

3 Evaluate initial filter on in-sample period

3.1 Performance Measurement



- Total Excess Return: 33.89%
- Total Absolute Return: Portfolio: 52.19%, VNINDEX: 18.30%
- Expected Annual Excess Return: 12.38%
- Maximum Drawdown: Portfolio: -33.83%, VNINDEX: -33.02%

- Sharpe Ratio: Portfolio: 0.6054, VNINDEX: 0.2755
- Sortino Ratio (MAR=7%): Portfolio: 0.7594, VNINDEX: 0.1614
- Information Ratio: 0.9786
- Average Monthly Number of Stocks: 86.63
- Monthly Excess Returns: Min: -4.91%, Max: 12.53%, Mean: 0.95%, Standard deviation: 3.37%

3.2 Restructuring Table

No.	Stock	Sector	Count over 30 months	Total Excess Return Contribution	2018-07-02	2018-08-01	2018-08-01	2018-09-04	2018-10-01	2018-11-01	2018-12-03	2019-01-02	2019-02-01	2019-03-01	2019-04-01	2019-05-03	2019-06-03	2019-07-01	2019-08-01	2019-09-03	2019-10-01	2019-11-01	2019-12-02	2020-01-02	2020-02-03	2020-03-02	2020-04-01	2020-05-04	2020-06-04	2020-07-01	2020-08-03	2020-09-01	2020-10-01	2020-11-02	2020-12-01			
					3.06%	1.14%	3.00%	1.85%	-0.79%	0.22%	1.21%	-0.83%	-0.30%	0.07%	2.30%	0.97%	-3.12%	1.49%	-1.74%	-3.16%	1.60%	0.09%	-4.91%	5.45%	-1.32%	8.5	-2.18%	2.95%	-0.13%	3.43%	102	2.07%	-4.43%	114	4.60%	130	3.90%	
1	AAA	Chemicals	30	-0.33%																																		
2	ANV	Food Producers	30	0.38%																																		
3	BMP	Chemicals	30	0.25%																																		
4	CSM	Automobiles and Parts	8	-0.05%																																		
5	CTD	Construction and Materials	12	-0.19%																																		
6	CTI	Construction and Materials	29	-0.24%																																		
7	CVT	Construction and Materials	28	0.99%																																		
8	D2D	Real Estate Investment and Services	29	1.31%																																		
9	DAG	Chemicals	13	-0.69%																																		
10	DBC	Food Producers	19	1.30%																																		
11	DCM	Chemicals	27	0.19%																																		
12	DHG	Pharmaceuticals and Biotechnology	18	0.37%																																		
13	DPM	Chemicals	30	0.17%																																		
14	DXG	Real Estate Investment and Services	21	-0.75%																																		
15	FIT	Real Estate Investment and Services	14	1.79%																																		
16	FLC	Real Estate Investment and Services	12	0.43%																																		
17	FMC	Food Producers	22	0.85%																																		
18	FPT	Software and Computer Services	30	0.88%																																		
19	GAS	Gas, Water and Multi-utilities	30	0.11%																																		
20	GMD	Industrial Transportation	30	0.41%																																		
21	GTN	General Industrials	30	1.62%																																		
22	HAH	Industrial Transportation	15	0.52%																																		
23	HAR	Real Estate Investment and Services	8	-0.03%																																		
24	HDG	Real Estate Investment and Services	30	1.16%																																		
25	HHS	Automobiles and Parts	29	0.66%																																		
26	HPG	Industrial Metals and Mining	30	0.52%																																		
27	HSG	Industrial Metals and Mining	30	1.26%																																		
28	IDI	Food Producers	26	-0.40%																																		
29	KDH	Real Estate Investment and Services	18	0.21%																																		
30	KSB	Industrial Metals and Mining	30	0.34%																																		
31	L14	Construction and Materials	26	1.06%																																		
32	MSN	Food Producers	30	0.05%																																		
33	MWG	Retailers	30	0.62%																																		
34	NCT	Industrial Transportation	14	-0.17%																																		
35	NDN	Real Estate Investment and Services	17	0.54%																																		
36	NKG	Industrial Metals and Mining	26	0.10%																																		
37	NLG	Real Estate Investment and Services	30	0.23%																																		
38	NTL	Real Estate Investment and Services	28	1.77%																																		
39	PET	Retailers	9	0.72%																																		
40	PHC	Construction and Materials	18	-0.18%																																		
41	PHR	Chemicals	30	1.86%																																		
42	PNJ	Personal Goods	30	0.54%																																		

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No.	Stock	Sector	Count over 30 months	Total Excess Return Contribution	2018-07-02	2018-08-01	2018-08-01	2018-09-04	2018-10-01	2018-11-01	2018-12-03	2019-01-02	2019-02-01	2019-03-01	2019-04-01	2019-05-02	2019-06-03	2019-07-01	2019-08-01	2019-09-03	2019-10-01	2019-11-01	2019-12-02	2020-01-02	2020-02-03	2020-03-02	2020-04-01	2020-05-04	2020-06-01	2020-07-01	2020-08-03	2020-09-01	2020-10-01	2020-11-02	2020-12-01							
					3.06%	1.14%	3.00%	1.85%	-0.79%	0.22%	1.21%	-0.83%	-0.30%	0.07%	2.30%	0.97%	-3.12%	1.49%	-1.74%	-3.16%	1.60%	0.09%	-4.91%	5.45%	-1.32%	8.5	-2.18%	101	2.25%	106	-0.13%	104	3.64%	102	2.07%	117	-4.43%	121	4.60%	130	3.90%	
43	PTB	Construction and Materials	30	0.30%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o						
44	PVS	Oil, Gas and Coal	18	0.44%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o					
45	QCG	Real Estate Investment and Services	15	-0.88%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o					
46	REE	Industrial Engineering	18	0.38%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o					
47	SBT	Food Producers	30	0.76%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o				
48	SHN	Industrial Support Services	2	-0.14%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o				
49	TCM	Personal Goods	30	1.59%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o				
50	TDH	Real Estate Investment and Services	29	0.01%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o				
51	TIS	Industrial Metals and Mining	2	0.19%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o				
52	TTB	Construction and Materials	25	0.20%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o			
53	TV2	Industrial Support Services	23	0.68%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o			
54	TVC	Investment Banking and Brokerage Services	24	1.86%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o			
55	VC3	Real Estate Investment and Services	3	-0.06%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o			
56	VCS	Construction and Materials	15	0.59%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o			
57	VHC	Food Producers	30	0.61%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o			
58	VIC	Real Estate Investment and Services	30	-0.08%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o			
59	VIS	Industrial Metals and Mining	1	0.04%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o			
60	VNG	Travel and Leisure	30	0.21%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o			
61	VNM	Food Producers	30	-0.14%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
62	VSC	Industrial Transportation	30	0.81%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
63	AMD	Retailers	9	-0.79%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
64	CAP	Industrial Materials	1	0.02%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
65	CAV	Technology Hardware and Equipment	1	0.00%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
66	CSV	Chemicals	18	-0.18%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
67	DLG	Real Estate Investment and Services	5	-0.16%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
68	DPR	Chemicals	15	0.12%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
69	EVE	Household Goods and Home Construction	3	-0.07%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
70	HAX	Automobiles and Parts	17	0.53%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
71	HT1	Construction and Materials	19	0.47%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
72	KDC	Food Producers	19	0.72%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
73	KLF	Retailers	18	-0.42%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
74	OGC	Real Estate Investment and Services	19	1.69%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
75	PAN	Food Producers	11	0.13%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
76	PVT	Industrial Transportation	29	0.11%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
77	QBS	Chemicals	4	-0.28%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
78	SAM	Telecommunications Equipment	6	-0.02%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
79	SHI	Household Goods and Home Construction	20	0.64%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
80	SKG	Industrial Transportation	20	-0.69%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
81	TLH	Industrial Metals and Mining	6	-0.01%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
82	TNG	Personal Goods	29	1.07%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
83	CMG	Technology Hardware and Equipment	12	0.61%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
84	DGW	Retailers	28	1.46%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
85	GIL	Personal Goods	12	0.63%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
86	MPC	Food Producers	28	0.02%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o

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No.	Stock	Sector	Count over 30 months	Total Excess Return Contribution	2018-07-02	2018-08-01	2018-09-04	2018-10-01	2018-11-01	2018-12-03	2019-01-02	2019-02-01	2019-03-01	2019-04-01	2019-05-02	2019-06-03	2019-07-01	2019-08-01	2019-09-03	2019-10-01	2019-11-01	2019-12-02	2020-01-02	2020-02-03	2020-03-02	2020-04-01	2020-05-04	2020-06-01	2020-07-01	2020-08-03	2020-09-01	2020-10-01	2020-11-02	2020-12-01				
					3.06%	1.14%	3.00%	1.85%	-0.79%	0.22%	1.21%	-0.83%	-0.30%	0.07%	2.30%	0.97%	-3.12%	1.49%	-1.74%	-3.16%	1.60%	0.09%	-4.91%	5.45%	-1.92%	8.5	-2.18%	2.25%	-0.13%	3.64%	2.07%	-4.43%	1.14	4.60%	3.90%			
87	SRA	Software and Computer Services	13	0.35%																																		
88	AMV	Medical Equipment and Services	23	-0.16%																																		
89	APC	Chemicals	3	0.07%																																		
90	ASM	Real Estate Investment and Services	27	0.70%																																		
91	DHC	Industrial Materials	26	1.03%																																		
92	DRH	Real Estate Investment and Services	19	-0.61%																																		
93	DST	Construction and Materials	4	-0.55%																																		
94	GMC	Personal Goods	5	0.32%																																		
95	HDC	Real Estate Investment and Services	3	0.30%																																		
96	IMP	Pharmaceuticals and Biotechnology	14	0.03%																																		
97	LHG	Real Estate Investment and Services	25	0.42%																																		
98	MSR	Industrial Metals and Mining	6	0.09%																																		
99	PPC	Electricity	21	0.71%																																		
100	STK	Personal Goods	16	0.03%																																		
101	GEX	Technology Hardware and Equipment	26	-0.14%																																		
102	VGC	Construction and Materials	26	0.65%																																		
103	ACL	Food Producers	7	-0.23%																																		
104	BFC	Chemicals	14	0.02%																																		
105	CMX	Food Producers	12	-0.17%																																		
106	HDA	Construction and Materials	12	-0.15%																																		
107	VEF	Industrial Support Services	5	0.82%																																		
108	MPT	Personal Goods	2	-0.22%																																		
109	NT2	Electricity	8	-0.03%																																		
110	SRC	Automobiles and Parts	4	-0.33%																																		
111	NBB	Real Estate Investment and Services	1	0.11%																																		
112	VGS	Industrial Metals and Mining	2	-0.02%																																		
113	VSH	Electricity	4	-0.31%																																		
114	DGC	Chemicals	20	0.40%																																		
115	LGL	Real Estate Investment and Services	7	0.12%																																		
116	LIX	Personal Care, Drug and Grocery Stores	10	-0.05%																																		
117	NVT	Real Estate Investment and Services	1	-0.36%																																		
118	SZL	Real Estate Investment and Services	18	0.53%																																		
119	VGG	Personal Goods	2	-0.09%																																		
120	BCC	Construction and Materials	7	0.21%																																		
121	SFG	Chemicals	3	-0.56%																																		
122	TDM	Gas, Water and Multi-utilities	17	-0.34%																																		
123	TRC	Chemicals	3	0.15%																																		
124	VCR	Real Estate Investment and Services	14	0.23%																																		
125	MST	Construction and Materials	10	0.65%																																		
126	PDR	Real Estate Investment and Services	9	0.39%																																		
127	TNA	Retailers	15	0.58%																																		
128	NTP	Chemicals	3	-0.11%																																		
129	SMB	Beverages	3	0.16%																																		
130	TIP	Real Estate Investment and Services	10	0.03%																																		

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					3.06%	1.14%	3.00%	1.85%	-0.79%	0.22%	1.21%	-0.83%	-0.30%	0.07%	2.30%	0.97%	-3.12%	1.49%	-1.74%	-3.16%	1.60%	0.09%	-4.91%	5.45%	-1.92%	12.53%	-2.18%	2.25%	-0.13%	3.64%	102	117	-4.43%	114	4.60%	130	3.90%
131	ROS	Construction and Materials	10	-2.14%															0																		
132	CEO	Real Estate Investment and Services	11	-0.31%																0																	
133	LDG	Real Estate Investment and Services	3	-0.22%																0																	
134	PAC	Personal Care, Drug and Grocery Stores	3	-0.14%																0																	
135	DHT	Pharmaceuticals and Biotechnology	7	-0.44%																0																	
136	IBC	Investment Banking and Brokerage Services	13	0.09%																0																	
137	MBG	Household Goods and Home Construction	13	-1.84%																0																	
138	SCI	Construction and Materials	1	-0.13%																0																	
139	TCH	Real Estate Investment and Services	14	0.41%																0																	
140	TSC	Chemicals	10	0.24%																0																	
141	ACV	Industrial Transportation	13	-0.02%																0																	
142	PC1	Construction and Materials	12	0.48%																0																	
143	NVL	Real Estate Investment and Services	12	0.04%																0																	
144	QNS	Food Producers	12	0.46%																0																	
145	SAB	Beverages	12	-0.20%																0																	
146	TIG	Real Estate Investment and Services	6	0.28%																0																	
147	HVN	Travel and Leisure	11	-0.05%																0																	
148	FTM	Personal Goods	1	-0.18%																0																	
149	HND	Electricity	9	0.02%																0																	
150	VJC	Travel and Leisure	10	-0.14%																0																	
151	GEG	Electricity	9	-0.21%																0																	
152	PVB	Oil, Gas and Coal	6	0.69%																0																	
153	SGN	Industrial Transportation	1	-0.02%																0																	
154	VGT	Personal Goods	4	0.19%																0																	
155	BTP	Electricity	1	-0.13%																0																	
156	C32	Construction and Materials	6	0.09%																0																	
157	C69	Construction and Materials	2	-0.11%																0																	
158	DNM	Medical Equipment and Services	3	-0.52%																0																	
159	HCD	Chemicals	3	-0.27%																0																	
160	PLX	Oil, Gas and Coal	8	0.03%																0																	
161	RAL	Personal Care, Drug and Grocery Stores	3	0.01%																0																	
162	TLG	Personal Care, Drug and Grocery Stores	7	0.01%																0																	
163	CTF	Automobiles and Parts	7	-0.05%																0																	
164	DHM	Industrial Metals and Mining	4	0.21%																0																	
165	MCH	Food Producers	6	0.17%																0																	
166	TAC	Food Producers	3	-0.18%																0																	
167	TCL	Industrial Transportation	6	0.04%																0																	
168	TNI	Industrial Engineering	7	-0.96%																0																	
169	VOC	Food Producers	5	-0.09%																0																	
170	D11	Real Estate Investment and Services	1	-0.04%																0																	
171	DPG	Construction and Materials	6	0.17%																0																	
172	HII	Chemicals	5	-0.05%																0																	
173	SEA	Food Producers	1	0.12%																0																	
174	TDG	Oil, Gas and Coal	3	-0.30%																0																	

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3.3 Criteria Value Table

No.	Stock	Sector	Count over 30 months	Total Excess Return Contribution	RT		
					min	median	max
1	AAA	Chemicals	30	-0.33%	8.2701	12.1545	15.3412
2	ANV	Food Producers	30	0.38%	4.2894	8.2998	11.6885
3	BMP	Chemicals	30	0.25%	9.5551	10.5929	11.8797
4	CSM	Automobiles and Parts	8	-0.05%	5.1685	6.0544	7.3845
5	CTD	Construction and Materials	12	-0.19%	5.0812	5.6193	6.9371
6	CTI	Construction and Materials	29	-0.24%	7.9245	10.6716	17.5881
7	CVT	Construction and Materials	28	0.99%	26.8092	34.6609	44.2601
8	D2D	Real Estate Investment and Services	29	1.31%	10.9092	20.9292	36.4562
9	DAG	Chemicals	13	-0.69%	4.5903	6.5104	8.7268
10	DBC	Food Producers	19	1.30%	15.8549	35.8214	50.9260
11	DCM	Chemicals	27	0.19%	49.7234	370.2848	1930.1088
12	DHG	Pharmaceuticals and Biotechnology	18	0.37%	5.6934	7.2867	8.1160
13	DPM	Chemicals	30	0.17%	23.2244	25.8724	37.8539
14	DXG	Real Estate Investment and Services	21	-0.75%	4.0065	4.7358	5.6480
15	FIT	Real Estate Investment and Services	14	1.79%	4.0104	4.5481	5.0121
16	FLC	Real Estate Investment and Services	12	0.43%	4.4928	4.7902	5.7976
17	FMC	Food Producers	22	0.85%	9.5475	13.1012	16.7442
18	FPT	Software and Computer Services	30	0.88%	4.0544	5.0301	7.4587
19	GAS	Gas, Water and Multi-utilities	30	0.11%	12.6034	15.5797	18.9294
20	GMD	Industrial Transportation	30	0.41%	6.2096	6.6291	9.7235
21	GTN	General Industrials	30	1.62%	18.5891	23.9763	35.8500
22	HAH	Industrial Transportation	15	0.52%	9.0000	9.5403	11.2408
23	HAR	Real Estate Investment and Services	8	-0.03%	5.4227	7.7000	7.9093
24	HDG	Real Estate Investment and Services	30	1.16%	4.9366	8.6463	12.1482
25	HHS	Automobiles and Parts	29	0.66%	9.7199	16.2747	57.0932
26	HPG	Industrial Metals and Mining	30	0.52%	21.0810	25.7037	28.9960
27	HSG	Industrial Metals and Mining	30	1.26%	16.3534	21.1510	25.9570
28	IDI	Food Producers	26	-0.40%	4.0983	5.4606	7.8363
29	KDH	Real Estate Investment and Services	18	0.21%	4.0291	4.4235	5.1863
30	KSB	Industrial Metals and Mining	30	0.34%	6.4338	7.1185	8.1660
31	L14	Construction and Materials	26	1.06%	9.3037	16.1045	18.9403
32	MSN	Food Producers	30	0.05%	27.0298	33.9366	38.3881
33	MWG	Retailers	30	0.62%	94.9817	268.8249	343.7083
34	NCT	Industrial Transportation	14	-0.17%	12.1260	14.4103	19.4858
35	NDN	Real Estate Investment and Services	17	0.54%	4.2018	5.6912	11.6528
36	NKG	Industrial Metals and Mining	26	0.10%	10.8748	16.6380	20.5684
37	NLG	Real Estate Investment and Services	30	0.23%	5.3062	8.0845	19.1620
38	NTL	Real Estate Investment and Services	28	1.77%	8.5197	11.5161	31.8087
39	PET	Retailers	9	0.72%	5.7088	6.5837	7.4131
40	PHC	Construction and Materials	18	-0.18%	4.3914	5.0874	8.1455
41	PHR	Chemicals	30	1.86%	13.5010	27.8385	43.4525
42	PNJ	Personal Goods	30	0.54%	117.2652	241.3144	307.2019
43	PTB	Construction and Materials	30	0.30%	8.1712	8.7285	9.9146
44	PVS	Oil, Gas and Coal	18	0.44%	4.0197	4.4872	5.2298
45	QCG	Real Estate Investment and Services	15	-0.88%	4.3665	5.7343	12.5042
46	REE	Industrial Engineering	18	0.38%	4.1895	4.5662	5.8745
47	SBT	Food Producers	30	0.76%	4.3222	6.4418	9.4322
48	SHN	Industrial Support Services	2	-0.14%	7.1404	7.1404	7.1404
49	TCM	Personal Goods	30	1.59%	6.5470	9.5351	12.1853
50	TDH	Real Estate Investment and Services	29	0.01%	5.0699	9.6681	12.3656
51	TIS	Industrial Metals and Mining	2	0.19%	12.4044	14.1025	15.8006
52	TTB	Construction and Materials	25	0.20%	4.7535	6.6269	15.9423

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No.	Stock	Sector	Count over 30 months	Total Excess Return Contribution	RT		
					min	median	max
53	TV2	Industrial Support Services	23	0.68%	4.0394	5.0556	8.3010
54	TVC	Investment Banking and Brokerage Services	24	1.86%	20.9226	488.7429	2402.1815
55	VC3	Real Estate Investment and Services	3	-0.06%	5.5381	5.5381	5.5381
56	VCS	Construction and Materials	15	0.59%	4.2544	4.5188	5.0496
57	VHC	Food Producers	30	0.61%	4.7032	6.5440	8.3943
58	VIC	Real Estate Investment and Services	30	-0.08%	9.0201	15.0860	21.8824
59	VIS	Industrial Metals and Mining	1	0.04%	4.4425	4.4425	4.4425
60	VNG	Travel and Leisure	30	0.21%	5.1317	12.7676	16.9210
61	VNM	Food Producers	30	-0.14%	12.7631	13.9243	16.2718
62	VSC	Industrial Transportation	30	0.81%	7.7547	9.3285	11.1298
63	AMD	Retailers	9	-0.79%	4.9963	8.1600	9.2421
64	CAP	Industrial Materials	1	0.02%	46.3555	46.3555	46.3555
65	CAV	Technology Hardware and Equipment	1	0.00%	9.1076	9.1076	9.1076
66	CSV	Chemicals	18	-0.18%	7.5087	8.4392	9.4226
67	DLG	Real Estate Investment and Services	5	-0.16%	4.2273	4.2273	4.6095
68	DPR	Chemicals	15	0.12%	17.2652	28.6241	40.5989
69	EVE	Household Goods and Home Construction	3	-0.07%	5.3371	5.3371	6.3075
70	HAX	Automobiles and Parts	17	0.53%	9.5083	13.2093	17.4510
71	HT1	Construction and Materials	19	0.47%	16.7531	21.9602	28.2767
72	KDC	Food Producers	19	0.72%	11.8890	13.1023	14.6432
73	KLF	Retailers	18	-0.42%	4.1026	5.7179	10.1276
74	OGC	Real Estate Investment and Services	19	1.69%	4.6606	7.0785	7.7503
75	PAN	Food Producers	11	0.13%	9.8534	10.4377	12.0589
76	PVT	Industrial Transportation	29	0.11%	6.5444	8.4377	9.6322
77	QBS	Chemicals	4	-0.28%	4.7096	6.2014	7.4989
78	SAM	Telecommunications Equipment	6	-0.02%	4.0891	4.2350	4.6545
79	SHI	Household Goods and Home Construction	20	0.64%	4.0610	4.7219	6.0954
80	SKG	Industrial Transportation	20	-0.69%	165.2778	304.7438	860.4256
81	TLH	Industrial Metals and Mining	6	-0.01%	9.9409	12.3372	12.4920
82	TNG	Personal Goods	29	1.07%	5.1717	7.3033	14.4720
83	CMG	Technology Hardware and Equipment	12	0.61%	4.2029	4.5543	5.7914
84	DGW	Retailers	28	1.46%	9.8582	12.4718	15.4556
85	GIL	Personal Goods	12	0.63%	6.2829	9.5770	17.2210
86	MPC	Food Producers	28	0.02%	9.6658	12.3231	15.5068
87	SRA	Software and Computer Services	13	0.35%	4.1305	15.8076	194.1318
88	AMV	Medical Equipment and Services	23	-0.16%	4.8260	9.6527	22.0559
89	APC	Chemicals	3	0.07%	6.4973	6.9679	6.9679
90	ASM	Real Estate Investment and Services	27	0.70%	4.0971	8.5021	10.8431
91	DHC	Industrial Materials	26	1.03%	4.0106	6.6482	7.3206
92	DRH	Real Estate Investment and Services	19	-0.61%	4.2045	4.3946	10.0051
93	DST	Construction and Materials	4	-0.55%	4.1136	4.2031	4.2925
94	GMC	Personal Goods	5	0.32%	5.8021	5.8021	7.2671
95	HDC	Real Estate Investment and Services	3	0.30%	4.7199	5.2642	5.2642
96	IMP	Pharmaceuticals and Biotechnology	14	0.03%	5.2551	6.1210	7.4570
97	LHG	Real Estate Investment and Services	25	0.42%	6.6300	16.3112	33.2087
98	MSR	Industrial Metals and Mining	6	0.09%	4.8347	10.3317	20.6455
99	PPC	Electricity	21	0.71%	4.1679	4.4477	6.0873
100	STK	Personal Goods	16	0.03%	15.9306	24.9108	41.0571
101	GEX	Technology Hardware and Equipment	26	-0.14%	5.8302	6.4058	7.4910
102	VGC	Construction and Materials	26	0.65%	7.7325	9.1770	11.1712
103	ACL	Food Producers	7	-0.23%	4.3364	4.5031	5.1711
104	BFC	Chemicals	14	0.02%	5.6540	8.5653	12.8524
105	CMX	Food Producers	12	-0.17%	6.2059	11.3384	16.9056
106	HDA	Construction and Materials	12	-0.15%	5.1417	5.9282	6.1995
107	VEF	Industrial Support Services	5	0.82%	16.8376	34.9426	68.7935

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No.	Stock	Sector	Count over 30 months	Total Excess Return Contribution	RT		
					min	median	max
108	MPT	Personal Goods	2	-0.22%	4.0628	4.0628	4.0628
109	NT2	Electricity	8	-0.03%	4.0570	4.3669	6.3260
110	SRC	Automobiles and Parts	4	-0.33%	7.2691	7.9531	8.8700
111	NBB	Real Estate Investment and Services	1	0.11%	5.3790	5.3790	5.3790
112	VGS	Industrial Metals and Mining	2	-0.02%	8.0235	9.0038	9.9841
113	VSH	Electricity	4	-0.31%	4.1066	5.3457	8.3270
114	DGC	Chemicals	20	0.40%	7.9798	14.2930	28.6069
115	LGL	Real Estate Investment and Services	7	0.12%	5.1313	5.2006	5.7425
116	LIX	Personal Care, Drug and Grocery Stores	10	-0.05%	14.3293	17.6667	20.6781
117	NVT	Real Estate Investment and Services	1	-0.36%	77.9114	77.9114	77.9114
118	SZL	Real Estate Investment and Services	18	0.53%	13.9754	17.0566	22.7513
119	VGG	Personal Goods	2	-0.09%	9.8061	9.8061	9.8061
120	BCC	Construction and Materials	7	0.21%	12.3163	13.4272	48.7144
121	SFG	Chemicals	3	-0.56%	5.3276	6.5261	6.5261
122	TDM	Gas, Water and Multi-utilities	17	-0.34%	11.2180	15.7206	37.5342
123	TRC	Chemicals	3	0.15%	21.8486	116.4496	116.4496
124	VCR	Real Estate Investment and Services	14	0.23%	7.6660	9.2935	15.6926
125	MST	Construction and Materials	10	0.65%	4.2306	4.5408	7.9241
126	PDR	Real Estate Investment and Services	9	0.39%	4.1751	4.6641	5.2879
127	TNA	Retailers	15	0.58%	9.5925	12.8391	15.9652
128	NTP	Chemicals	3	-0.11%	4.2502	4.2502	4.4346
129	SMB	Beverages	3	0.16%	31.9338	36.0891	36.0891
130	TIP	Real Estate Investment and Services	10	0.03%	6.7012	7.5660	22.0875
131	ROS	Construction and Materials	10	-2.14%	4.3828	4.8777	5.7388
132	CEO	Real Estate Investment and Services	11	-0.31%	4.9921	5.4872	7.0575
133	LDG	Real Estate Investment and Services	3	-0.22%	4.0020	4.0020	4.0020
134	PAC	Personal Care, Drug and Grocery Stores	3	-0.14%	13.0085	15.7717	38.1510
135	DHT	Pharmaceuticals and Biotechnology	7	-0.44%	12.8120	14.9287	24.2420
136	IBC	Investment Banking and Brokerage Services	13	0.09%	16.7747	28.4720	44.5957
137	MBG	Household Goods and Home Construction	13	-1.84%	4.5120	5.4232	8.3724
138	SCI	Construction and Materials	1	-0.13%	9.5663	9.5663	9.5663
139	TCH	Real Estate Investment and Services	14	0.41%	7.4653	23.2738	30.8901
140	TSC	Chemicals	10	0.24%	6.5247	7.0835	11.0349
141	ACV	Industrial Transportation	13	-0.02%	5.7869	7.0598	7.5442
142	PC1	Construction and Materials	12	0.48%	4.5994	4.9722	5.8033
143	NVL	Real Estate Investment and Services	12	0.04%	4.0160	8.6593	21.8909
144	QNS	Food Producers	12	0.46%	73.5035	151.0187	202.8869
145	SAB	Beverages	12	-0.20%	138.8509	194.9914	378.2148
146	TIG	Real Estate Investment and Services	6	0.28%	4.5782	5.0289	5.4796
147	HVN	Travel and Leisure	11	-0.05%	20.7922	21.9164	26.7351
148	FTM	Personal Goods	1	-0.18%	4.8361	4.8361	4.8361
149	HND	Electricity	9	0.02%	5.1164	5.2113	7.4293
150	VJC	Travel and Leisure	10	-0.14%	5.5008	6.1501	17.0514
151	GEG	Electricity	9	-0.21%	5.2859	7.1783	7.4172
152	PVB	Oil, Gas and Coal	6	0.69%	7.2111	9.3887	11.5663
153	SGN	Industrial Transportation	1	-0.02%	6.3144	6.3144	6.3144
154	VGT	Personal Goods	4	0.19%	7.6581	7.6581	8.4141
155	BTP	Electricity	1	-0.13%	5.5917	5.5917	5.5917
156	C32	Construction and Materials	6	0.09%	7.8442	8.0259	8.3017
157	C69	Construction and Materials	2	-0.11%	7.5180	7.5180	7.5180
158	DNM	Medical Equipment and Services	3	-0.52%	5.3394	5.4342	5.4342
159	HCD	Chemicals	3	-0.27%	4.1669	4.1669	4.5295
160	PLX	Oil, Gas and Coal	8	0.03%	20.0857	23.0904	25.2087
161	RAL	Personal Care, Drug and Grocery Stores	3	0.01%	4.7393	4.8375	5.0225
162	TLG	Personal Care, Drug and Grocery Stores	7	0.01%	5.7633	7.5953	8.3078

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No.	Stock	Sector	Count over 30 months	Total Excess Return Contribution	RT		
					min	median	max
163	CTF	Automobiles and Parts	7	-0.05%	21.2818	23.9096	29.3562
164	DHM	Industrial Metals and Mining	4	0.21%	6.6606	7.3978	7.3978
165	MCH	Food Producers	6	0.17%	4.2268	30.9130	73.6080
166	TAC	Food Producers	3	-0.18%	20.4558	23.6723	27.5858
167	TCL	Industrial Transportation	6	0.04%	4.8985	4.9561	8.7498
168	TNI	Industrial Engineering	7	-0.96%	5.3711	6.0905	8.2766
169	VOC	Food Producers	5	-0.09%	5.0262	7.8154	8.7897
170	D11	Real Estate Investment and Services	1	-0.04%	8.4788	8.4788	8.4788
171	DPG	Construction and Materials	6	0.17%	4.2749	4.7865	5.2980
172	HII	Chemicals	5	-0.05%	9.2906	9.3464	9.3464
173	SEA	Food Producers	1	0.12%	9.8188	9.8188	9.8188
174	TDG	Oil, Gas and Coal	3	-0.30%	16.3918	28.4519	28.4519
175	VLC	Food Producers	4	-0.03%	36.3080	85.8795	85.8795
176	BWE	Gas, Water and Multi-utilities	5	0.09%	7.7088	10.8008	10.8008
177	LHC	Construction and Materials	2	0.07%	5.9238	5.9238	5.9238
178	LTG	Chemicals	2	0.29%	4.9567	4.9567	4.9567
179	SCS	Industrial Transportation	5	-0.07%	10.8695	11.0444	11.0444
180	TYA	Technology Hardware and Equipment	1	-0.15%	5.8840	5.8840	5.8840
181	AFX	Food Producers	2	-0.26%	11.6790	12.1228	12.5666
182	DHA	Construction and Materials	2	0.05%	9.3356	9.4031	9.4706
183	DVP	Industrial Transportation	2	0.11%	8.0307	9.1399	10.2490
184	HAP	Industrial Materials	3	-0.29%	4.3898	4.3898	4.8060
185	NSC	Food Producers	2	-0.02%	5.3601	5.5617	5.7633
186	PGC	Gas, Water and Multi-utilities	1	0.12%	9.8231	9.8231	9.8231
187	PGS	Gas, Water and Multi-utilities	1	0.09%	11.7358	11.7358	11.7358
188	PLP	Chemicals	4	0.08%	7.3379	8.1695	8.1695
189	VIP	Industrial Transportation	3	0.02%	6.6957	8.6518	8.6518
190	C47	Construction and Materials	1	-0.19%	4.3548	4.3548	4.3548
191	CNG	Gas, Water and Multi-utilities	1	-0.06%	6.6241	6.6241	6.6241
192	DXP	Industrial Transportation	3	0.16%	7.4761	7.4761	7.4761
193	IDJ	Real Estate Investment and Services	2	0.20%	4.1510	4.1510	4.1510
194	KDF	Food Producers	3	-0.04%	13.2992	13.2992	13.2992
195	NHH	Chemicals	3	-0.08%	8.4348	8.4348	8.4348
196	SMC	Industrial Metals and Mining	3	0.57%	9.0827	9.0827	9.0827
197	TCT	Travel and Leisure	1	-0.04%	102.0027	102.0027	102.0027
198	CTR	Construction and Materials	2	0.31%	6.7055	6.7055	6.7055
199	DRI	Chemicals	2	-0.09%	65.6228	65.6228	65.6228
200	SAV	Household Goods and Home Construction	1	0.05%	11.0989	11.0989	11.0989
201	TVN	Industrial Metals and Mining	2	0.19%	17.6963	17.6963	17.6963
202	ABC	Telecommunications Service Providers	1	-0.00%	25.0342	25.0342	25.0342
203	CVN	Construction and Materials	1	-0.15%	18.7012	18.7012	18.7012
204	IDC	Real Estate Investment and Services	1	0.12%	10.5350	10.5350	10.5350
205	LSS	Food Producers	1	-0.04%	15.8282	15.8282	15.8282
206	SGP	Industrial Transportation	1	-0.04%	4.7509	4.7509	4.7509
207	VRE	Real Estate Investment and Services	1	0.03%	12.4569	12.4569	12.4569

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3.4 Sector Table

Industry	Sector	62	2018-07-02
Technology	Software and Computer Services	1	1
	Technology Hardware and Equipment	1	1
Telecommunications	Telecommunications Equipment	1	1
	Telecommunications Service Providers	1	1
Health Care	Health Care Providers	1	1
	Medical Equipment and Services	1	1
	Pharmaceuticals and Biotechnology	1	1
Financials	Banks	1	1
	Finance and Credit Services	1	1
	Investment Banking and Brokerage Services	1	1
	Mortgage Real Estate Investment Trusts	1	1
	Closed End Investments	1	1
	Open End and Miscellaneous Investment Vehicles	1	1
	Life Insurance	1	1
	Non-life Insurance	1	1
Real Estate	Real Estate Investment and Services	14	14
	Real Estate Investment Trusts	16	16
Consumer Discretionary	Automobiles and Parts	2	2
	Consumer Services	3	3
	Household Goods and Home Construction	2	2
	Leisure Goods	1	1
	Personal Goods	2	2
	Media	1	1
	Retailers	2	2
	Travel and Leisure	1	1
Consumer Staples	Beverages	8	8
	Food Producers	9	9
	Tobacco	11	11
	Personal Care, Drug and Grocery Stores	11	11
Industrials	Construction and Materials	8	8
	Aerospace and Defense	9	9
	Electronic and Electrical Equipment	1	1
	General Industrials	1	1
	Industrial Engineering	1	1
	Industrial Support Services	2	2
	Industrial Transportation	4	4
	Industrial Materials	6	6
Basic Materials	Industrial Metals and Mining	5	5
	Precious Metals and Mining	5	5
	Chemicals	7	7
	Chemicals	1	1
Energy	Oil, Gas and Coal	1	1
	Alternative Energy	1	1
Utilities	Electricity	1	1
	Gas, Water and Multi-utilities	1	1
	Waste and Disposal Services	1	1

4 Optimization using data in in-sample period

Split the in-sample period into two sub-periods:

- Training period: from 2018-07-02 to 2020-07-01
- Validation period: from 2020-07-01 to 2021-01-04

4.1 Performance measurement on training period (top 30):

Criteria	Sharpe Ratio	Sortino Ratio (mar=7%)	Info Ratio	Total ER	Annual ER	Avg Monthly ER	Maximum Draw-down	Avg Monthly No.Stocks
$23.5 < RT < \infty$	0.7702	1.1441	1.8996	60.33%	26.62%	2.16%	-23.64%	14.46
$21.0 < RT < \infty$	0.6824	0.9691	1.8554	56.58%	25.13%	2.11%	-29.06%	16.21
$24.0 < RT < \infty$	0.7169	1.0240	1.7851	55.94%	24.88%	2.03%	-24.07%	14.00
$24.5 < RT < \infty$	0.7110	1.0125	1.7735	55.52%	24.71%	2.02%	-24.29%	13.79
$25.0 < RT < \infty$	0.6835	0.9130	1.7668	53.45%	23.87%	1.96%	-24.97%	13.12
$23.0 < RT < \infty$	0.6717	0.9045	1.9478	53.19%	23.77%	1.97%	-26.75%	14.92
$22.5 < RT < \infty$	0.6699	0.8997	1.9389	53.00%	23.69%	1.96%	-26.75%	15.00
$20.5 < RT < \infty$	0.6366	0.8630	1.8297	52.55%	23.51%	1.99%	-27.63%	16.88
$22.0 < RT < \infty$	0.6600	0.8824	1.9113	52.25%	23.39%	1.94%	-26.77%	15.08
$21.5 < RT < \infty$	0.6363	0.8375	1.8162	51.41%	23.05%	1.93%	-28.83%	16.00
$18.5 < RT < \infty$	0.5906	0.8057	1.6692	48.89%	22.02%	1.87%	-27.86%	19.04
$20.0 < RT < \infty$	0.5854	0.7721	1.7744	48.67%	21.93%	1.88%	-27.63%	17.29
$18.0 < RT < \infty$	0.5802	0.7988	1.5899	47.96%	21.64%	1.84%	-27.75%	19.29
$17.5 < RT < \infty$	0.5598	0.7544	1.5278	46.29%	20.95%	1.78%	-27.58%	19.62
$17.0 < RT < \infty$	0.5462	0.7308	1.4745	45.36%	20.56%	1.75%	-27.99%	20.04
$19.5 < RT < \infty$	0.5441	0.6975	1.6607	45.35%	20.56%	1.77%	-28.37%	17.58
$19.0 < RT < \infty$	0.5354	0.6897	1.6027	44.45%	20.19%	1.73%	-27.97%	18.17
$16.5 < RT < \infty$	0.5068	0.6200	1.4753	41.63%	19.01%	1.62%	-28.86%	20.96
$14.5 < RT < \infty$	0.4563	0.5049	1.4884	37.89%	17.43%	1.50%	-29.16%	25.58
$12.5 < RT < \infty$	0.4405	0.4928	1.5663	37.15%	17.11%	1.49%	-29.44%	29.46
$16.0 < RT < \infty$	0.4440	0.4977	1.3701	36.97%	17.03%	1.46%	-28.99%	22.12
$15.0 < RT < \infty$	0.4227	0.4559	1.3657	35.59%	16.44%	1.42%	-29.96%	24.29
$13.5 < RT < \infty$	0.4092	0.4333	1.4056	34.83%	16.11%	1.40%	-29.56%	27.46
$11.0 < RT < \infty$	0.4025	0.4320	1.5332	34.69%	16.06%	1.42%	-30.85%	33.62
$13.0 < RT < \infty$	0.4075	0.4260	1.4069	34.68%	16.05%	1.40%	-29.79%	28.08
$14.0 < RT < \infty$	0.4061	0.4217	1.4040	34.49%	15.97%	1.39%	-29.29%	26.62
$15.5 < RT < \infty$	0.4058	0.4242	1.3335	34.36%	15.91%	1.38%	-29.59%	23.62
$10.5 < RT < \infty$	0.3880	0.4116	1.4771	33.74%	15.65%	1.39%	-31.40%	35.33
$11.5 < RT < \infty$	0.3828	0.4029	1.4822	33.39%	15.49%	1.39%	-30.35%	32.00
$12.0 < RT < \infty$	0.3748	0.3860	1.3934	32.78%	15.23%	1.36%	-31.07%	30.71

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4.2 Performance measurement on validation period (top 30):

Criteria	Sharpe Ratio	Sortino Ratio (mar=7%)	Info Ratio	Total ER	Annual ER	Avg Monthly ER	Maximum Draw-down	Avg Monthly No.Stocks
$7.5 < RT < \infty$	3.2024	17.8553	2.6459	19.25%	42.20%	2.51%	-2.17%	74.17
$6.5 < RT < \infty$	3.0501	14.6882	2.3101	18.44%	40.29%	2.44%	-2.64%	86.50
$6.0 < RT < \infty$	3.0496	14.8088	2.2781	17.89%	38.97%	2.36%	-2.47%	91.00
$7.0 < RT < \infty$	3.1039	15.7928	2.4003	17.56%	38.21%	2.31%	-2.45%	78.67
$5.5 < RT < \infty$	3.0613	14.9711	2.2859	17.20%	37.37%	2.28%	-2.43%	94.17
$9.0 < RT < \infty$	3.2483	20.4658	2.4412	16.74%	36.27%	2.19%	-1.76%	60.00

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Criteria	Sharpe Ratio	Sortino Ratio (mar=7%)	Info Ratio	Total ER	Annual ER	Avg Monthly ER	Maximum Draw-down	Avg Monthly No.Stocks
$8.0 < RT < \infty$	3.1337	17.5586	2.3752	16.68%	36.13%	2.20%	-1.92%	69.33
$8.5 < RT < \infty$	3.1443	18.2320	2.3026	16.51%	35.74%	2.17%	-1.98%	63.33
$9.5 < RT < \infty$	3.2238	19.7492	2.2385	15.90%	34.32%	2.08%	-1.58%	56.33
$2.0 < RT < \infty$	2.6054	9.5439	1.6931	13.68%	29.23%	1.91%	-4.14%	152.50
$5.0 < RT < \infty$	2.8614	11.9400	1.8897	13.44%	28.69%	1.82%	-3.02%	102.00
$1.0 < RT < \infty$	2.5596	9.1039	1.6519	13.43%	28.67%	1.89%	-4.54%	165.33
$0.5 < RT < \infty$	2.5273	8.7975	1.6124	13.29%	28.35%	1.88%	-4.78%	169.17
$4.5 < RT < \infty$	2.8472	11.8440	1.8457	13.03%	27.76%	1.77%	-2.96%	105.17
$0.0 < RT < \infty$	2.4913	8.4773	1.5517	12.79%	27.22%	1.82%	-4.96%	171.00
$2.5 < RT < \infty$	2.5941	9.1720	1.6474	12.71%	27.04%	1.79%	-4.37%	142.00
$1.5 < RT < \infty$	2.5640	9.0803	1.6189	12.58%	26.75%	1.78%	-4.50%	161.83
$21.0 < RT < \infty$	4.2705	19.4536	3.7590	12.41%	26.36%	1.55%	-2.01%	21.83
$24.5 < RT < \infty$	4.3572	25.3298	1.8071	11.94%	25.31%	1.49%	-1.38%	17.33
$10.0 < RT < \infty$	3.1040	16.3707	1.7575	11.85%	25.11%	1.58%	-2.11%	52.67
$25.0 < RT < \infty$	4.3266	25.2125	1.9506	11.72%	24.81%	1.46%	-1.38%	17.00
$3.0 < RT < \infty$	2.5817	9.1676	1.5644	11.58%	24.51%	1.64%	-4.16%	134.33
$4.0 < RT < \infty$	2.6780	10.1071	1.6362	11.54%	24.41%	1.61%	-3.55%	114.67
$15.0 < RT < \infty$	3.5271	20.2982	2.3465	11.45%	24.22%	1.48%	-1.87%	31.17
$3.5 < RT < \infty$	2.5530	8.7966	1.5230	11.42%	24.14%	1.62%	-4.37%	125.00
$15.5 < RT < \infty$	3.4741	19.9948	2.2567	10.74%	22.63%	1.39%	-1.87%	30.67
$14.5 < RT < \infty$	3.5110	20.4749	2.2006	10.54%	22.20%	1.36%	-1.80%	33.83
$14.0 < RT < \infty$	3.5618	18.8129	2.2731	10.43%	21.94%	1.34%	-2.00%	35.83
$10.5 < RT < \infty$	3.0211	15.1024	1.5973	10.36%	21.79%	1.39%	-2.40%	48.83
$24.0 < RT < \infty$	4.2908	24.0987	1.7159	10.16%	21.36%	1.27%	-1.41%	18.67

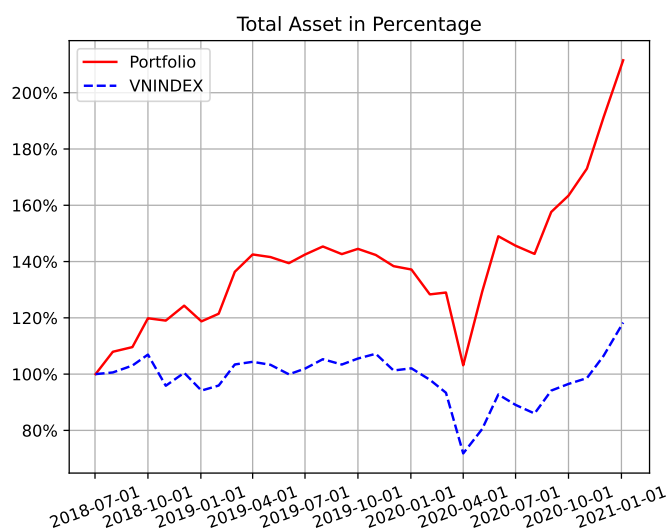
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After optimization, the refined criteria is:

$$21.0 < RT < \infty$$

4.3 Evaluate refined criterion on in-sample period

4.3.1 Performance Measurement



- Total Excess Return: 93.23%
- Total Absolute Return: Portfolio: 111.53%, VNINDEX: 18.30%

- Expected Annual Excess Return: 30.14%
- Maximum Drawdown: Portfolio: -29.06%, VNINDEX: -33.02%
- Sharpe Ratio: Portfolio: 1.1153, VNINDEX: 0.2755
- Sortino Ratio (MAR=7%): Portfolio: 1.8247, VNINDEX: 0.1614
- Information Ratio: 1.9420
- Average Monthly Number of Stocks: 17.33
- Monthly Excess Returns: Min: -3.11%, Max: 13.31%, Mean: 2.00%, Standard deviation: 3.57%

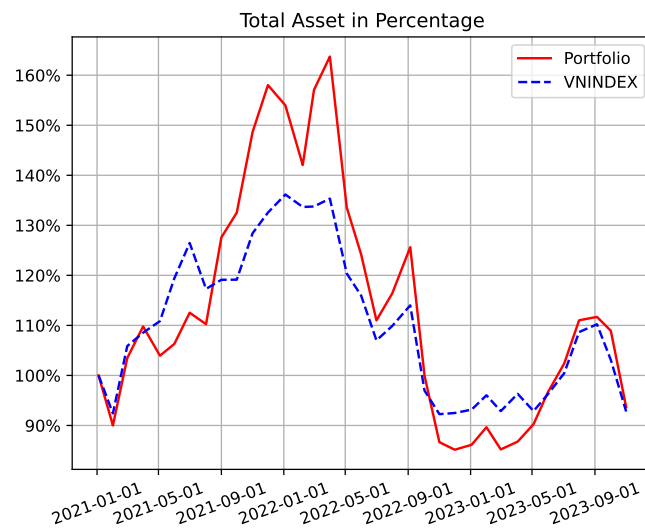
4.3.3 Criteria Value Table

No.	Stock	Sector	Count over 30 months	Total Excess Return Contribution	RT		
					min	median	max
1	CVT	Construction and Materials	28	8.58%	26.8092	34.6609	44.2601
2	DCM	Chemicals	27	3.14%	49.7234	370.2848	1930.1088
3	DPM	Chemicals	30	1.63%	23.2244	25.8724	37.8539
4	GTN	General Industrials	24	10.61%	23.5830	26.1704	35.8500
5	HHS	Automobiles and Parts	14	-2.07%	28.8756	32.0469	57.0932
6	HPG	Industrial Metals and Mining	30	4.75%	21.0810	25.7037	28.9960
7	HSG	Industrial Metals and Mining	18	13.17%	21.1216	23.0373	25.9570
8	MSN	Food Producers	30	1.41%	27.0298	33.9366	38.3881
9	MWG	Retailers	30	4.78%	94.9817	268.8249	343.7083
10	PNJ	Personal Goods	30	4.02%	117.2652	241.3144	307.2019
11	CAP	Industrial Materials	1	0.11%	46.3555	46.3555	46.3555
12	SKG	Industrial Transportation	20	-2.90%	165.2778	304.7438	860.4256
13	PHR	Chemicals	21	4.94%	26.4842	28.8818	43.4525
14	SRA	Software and Computer Services	5	9.21%	30.0115	194.1318	194.1318
15	STK	Personal Goods	11	3.13%	21.6447	29.1407	41.0571
16	TVC	Investment Banking and Brokerage Services	21	11.45%	54.6474	523.9166	2402.1815
17	VIC	Real Estate Investment and Services	3	1.02%	21.8824	21.8824	21.8824
18	DPR	Chemicals	12	1.81%	23.6155	30.3471	40.5989
19	AMV	Medical Equipment and Services	4	-3.57%	21.5036	21.5036	22.0559
20	D2D	Real Estate Investment and Services	12	5.24%	21.9078	27.7813	36.4562
21	VEF	Industrial Support Services	4	3.46%	34.9426	51.8680	68.7935
22	HT1	Construction and Materials	12	1.71%	21.2803	24.3571	28.2767
23	NVT	Real Estate Investment and Services	1	-2.54%	77.9114	77.9114	77.9114
24	BCC	Construction and Materials	3	0.15%	41.0105	41.0105	48.7144
25	TRC	Chemicals	3	0.89%	21.8486	116.4496	116.4496
26	DBC	Food Producers	11	8.78%	35.8214	50.8059	50.9260
27	DGC	Chemicals	5	-1.67%	27.0481	27.0481	28.6069
28	NTL	Real Estate Investment and Services	8	-0.31%	24.9895	29.0732	31.8087
29	SMB	Beverages	3	0.98%	31.9338	36.0891	36.0891
30	LHG	Real Estate Investment and Services	7	-0.69%	21.6932	30.2394	33.2087
31	TDM	Gas, Water and Multi-utilities	4	-0.00%	25.8155	37.5342	37.5342
32	TIP	Real Estate Investment and Services	1	-0.25%	22.0875	22.0875	22.0875
33	IBC	Investment Banking and Brokerage Services	11	0.71%	24.4621	32.0959	44.5957
34	NVL	Real Estate Investment and Services	3	1.00%	21.8909	21.8909	21.8909
35	QNS	Food Producers	12	3.24%	73.5035	151.0187	202.8869
36	SAB	Beverages	12	-0.59%	138.8509	194.9914	378.2148
37	TCH	Real Estate Investment and Services	9	-0.86%	23.2738	26.1869	30.8901
38	HVN	Travel and Leisure	8	0.80%	21.9164	23.2572	26.7351
39	PAC	Personal Care, Drug and Grocery Stores	1	-0.50%	38.1510	38.1510	38.1510
40	PLX	Oil, Gas and Coal	5	0.98%	23.0904	23.0904	25.2087
41	SZL	Real Estate Investment and Services	2	0.13%	22.7513	22.7513	22.7513
42	CTF	Automobiles and Parts	7	0.13%	21.2818	23.9096	29.3562
43	MCH	Food Producers	3	1.47%	57.5992	73.6080	73.6080
44	VLC	Food Producers	4	0.01%	36.3080	85.8795	85.8795
45	DHT	Pharmaceuticals and Biotechnology	2	-1.10%	24.2420	24.2420	24.2420
46	TAC	Food Producers	2	-0.78%	23.6723	25.6291	27.5858
47	TCT	Travel and Leisure	1	-0.29%	102.0027	102.0027	102.0027
48	TDG	Oil, Gas and Coal	2	-1.85%	28.4519	28.4519	28.4519
49	DRI	Chemicals	2	-0.42%	65.6228	65.6228	65.6228
50	ABC	Telecommunications Service Providers	1	0.20%	25.0342	25.0342	25.0342

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5 Evaluate refined filter on out-of-sample period

5.1 Performance Measurement



- Total Excess Return: 0.88%
- Total Absolute Return: Portfolio: -6.33%, VNINDEX: -7.21%
- Expected Annual Excess Return: 0.31%
- Maximum Drawdown: Portfolio: -47.99%, VNINDEX: -32.24%
- Sharpe Ratio: Portfolio: -0.0126, VNINDEX: -0.1567
- Sortino Ratio (MAR=7%): Portfolio: -0.1809, VNINDEX: -0.4323
- Information Ratio: 0.1671
- Average Monthly Number of Stocks: 32.41
- Monthly Excess Returns: Min: -8.42%, Max: 14.18%, Mean: 0.25%, Standard deviation: 5.14%

5.2 Restructuring Table

No.	Stock	Sector	Count over 34 months	Total Excess Return Contribution	2021-01-04	2021-02-01	2021-03-01	2021-04-01	2021-05-04	2021-06-01	2021-07-01	2021-08-02	2021-09-01	2021-10-01	2021-11-01	2021-12-01	2022-01-04	2022-02-07	2022-03-01	2022-04-01	2022-05-04	2022-06-01	2022-07-01	2022-08-01	2022-09-05	2022-10-03	2022-11-01	2022-12-01	2023-01-03	2023-02-01	2023-03-01	2023-04-03	2023-05-04	2023-06-01	2023-07-03	2023-08-01	2023-09-05	2023-10-02						
					-2.41%	0.40%	3.59%	-7.47%	-5.44%	-0.06%	5.23%	14.18%	3.85%	4.38%	3.08%	-5.28%	-5.91%	10.51%	3.05%	-7.37%	-3.34%	-2.91%	2.18%	4.17%	-5.52%	-8.42%	-1.99%	0.43%	0.99%	-1.65%	-1.90%	7.60%	3.44%	1.58%	-0.25%	-0.82%	3.98%	-4.01%						
1	BMC	Industrial Metals and Mining	12	1.54%	o	o																																						
2	BTT	Retailers	1	0.30%	o																																							
3	DBC	Food Producers	34	0.03%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o			
4	DCM	Chemicals	34	4.95%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o			
5	DPM	Chemicals	34	4.71%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
6	DRI	Chemicals	22	1.23%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
7	HPG	Industrial Metals and Mining	34	0.96%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
8	HTI	Construction and Materials	34	-0.64%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
9	IBC	Investment Banking and Brokerage Services	19	-1.55%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
10	LHG	Real Estate Investment and Services	27	-0.93%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
11	LIX	Personal Care, Drug and Grocery Stores	3	0.10%	o	o	o																																					
12	LSS	Food Producers	12	2.38%	o	o	o																																					
13	MSN	Food Producers	34	0.25%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
14	MWG	Retailers	34	0.44%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
15	NDN	Real Estate Investment and Services	9	-0.13%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
16	PHR	Chemicals	31	0.52%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
17	PNJ	Personal Goods	34	1.31%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
18	QNS	Food Producers	34	1.22%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
19	SAB	Beverages	34	-1.48%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
20	SKG	Industrial Transportation	29	2.41%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
21	TAC	Food Producers	4	0.51%	o																																							
22	VLC	Food Producers	4	-1.35%	o	o	o	o																																				
23	AST	Retailers	5	-1.81%	o	o	o	o	o																																			
24	HTI	Construction and Materials	6	-1.23%	o	o	o	o	o																																			
25	KHP	Electricity	14	1.30%	o																																							
26	TCT	Travel and Leisure	4	-0.18%	o																																							
27	VEF	Industrial Support Services	12	-0.06%	o	o	o	o	o																																			
28	CTF	Automobiles and Parts	13	0.66%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
29	DSN	Travel and Leisure	5	-0.57%	o																																							
30	VLB	Construction and Materials	20	-2.18%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
31	BAX	Construction and Materials	1	-0.10%	o																																							
32	BCC	Construction and Materials	9	-2.13%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
33	BTS	Construction and Materials	3	-1.22%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
34	GTN	General Industrials	6	-1.17%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
35	HAR	Real Estate Investment and Services	3	-1.61%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
36	HAX	Automobiles and Parts	31	2.64%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
37	MCH	Food Producers	9	-0.23%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
38	FRT	Retailers	30	8.22%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
39	PAC	Personal Care, Drug and Grocery Stores	1	-0.35%	o																																							
40	AGM	Food Producers	5	-1.22%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
41	CVT	Construction and Materials	2	-0.66%	o																																							
42	DPR	Chemicals	29	2.43%	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o

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5.3 Criteria Value Table

No.	Stock	Sector	Count over 34 months	Total Excess Return Contribution	RT		
					min	median	max
1	BMC	Industrial Metals and Mining	12	1.54%	42.2843	113.8261	175.1807
2	BTT	Retailers	1	0.30%	594.0412	594.0412	594.0412
3	DBC	Food Producers	34	0.03%	28.8734	47.2091	59.4581
4	DCM	Chemicals	34	4.95%	25.8058	317.1590	3489.5843
5	DPM	Chemicals	34	4.71%	25.8901	42.1189	74.8681
6	DRI	Chemicals	22	1.23%	26.8464	48.1482	134.9695
7	HPG	Industrial Metals and Mining	34	0.96%	21.1870	28.8066	35.6568
8	HT1	Construction and Materials	34	-0.64%	21.0252	23.1772	34.3841
9	IBC	Investment Banking and Brokerage Services	19	-1.55%	21.2754	47.8684	72.4127
10	LHG	Real Estate Investment and Services	27	-0.93%	23.0421	28.1438	41.7075
11	LIX	Personal Care, Drug and Grocery Stores	3	0.10%	23.1062	23.1062	23.1062
12	LSS	Food Producers	12	2.38%	23.0279	25.8379	28.0868
13	MSN	Food Producers	34	0.25%	28.4890	35.3720	46.7640
14	MWG	Retailers	34	0.44%	394.4601	523.2705	679.4827
15	NDN	Real Estate Investment and Services	9	-0.13%	22.4038	24.5219	25.9166
16	PHR	Chemicals	31	0.52%	26.6083	34.0001	51.6712
17	PNJ	Personal Goods	34	1.31%	131.0952	422.9797	768.3277
18	QNS	Food Producers	34	1.22%	39.8090	81.7014	157.5178
19	SAB	Beverages	34	-1.48%	122.8139	182.2180	317.7910
20	SKG	Industrial Transportation	29	2.41%	247.8819	591.1932	987.2819
21	TAC	Food Producers	4	0.51%	23.5535	23.9279	24.4522
22	VLC	Food Producers	4	-1.35%	34.6236	34.6236	41.2680
23	AST	Retailers	5	-1.81%	21.1391	21.1391	43.2833
24	HTI	Construction and Materials	6	-1.23%	52.2570	68.4101	85.8147
25	KHP	Electricity	14	1.30%	69.5563	91.5389	134.7570
26	TCT	Travel and Leisure	4	-0.18%	36.8996	49.8251	71.1217
27	VEF	Industrial Support Services	12	-0.06%	28.1823	56.5976	74.0871
28	CTF	Automobiles and Parts	13	0.66%	23.2189	25.2408	33.0171
29	DSN	Travel and Leisure	5	-0.57%	250.2888	351.8043	3238.5591
30	VLB	Construction and Materials	20	-2.18%	25.0102	42.9032	49.9084
31	BAX	Construction and Materials	1	-0.10%	82.9312	82.9312	82.9312
32	BCC	Construction and Materials	9	-2.13%	70.9474	81.6826	122.9896
33	BTS	Construction and Materials	3	-1.22%	267.4759	561.2753	561.2753
34	GTN	General Industrials	6	-1.17%	39.0153	39.0399	39.0645
35	HAR	Real Estate Investment and Services	3	-1.61%	22.4806	22.4806	22.4806
36	HAX	Automobiles and Parts	31	2.64%	22.6595	56.5725	63.2890
37	MCH	Food Producers	9	-0.23%	39.5953	42.6578	62.2796
38	FRT	Retailers	30	8.22%	62.3524	230.2306	421.8075
39	PAC	Personal Care, Drug and Grocery Stores	1	-0.35%	38.8825	38.8825	38.8825
40	AGM	Food Producers	5	-1.22%	23.7698	32.7232	32.7232
41	CVT	Construction and Materials	2	-0.66%	181.9509	252.4201	322.8894
42	DPR	Chemicals	29	2.43%	22.6357	42.0407	59.3284
43	GVR	Chemicals	19	-0.78%	23.6593	24.5447	29.3399
44	HHV	Construction and Materials	3	0.55%	28.6651	28.6651	28.6651
45	NBC	Oil, Gas and Coal	12	2.04%	24.6931	40.5153	52.8403
46	TVC	Investment Banking and Brokerage Services	23	-0.60%	56.3131	517.5280	931.0354
47	CBI	Industrial Metals and Mining	3	-1.32%	4191.7261	4822.0364	4822.0364
48	CLX	Personal Care, Drug and Grocery Stores	13	-1.52%	21.2705	23.8907	27.6761
49	UIC	Construction and Materials	2	-0.43%	21.7888	24.0094	26.2301
50	CRC	Construction and Materials	5	-0.62%	24.2110	24.2110	25.0104
51	NTL	Real Estate Investment and Services	22	0.42%	21.6103	41.6927	62.7015
52	PMB	Chemicals	3	-0.71%	193.8524	347.7406	347.7406

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No.	Stock	Sector	Count over 34 months	Total Excess Return Contribution	RT		
					min	median	max
53	STK	Personal Goods	7	0.53%	25.2314	27.3903	30.5377
54	SVT	Industrial Materials	5	0.44%	45.9021	45.9021	3096.6276
55	TC6	Oil, Gas and Coal	12	-2.22%	35.3116	41.0545	163.1183
56	TDG	Oil, Gas and Coal	10	1.41%	25.1037	35.7203	47.8840
57	TDM	Gas, Water and Multi-utilities	16	0.61%	23.3388	47.6886	43685.6409
58	VTO	Industrial Transportation	6	0.45%	21.1329	26.4439	31.7549
59	PSW	Chemicals	4	-0.96%	41.9227	45.5790	84.4019
60	SMB	Beverages	1	0.15%	51.2421	51.2421	51.2421
61	TNS	Industrial Metals and Mining	4	-2.34%	23.4644	38.4349	234.1531
62	DNW	Gas, Water and Multi-utilities	1	-0.20%	21.7242	21.7242	21.7242
63	RGC	Travel and Leisure	1	-0.71%	21.0518	21.0518	21.0518
64	VTP	Industrial Transportation	10	-1.31%	21.0256	23.3723	26.6165
65	WSB	Beverages	1	-0.03%	47.5136	47.5136	47.5136
66	BSR	Oil, Gas and Coal	3	0.44%	25.0557	25.0557	25.0557
67	CTI	Construction and Materials	13	0.08%	21.1616	21.9795	28.0728
68	PLX	Oil, Gas and Coal	16	-0.27%	21.3073	26.4420	33.7688
69	SKH	Beverages	1	0.00%	27.9386	27.9386	27.9386
70	THT	Oil, Gas and Coal	4	-0.47%	28.0289	28.3431	28.6573
71	SZC	Real Estate Investment and Services	21	-0.85%	22.1910	49.1786	197.1544
72	PBP	General Industrials	3	-0.19%	26.1346	69.2152	251.5687
73	PSE	Chemicals	1	-0.11%	23.3468	23.3468	23.3468
74	TAR	Food Producers	4	-0.48%	23.2270	27.5431	27.5431
75	BFC	Chemicals	4	-1.22%	21.1541	21.1541	21.9597
76	DDV	Chemicals	13	-2.65%	21.7187	31.0275	39.2134
77	HSG	Industrial Metals and Mining	15	-1.01%	22.7150	24.6491	27.6396
78	NVT	Real Estate Investment and Services	1	-0.94%	60.3059	60.3059	60.3059
79	SCJ	Construction and Materials	1	-1.11%	52.1756	52.1756	52.1756
80	VHE	Food Producers	3	-1.02%	22.6804	22.6804	23.2490
81	VNA	Industrial Transportation	3	-0.69%	22.4726	22.4726	22.4726
82	VCA	Industrial Metals and Mining	1	-0.03%	30.4860	30.4860	30.4860
83	TMT	Automobiles and Parts	1	-0.12%	30.9684	30.9684	30.9684
84	CAP	Industrial Materials	5	0.13%	30.6077	33.9835	48.6139
85	SIP	Real Estate Investment and Services	10	0.76%	21.0720	21.7445	27.8992
86	KPF	Construction and Materials	1	-0.91%	27.5453	27.5453	27.5453
87	DHM	Industrial Metals and Mining	3	-0.32%	22.5652	22.5652	22.5652
88	TGG	Investment Banking and Brokerage Services	4	-1.17%	21.0763	22.5759	24.0754
89	BMP	Chemicals	10	1.02%	22.0291	22.6885	23.9067
90	GIL	Personal Goods	3	0.10%	21.1449	21.1449	21.1449
91	KDC	Food Producers	10	0.03%	21.0254	24.0355	24.8638
92	OIL	Oil, Gas and Coal	6	0.37%	23.2642	24.0020	24.7397
93	AGG	Real Estate Investment and Services	5	-0.20%	22.3494	22.3494	24.1940
94	DGC	Chemicals	6	1.62%	22.5515	23.9509	25.3504
95	FMC	Food Producers	2	0.30%	21.0725	21.0725	21.0725
96	HVN	Travel and Leisure	6	-0.46%	22.3041	22.7672	23.2302
97	TCO	Industrial Transportation	4	-0.17%	37.1688	64.7711	78.2241
98	CEN	Retailers	5	-0.44%	21.5109	51.0658	51.0658
99	MST	Construction and Materials	4	0.10%	37.9494	37.9494	49.8841
100	PSH	Alternative Energy	3	-0.35%	47.2812	47.2812	47.2812
101	KGM	Food Producers	1	0.23%	58.6826	58.6826	58.6826
102	KSV	Industrial Metals and Mining	1	-0.13%	40.6635	40.6635	40.6635
103	OGC	Real Estate Investment and Services	1	0.85%	24.7243	24.7243	24.7243

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5.4 Sector Table

Industry	Sector	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	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