DUAL MOMENTUM SYSTEMS

Process driven investment decisions driving better long term results with more shallow drawdowns and better risk adjusted performance.

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Disclosure

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What is Dual Momentum Investing?

- Dual Momentum strategies are evidence based, rules based, objective, tactical investment methodologies with the goal of maximizing participation in upside market momentum and sidestepping long market downturns by going into Treasuries until the markets are again in an upward trending.

- Dual Momentum investing has two primary components. The first is absolute momentum: is there positive return over your look back period? The second momentum is relative momentum: which investment option has the highest return over the look back period. If there is positive momentum then we invest in the highest relative momentum option, otherwise we stay out of harm's way in Treasuries which tend to perform well when the markets are underperforming.

- Smart Leverage is now a part of these strategies in order to take advantage after outsized losses in the markets. These strategies are in leveraged equities about 10% to 15% of the time on average which is about 4 months every 3 years.

- Why use Dual Momentum Strategies? Most professional managers fail to beat the market indices over time and retail investors do even worse. Buy and Hold investors can match the indices performance but have to suffer tremendous drawdowns along the way. For these reasons I use these Dual Momentum strategies for my investing. You will rarely get out of equities at the very top, and back in at the very bottom, but there are incredible improvements, as the pages that follow will illustrate.

- Is Dual Momentum easy to invest in? Investing in Dual Momentum strategies can take some getting used to, you will experience whipsaw in choppy markets, there may be a change of investment at the end of any given month, the strategy may dictate you be fully invested at a time when you may otherwise not be, it can be hard to reconcile when your investments are performing different than the overall market, there will be periods of a year or longer when you underperform the overall market. However, you are paid off with less drawdowns and far better overall returns over the long run.

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Investment Strategies
Investments for the month of
February 28, 2022

Strategy Components Invested:

←Conservative   Aggressive →

Month	Triad	The Russell OG	Global Navigator	LT Gain 2X	LT Gain 3X	MAX PAIN
Feb 2021	⅓ IWB, ⅓ IWS, ⅓ VCSH	Russell Mid-Cap Value	All Country World ex-US	2X S&P 500	3X S&P 500	3X Russell 2000
Mar 2021	⅓ IWB, ⅓ IWS, ⅓ VCSH	Russell Mid-Cap Value	All Country World ex-US	2X S&P 500	3X S&P 500	3X Russell 2000
Apr 2021	⅓ IWB, ⅓ IWS, ⅓ VGIT	Russell Mid-Cap Value	Total US Market	2X S&P 500	3X S&P 500	3X Russell 2000
May 2021	⅓ IWB, ⅓ IWS, ⅓ VCSH	Russell Mid-Cap Value	Total US Market	2X S&P 500	3X S&P 500	3X S&P MidCap 400
Jun 2021	1/6 SGOL, ⅓ IWB, ⅓ IWS, 1/6 VCSH	Russell Mid-Cap Value	All Country World ex-US	Russell 1000	Russell 1000	3X S&P MidCap 400
Jul 2021	⅓ IWB, ⅓ IWS, ⅓ VCSH	Russell Mid-Cap Value	Total US Market	Russell 1000	Russell 1000	3X S&P 500
Aug 2021	1/6 SGOL, ⅓ IWB, ⅓ IWS, 1/6 VGIT	Russell 1000	Total US Market	Russell 1000	Russell 1000	3X S&P 500
Sep 2021	1/6 SGOL, ⅓ IWB, ⅓ IWS, 1/6 VGIT	Russell 1000	Total US Market	Russell 1000	Russell 1000	3X S&P 500
Oct 2021	⅓ IWB, ⅔ VCSH	Russell Mid-Cap Growth	Total US Market	Russell 1000	Russell 1000	3X S&P 500
Nov 2021	⅓ IWB, ⅓ IWS, ⅓ VGSH	Russell Mid-Cap Growth	Total US Market	Russell 1000	Russell 1000	3X S&P 500
Dec 2021	⅓ IWB, ⅔ VGSH	Russell 1000	Total US Market	Russell 1000	Russell 1000	3X S&P 500
Jan 2022	1/6 SGOL, ⅓ IWB, ⅓ IWS, 1/6 VGSH	Russell 1000	Total US Market	Russell 1000	Russell 1000	3X S&P 500
Feb 2022	**1/6 SGOL, ⅓ IWS, 1/2 VGSH**	**Long Term Treasuries**	**Long Term Treasuries**	**Long Term Treasuries**	**Extended Duration Treasuries**	**3X Long Term Treasuries**

For February, here are the investments by strategy:

Triad

May invest 1/3 into each of: Russell 1000 & Russell MidCap Value, and 1/6th into Gold. Otherwise into the best of: Short Term Investment Grade Bonds, Short Term Treasuries, or Intermediate Term Treasuries.

Invest in: 1/6 SGOL, ⅓ IWS, 1/2 VGSH   IWB = Russell 1000, IWS = Russell MidCap Value, SGOL = Gold

VGSH = Short Term Treasuries, VGIT = Intermediate Term Treasuries, VCSH = Short Term Investment Grade Corporate Bonds

Global Navigator

Invests in US or Foreign, with limited Smart Leverage in USA only, Long Term Treasuries when markets are going down

For the month of February 2022 invest in: [TLT] Long Term Treasuries

The Russell OG

Goes into either Russell: 1000, MidCap Growth, or Russell MidCap Value, Long Term Treasuries when markets are going down

For the month of February 2022 invest In: [TLT] Long Term Treasuries

LT Gain 2X

Invests into the Russell: 1000 with positive momentum, with Smart Leverage into 2X S&P 500, Long Term Treasuries when markets are going down

For the month of February 2022 invest In: [TLT] Long Term Treasuries

LT Gain 3X

Invests into the Russell: 1000 with positive momentum, with Smart Leverage into 3X S&P 500, Extended Duration Treasuries when markets are going down

For the month of February 2022 invest In: [EDV] Extended Duration Treasuries

MAX PAIN

Invests in 3X leveraged versions of Russell 2000, S&P MidCap 400, or S&P 500, 3X Intermediate Treasuries when markets are going down

For the month of February 2022 invest In: [TMF] 3X Long Term Treasuries

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Investment Strategies
Rolling 12 Month Returns
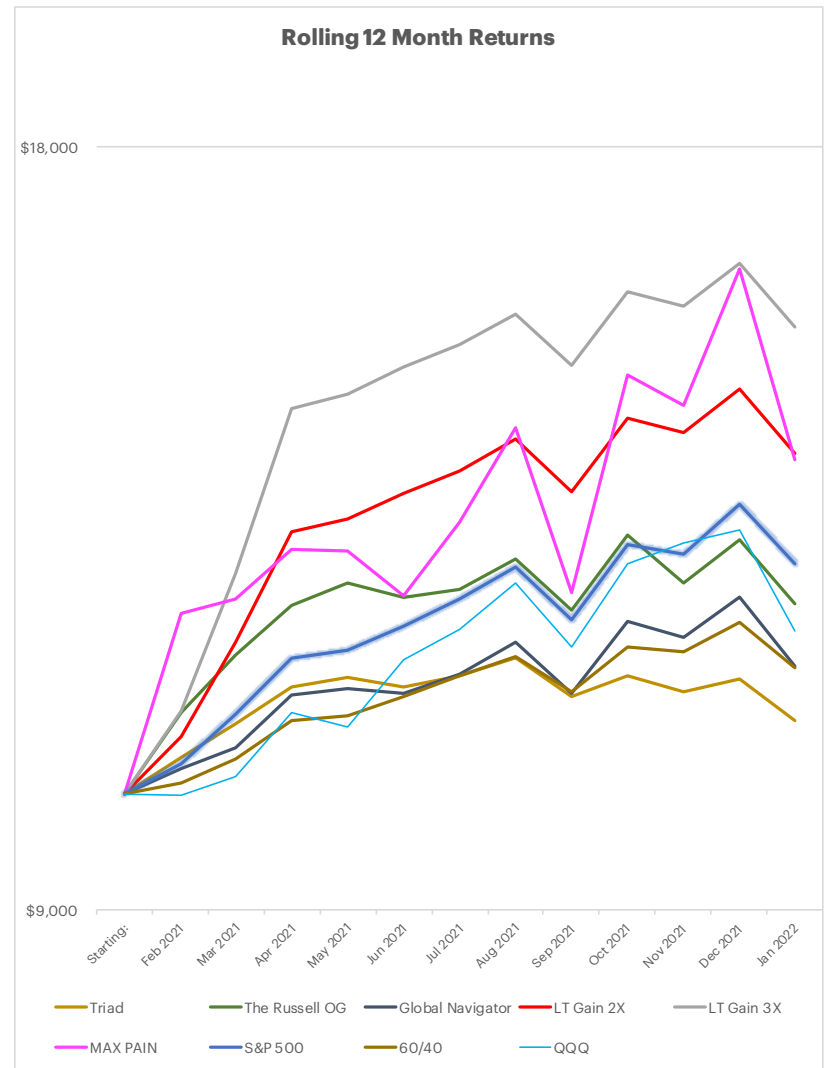## Through January 31, 2022

Returns and Maximum Drawdown:

←Conservative   Aggressive →

Month	US Market S&P 500	Balanced 60/40	Nasdaq 100 QQQ	Triad	The Russell OG	Global Navigator	LT Gain 2X	LT Gain 3X	MAX PAIN
Feb 2021	2.78%	1.05%	-0.13%	3.43%	7.66%	2.30%	5.29%	7.74%	17.86%
Mar 2021	4.54%	2.22%	1.71%	3.00%	5.33%	1.87%	8.95%	13.33%	1.23%
Apr 2021	5.29%	3.52%	5.91%	3.38%	4.72%	5.04%	10.61%	16.17%	4.70%
May 2021	0.66%	0.46%	-1.20%	0.91%	1.97%	0.46%	1.09%	1.36%	-0.20%
Jun 2021	2.25%	1.71%	6.26%	-0.80%	-1.23%	-0.34%	2.44%	2.44%	-3.96%
Jul 2021	2.44%	1.93%	2.86%	1.00%	0.60%	1.74%	2.09%	2.09%	6.93%
Aug 2021	2.98%	1.71%	4.22%	1.63%	2.86%	2.86%	2.86%	2.86%	8.97%
Sep 2021	-4.66%	-3.20%	-5.68%	-3.49%	-4.60%	-4.46%	-4.60%	-4.60%	-13.94%
Oct 2021	7.02%	4.24%	7.86%	1.96%	7.14%	6.69%	6.90%	6.90%	21.90%
Nov 2021	-0.80%	-0.40%	2.00%	-1.47%	-4.30%	-1.46%	-1.27%	-1.27%	-2.71%
Dec 2021	4.63%	2.65%	1.15%	1.20%	3.97%	3.79%	3.97%	3.97%	13.13%
Jan 2022	-5.27%	-3.99%	-8.75%	-3.74%	-5.63%	-6.06%	-5.63%	-5.63%	-15.89%
12 Mo Rtrn:	**23.23%**	**12.20%**	**15.96%**	**6.87%**	**18.78%**	**12.32%**	**36.31%**	**52.79%**	**35.49%**
Max DD:	-5.27%	-3.99%	-8.75%	-5.55%	-6.10%	-6.06%	-5.63%	-5.63%	-15.89%
b/(w) S&P 500:	0.0%	-11.0%	-7.3%	-16.4%	-4.5%	-10.9%	13.1%	29.6%	12.3%

$10,000 turns into:

←Conservative   Aggressive →

Month	US Market S&P 500	Balanced 60/40	Nasdaq 100 QQQ	Triad	The Russell OG	Global Navigator	LT Gain 2X	LT Gain 3X	MAX PAIN
Starting:	$ 10,000	$ 10,000	$ 10,000	$10,000	$ 10,000	$10,000	$ 10,000	$ 10,000	$ 10,000
Feb 2021	$ 10,278	$ 10,105	$ 9,987	$10,343	$ 10,766	$10,230	$ 10,529	$ 10,774	$ 11,786
Mar 2021	$ 10,745	$ 10,329	$ 10,158	$10,653	$ 11,340	$ 10,421	$ 11,471	$ 12,210	$ 11,931
Apr 2021	$ 11,313	$ 10,692	$ 10,758	$ 11,012	$ 11,875	$10,947	$ 12,688	$ 14,185	$ 12,492
May 2021	$ 11,388	$ 10,741	$ 10,629	$ 11,112	$ 12,109	$10,997	$ 12,827	$ 14,377	$ 12,467
Jun 2021	$ 11,644	$ 10,925	$ 11,294	$ 11,023	$ 11,960	$10,959	$ 13,140	$ 14,728	$ 11,973
Jul 2021	$ 11,928	$ 11,136	$ 11,617	$ 11,134	$ 12,032	$ 11,150	$ 13,414	$ 15,036	$ 12,803
Aug 2021	$ 12,283	$ 11,327	$ 12,108	$ 11,315	$ 12,376	$ 11,469	$ 13,798	$ 15,466	$ 13,951
Sep 2021	$ 11,711	$ 10,964	$ 11,420	$10,920	$ 11,807	$10,958	$ 13,163	$ 14,755	$ 12,006
Oct 2021	$ 12,533	$ 11,429	$ 12,318	$ 11,134	$ 12,650	$ 11,691	$ 14,072	$ 15,773	$ 14,636
Nov 2021	$ 12,433	$ 11,383	$ 12,564	$10,970	$ 12,106	$ 11,520	$ 13,893	$ 15,572	$ 14,239
Dec 2021	$ 13,009	$ 11,685	$ 12,708	$ 11,102	$ 12,586	$ 11,957	$ 14,444	$ 16,191	$ 16,109
Jan 2022	$ 12,323	$ 11,220	$ 11,596	$10,687	$ 11,878	$ 11,232	$ 13,631	$ 15,279	$ 13,549

Rolling 12 Month Returns

Legend: Triad, The Russell OG, Global Navigator, LT Gain 2X, LT Gain 3X, MAX PAIN, S&P 500, 60/40, QQQ

Investment Strategies

1980 through January 31, 2022

Annual returns: ←Conservative   Aggressive →

Year End	Benchmarks			Dual Momentum					
	US Market S&P 500	Balanced 60/40	Nasdaq 100 QQQ	Triad	The Russell OG	Global Navigator	LT Gain 2X	LT Gain 3X	MAX PAIN
1980	32.49%	21.02%	33.38%	17.04%	48.44%	34.52%	41.03%	50.18%	112.85%
1981	-4.90%	0.07%	-0.63%	7.83%	3.93%	2.01%	1.15%	3.37%	17.16%
1982	21.55%	25.68%	18.20%	31.61%	54.96%	68.23%	68.23%	109.76%	147.41%
1983	22.55%	16.21%	19.58%	18.63%	27.91%	38.77%	42.84%	68.43%	107.36%
1984	6.25%	9.84%	-13.19%	6.94%	2.83%	4.28%	4.90%	5.78%	8.11%
1985	31.23%	27.65%	32.38%	21.10%	24.32%	40.40%	30.44%	32.07%	87.51%
1986	18.05%	17.65%	10.83%	11.84%	16.59%	64.86%	17.22%	18.13%	37.57%
1987	4.68%	4.81%	-11.38%	-0.64%	-6.94%	8.49%	-4.84%	-3.59%	-42.39%
1988	16.22%	12.64%	19.47%	8.30%	9.84%	1.64%	13.87%	19.27%	23.23%
1989	31.38%	24.20%	19.49%	21.97%	26.51%	18.62%	64.31%	107.68%	50.97%
1990	-3.32%	1.56%	-17.55%	-2.76%	-9.00%	-2.85%	-5.97%	-1.82%	-31.86%
1991	30.22%	24.30%	46.97%	17.12%	27.56%	38.79%	35.00%	52.93%	89.45%
1992	7.40%	7.35%	21.54%	10.88%	15.78%	9.37%	8.98%	11.21%	23.14%
1993	9.58%	9.66%	15.37%	11.47%	12.00%	16.89%	10.18%	10.18%	44.23%
1994	0.38%	-0.77%	-3.66%	-3.84%	-5.77%	-0.15%	-6.25%	-7.29%	-17.36%
1995	38.05%	29.81%	42.46%	27.98%	36.48%	35.77%	37.77%	37.77%	96.18%
1996	22.51%	14.70%	23.41%	13.45%	6.87%	12.97%	14.51%	15.14%	24.90%
1997	33.49%	23.58%	21.27%	25.11%	24.03%	30.99%	32.85%	32.85%	105.10%
1998	28.69%	21.01%	32.17%	10.54%	3.13%	9.52%	12.47%	19.90%	4.10%
1999	20.39%	11.65%	80.58%	5.12%	41.38%	30.49%	18.79%	23.03%	15.74%
2000	-9.74%	-1.49%	-28.93%	10.71%	13.76%	-0.43%	13.85%	17.60%	23.18%
2001	-11.75%	-3.81%	-25.59%	5.20%	4.30%	4.30%	4.30%	5.80%	5.80%
2002	-21.59%	-9.80%	-29.86%	8.59%	7.18%	16.09%	0.62%	-1.06%	15.04%
2003	28.16%	18.19%	41.08%	20.03%	43.24%	69.72%	74.69%	126.58%	222.74%
2004	10.71%	8.00%	9.84%	11.40%	23.22%	20.74%	25.59%	40.20%	39.62%
2005	4.83%	3.87%	4.49%	7.57%	5.95%	7.10%	-2.76%	-5.30%	-14.67%
2006	15.84%	10.95%	8.27%	14.39%	22.86%	28.10%	19.60%	22.55%	55.90%
2007	5.14%	5.94%	9.44%	11.70%	9.31%	21.66%	6.43%	6.90%	7.05%
2008	-36.81%	-21.86%	-42.67%	0.69%	33.93%	33.93%	33.93%	48.69%	48.69%
2009	26.38%	18.66%	45.53%	25.64%	8.12%	17.19%	34.33%	41.60%	23.19%
2010	15.06%	12.04%	18.51%	14.13%	16.24%	7.05%	18.12%	29.53%	38.95%
2011	1.88%	4.38%	-1.14%	9.04%	32.68%	30.76%	33.18%	57.58%	60.10%
2012	16.00%	11.39%	15.46%	8.49%	19.12%	36.13%	31.05%	46.82%	47.10%
2013	32.31%	17.44%	35.69%	20.87%	35.27%	22.16%	32.78%	32.78%	149.93%
2014	13.48%	10.56%	16.11%	7.30%	10.30%	9.32%	13.07%	13.07%	27.61%
2015	1.26%	1.11%	6.50%	-1.29%	-1.46%	-7.95%	-2.58%	-2.33%	-17.34%
2016	12.00%	8.34%	7.39%	9.96%	12.30%	8.82%	7.86%	8.78%	58.20%
2017	21.71%	14.26%	27.28%	10.76%	21.78%	19.39%	21.53%	21.53%	23.68%
2018	-4.56%	-2.47%	-1.10%	0.11%	13.33%	10.21%	10.38%	13.14%	8.78%
2019	31.23%	21.98%	28.83%	9.90%	12.26%	9.90%	13.60%	14.76%	27.64%
2020	18.39%	14.93%	43.75%	15.99%	26.71%	44.35%	46.54%	76.21%	120.14%
2021	28.76%	15.74%	27.41%	10.02%	25.38%	19.86%	41.12%	55.90%	82.82%
2022	-5.27%	-3.67%	-8.75%	-3.74%	-5.63%	-6.06%	-5.63%	-5.63%	-15.89%
+/- S&P YTD:	0.0%	1.6%	-3.5%	1.5%	-0.4%	-0.8%	-0.4%	-0.4%	-10.6%
CAGR	12.0%	10.3%	11.5%	11.2%	16.9%	19.7%	20.0%	26.9%	37.2%

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Strategy Fact Sheets

Dual Momentum Strategies: **Triad**

US Markets and Gold Rotational Strategy with mutliple out of market options

Investment selection for February 2022:
1/6 SGOL, ⅓ IWS, 1/2 VGSH

Strategy Description:
The goal of Triad strategy is to be a better option than a Balanced 60% Stock and 40% Bond investment, both in the past, and in the future. The 50 year bond bull market looks to be ending, Triad tackles this with more nuanced options for the time when the strategy is in Bonds. Instead of just going into aggregate bonds, it evaluates Short Term Treasuries, Intermediate Term Treasuries, and Short Term Corporate Investment Grade Bonds selecting the best option.

Tax friendliness:
Triad is very tax friendly, mostly Long Term Cap Gains.

Months between change of holdings
Triad has a change to one of it's holdings every 2.13 months on average.

Strategy Components
IWB Russell 1000
IWS Rusell MidCap Value
SGOL Gold
　VCSH Short Term Corporate Investment Grade Bonds
　VGSH Short Term Treasuries
　VGIT Intermediate Term Treasuries

Portfolio size appropriateness:
Whale, Triad can be used for any sized portfolio.

Triad Characteristics
Drawdowns: Triad has more conservative drawdowns than a Balanced 60/40 strategy
Volatility: Triad is noticeably less volatile than a Balanced 60/40 approach
Returns: Triad has similar historical returns depending on the time frame, and should do better going forward.

	2000+	1980+
Beta	0.24	0.35
Alpha	8.38%	7.10%

Annualized Returns, actual YTD for current year.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
Triad	-3.74%	6.87%	10.21%	8.16%	8.25%	10.10%	11.25%
Balanced 60/40	-3.67%	12.20%	13.98%	11.40%	10.30%	6.44%	10.29%
S&P 500	-5.27%	23.23%	20.61%	16.68%	15.31%	7.16%	11.99%

Maximum Drawdrown, single largest drawdown.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
Triad	-3.74%	-5.55%	-5.71%	-5.71%	-5.71%	-9.79%	-15.29%
Balanced 60/40	-3.99%	-3.99%	-11.86%	-11.86%	-11.86%	-32.33%	-32.33%
S&P 500	-5.27%	-5.27%	-19.43%	-19.43%	-19.43%	-50.79%	-50.79%

Ulcer Index, the higher the number the more painful downside volatility. Considers all downside not just maximum.

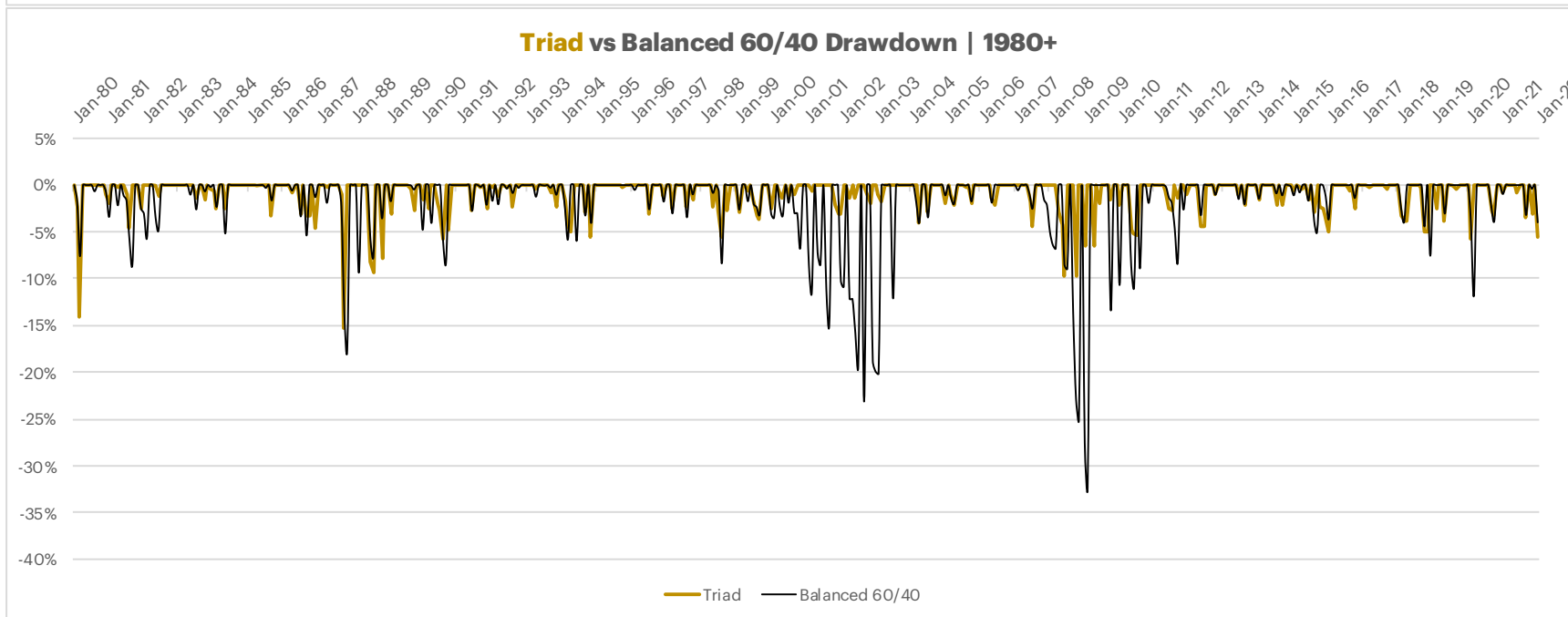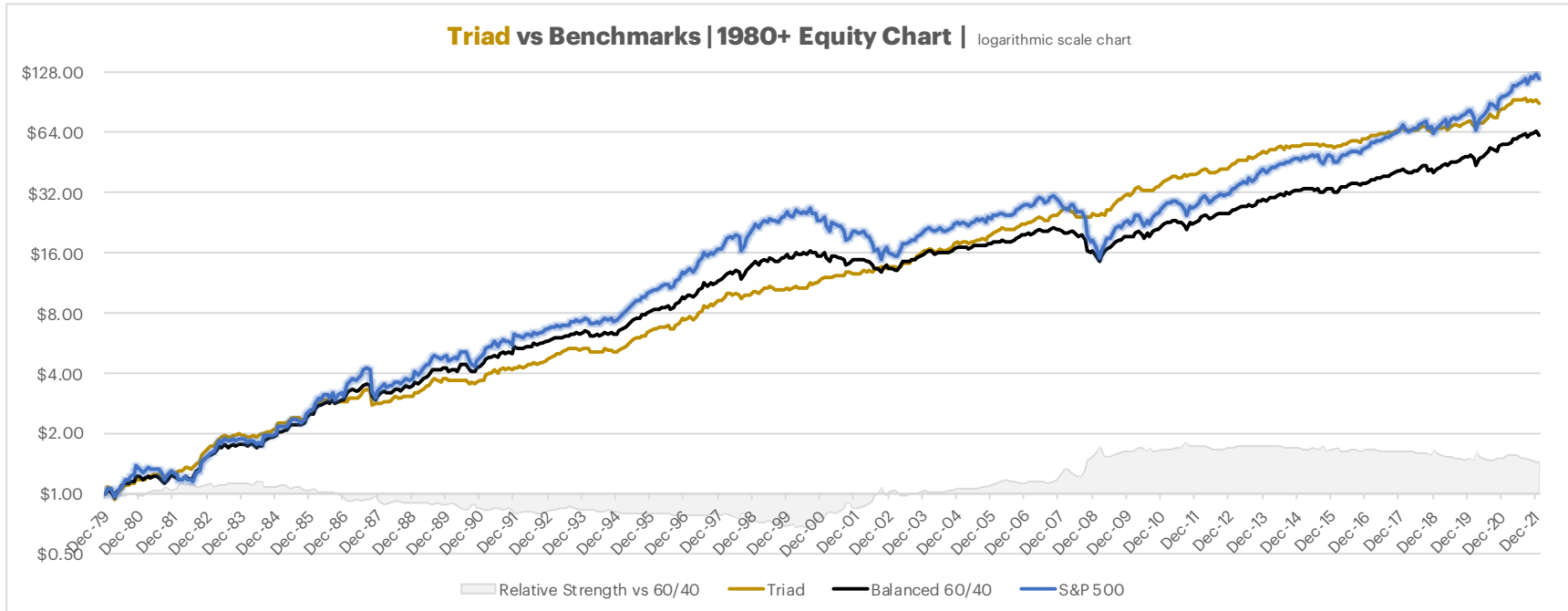| Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
Triad	2.64	2.13	1.98	2.17	1.92	2.35	2.93
Balanced 60/40	2.82	1.42	2.52	2.48	1.98	7.60	5.91
S&P 500	3.73	1.96	4.37	4.30	3.46	16.76	12.89

Sortino Ratio, risk adjusted performance measure - bigger number is better.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
Triad	(3.46)	1.29	1.90	1.66	1.97	2.59	2.42
Balanced 60/40	(3.46)	2.31	2.10	1.89	2.12	1.11	1.81
S&P 500	(3.46)	3.08	1.93	1.70	1.90	0.78	1.30

1980+ Time & Profit Contribution

■ % Time　■ Profit Contribution

Triad inception date April 2021, out of sample since then and before 2000.

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Dual Momentum Systems: Triad

Triad vs Benchmarks | 1980+ Equity Chart | logarithmic scale chart

Legend: Relative Strength vs 60/40 — Triad — Balanced 60/40 — S&P 500

Triad vs Balanced 60/40 Drawdown | 1980+

Legend: Triad — Balanced 60/40
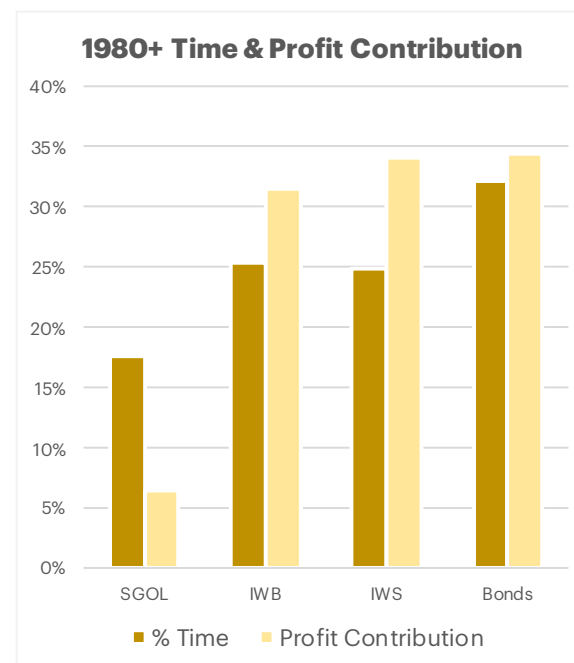
Triad inception date April 2021, out of sample since then and before 2000.

Dual Momentum Strategies: The Russell OG

USA Momentum Rotational

Investment selection for February 2022:
TLT, Long Term Treasuries

Tax friendliness:
The Russell OG has mostly Short Term Cap Gains.

Months between change of holdings
The Russell OG changes it's holdings every 3.3 months on average.

Portfolio size appropriateness:
Whale, The Russell OG can be used for any sized portfolio.

The Russell OG Characteristics
Drawdowns: The Russell OG has more conservative drawdowns than the S&P.
Volatility: The Russell OG is usually less volatile than the S&P over time.
Returns: The Russell OG has much better historical returns compared to the S&P 500.

Strategy Description:
The Russell OG invests in the United States, going into the best performer of the Russell 1000, Russell MidCap Growth, or Russell MidCap Value. When these markets aren't experiencing positive momentum the strategy goes into Long Term Treasuries.

Strategy Components
IWB Russell 1000
IWP Russell MidCap Growth
IWS Russell MidCap Value
 TLT Long Term Treasuries

	2000+	1980+
Beta	0.26	0.53
Alpha	15.19%	10.47%

Annualized Returns, actual YTD for current year.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
The Russell OG	-5.63%	18.78%	18.80%	17.98%	15.85%	17.09%	16.88%
S&P 500	-5.27%	23.23%	20.61%	16.68%	15.31%	7.16%	11.99%
Nasdaq 100	-8.75%	15.96%	28.10%	21.41%	18.25%	6.39%	11.50%

Maximum Drawdown, single largest drawdown.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
The Russell OG	-5.63%	-6.10%	-8.07%	-8.07%	-10.99%	-19.41%	-23.41%
S&P 500	-5.27%	-5.27%	-19.43%	-19.43%	-19.43%	-50.79%	-50.79%
Nasdaq 100	-8.75%	-8.75%	-17.48%	-17.48%	-17.48%	-74.14%	-74.14%

Ulcer Index, the higher the number the more painful downside volatility. Considers all downside not just maximum.

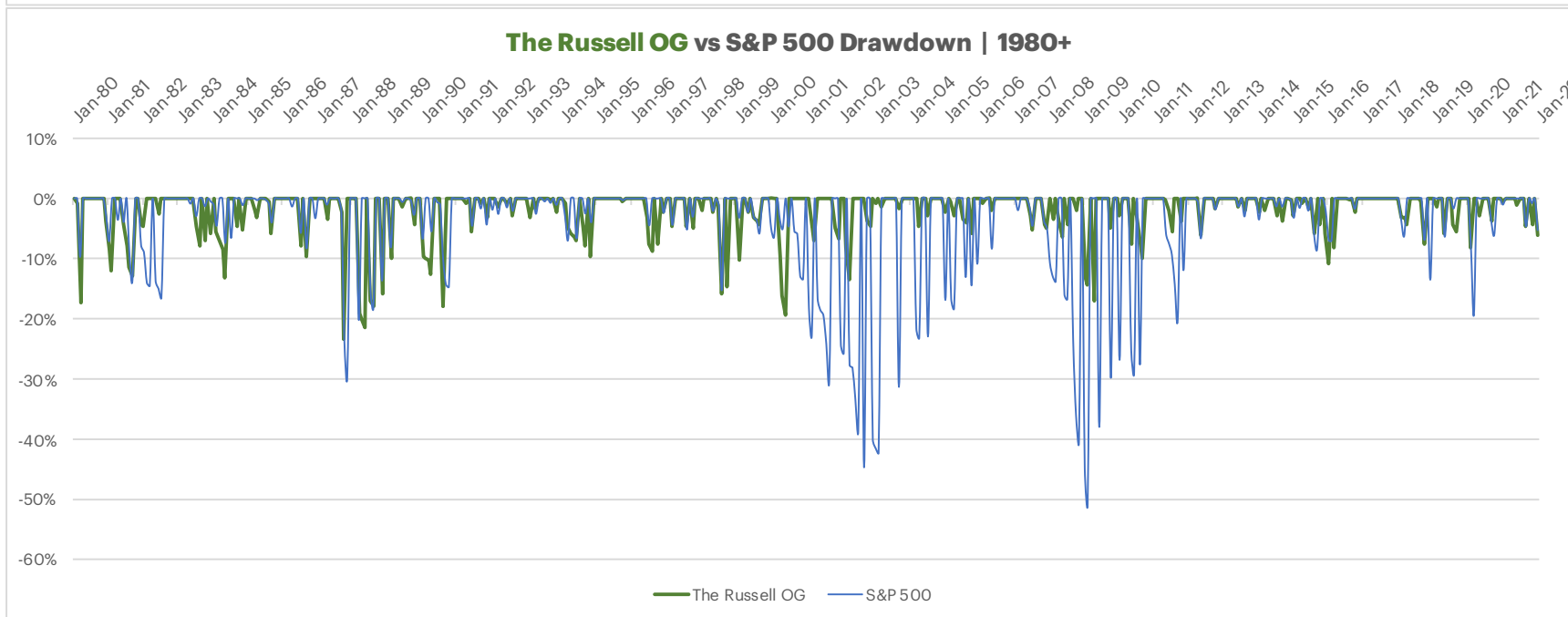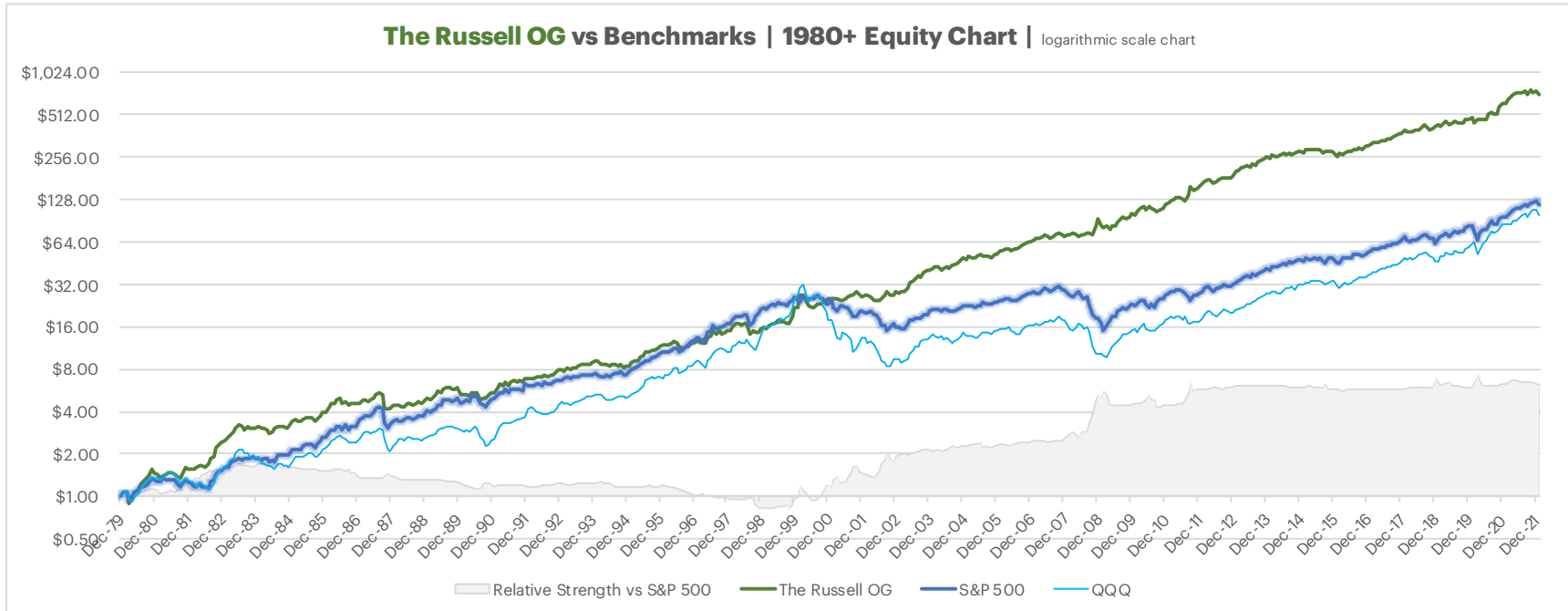| Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
The Russell OG	3.98	2.47	2.91	2.69	2.89	4.56	5.84
S&P 500	3.73	1.96	4.37	4.30	3.46	16.76	12.89
Nasdaq 100	6.19	2.91	4.02	4.38	3.81	41.69	30.95

Sortino Ratio, risk adjusted performance measure - bigger number is better.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
The Russell OG	(3.46)	2.16	2.29	2.44	2.39	2.30	1.98
S&P 500	(3.46)	3.08	1.93	1.70	1.90	0.78	1.30
Nasdaq 100	(3.46)	1.54	2.21	2.01	2.10	0.58	1.05
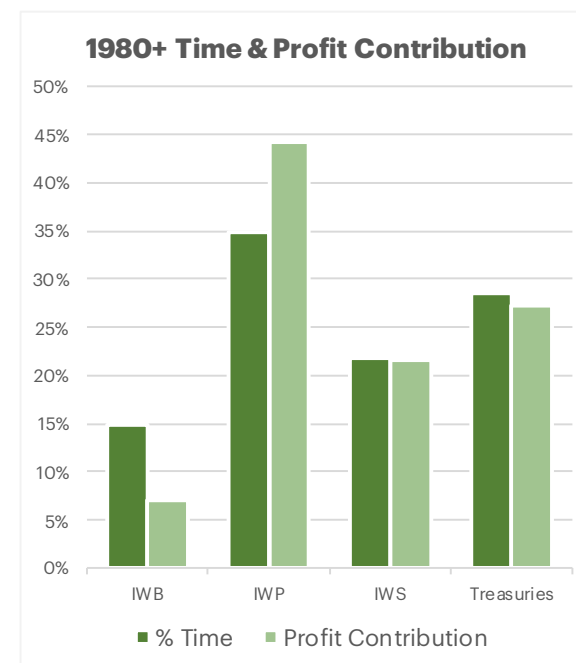
1980+ Time & Profit Contribution

The Russell OG inception date May 2017, out of sample since and before 2000.

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Dual Momentum Systems: The Russell OG

The Russell OG vs Benchmarks | 1980+ Equity Chart | logarithmic scale chart

Legend: Relative Strength vs S&P 500 — The Russell OG — S&P 500 — QQQ

The Russell OG vs S&P 500 Drawdown | 1980+

Legend: The Russell OG — S&P 500

The Russell OG inception date May 2017, out of sample since and before 2000.

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Dual Momentum Strategies: Global Navigator

Global Momentum Rotational Strategy using Smart Leverage

Investment selection for February 2022:
TLT, Long Term Treasuries

Tax friendliness:
Global Navigator has mostly Short Term Cap Gains.

Months between change of holdings
Global Navigator changes it's holdings every 4 months on average.

Portfolio size appropriateness:
Whale, Global Navigator can be used for any sized portfolio.

Global Navigator Characteristics
Drawdowns: Global Navigator has more conservative drawdowns than the S&P.
Volatility: Global Navigator is usually less volatile than the S&P over time.
Returns: Global Navigator has superior historical returns compared to the S&P 500.

Strategy Description:
Global Navigator is a global strategy, it invests in the USA when it is outperforming, and in the Foreign markets when they outperform. This strategy uses Smart Leverage, after an outsized drawdown in the markets, could go into 2X Leveraged equities if the USA Markets are the investment, not if going into Foreign Markets. When it goes into 2X leveraged position, it holds it until there is a natural change of investment by the strategy. The strategy holds long term treasuries when out of equities.

Strategy Components
VTI Total US Market → Smart Leverage: SSO 2X S&P 500
VXUS All World Country ex-USA
   TLT Long Term Treasuries

	2000+	1980+
Beta	0.35	0.55
Alpha	15.52%	13.15%

Annualized Returns, actual YTD for current year.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
Global Navigator	-6.06%	12.32%	21.18%	18.20%	14.66%	18.02%	19.71%
S&P 500	-5.27%	23.23%	20.61%	16.68%	15.31%	7.16%	11.99%
Nasdaq 100	-8.75%	15.96%	28.10%	21.41%	18.25%	6.39%	11.50%

Maximum Drawdown, single largest drawdown.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
Global Navigator	-6.06%	-6.06%	-12.92%	-12.92%	-15.62%	-17.14%	-17.56%
S&P 500	-5.27%	-5.27%	-19.43%	-19.43%	-19.43%	-50.79%	-50.79%
Nasdaq 100	-8.75%	-8.75%	-17.48%	-17.48%	-17.48%	-74.14%	-74.14%

Ulcer Index, the higher the number the more painful downside volatility. Considers all downside not just maximum.

| Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
Global Navigator	4.29	2.13	3.78	3.39	4.73	4.33	4.94
S&P 500	3.73	1.96	4.37	4.30	3.46	16.76	12.89
Nasdaq 100	6.19	2.91	4.02	4.38	3.81	41.69	30.95

Sortino Ratio, risk adjusted performance measure - bigger number is better.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
Global Navigator	(3.46)	1.61	2.26	2.20	1.88	2.36	2.41
S&P 500	(3.46)	3.08	1.93	1.70	1.90	0.78	1.30
Nasdaq 100	(3.46)	1.54	2.21	2.01	2.10	0.58	1.05
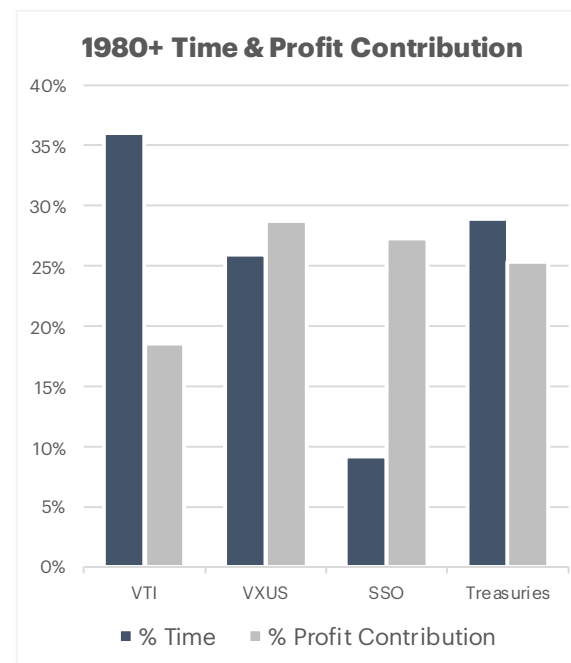
1980+ Time & Profit Contribution

Global Navigator inception date May 2017. Smart Leverage added in October 2020, out of sample then and before 2000.

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Global Navigator vs Benchmarks | 1980+ Equity Chart | logarithmic scale chart

Legend: Relative Strength vs S&P 500 — Global Navigator — S&P 500 — QQQ

Global Navigator vs S&P 500 Drawdown | 1980+

Legend: Global Navigator — S&P 500

Global Navigator inception date May 2017. Smart Leverage added in October 2020, out of sample then and before 2000.

randy@dualmomentumsystems.com
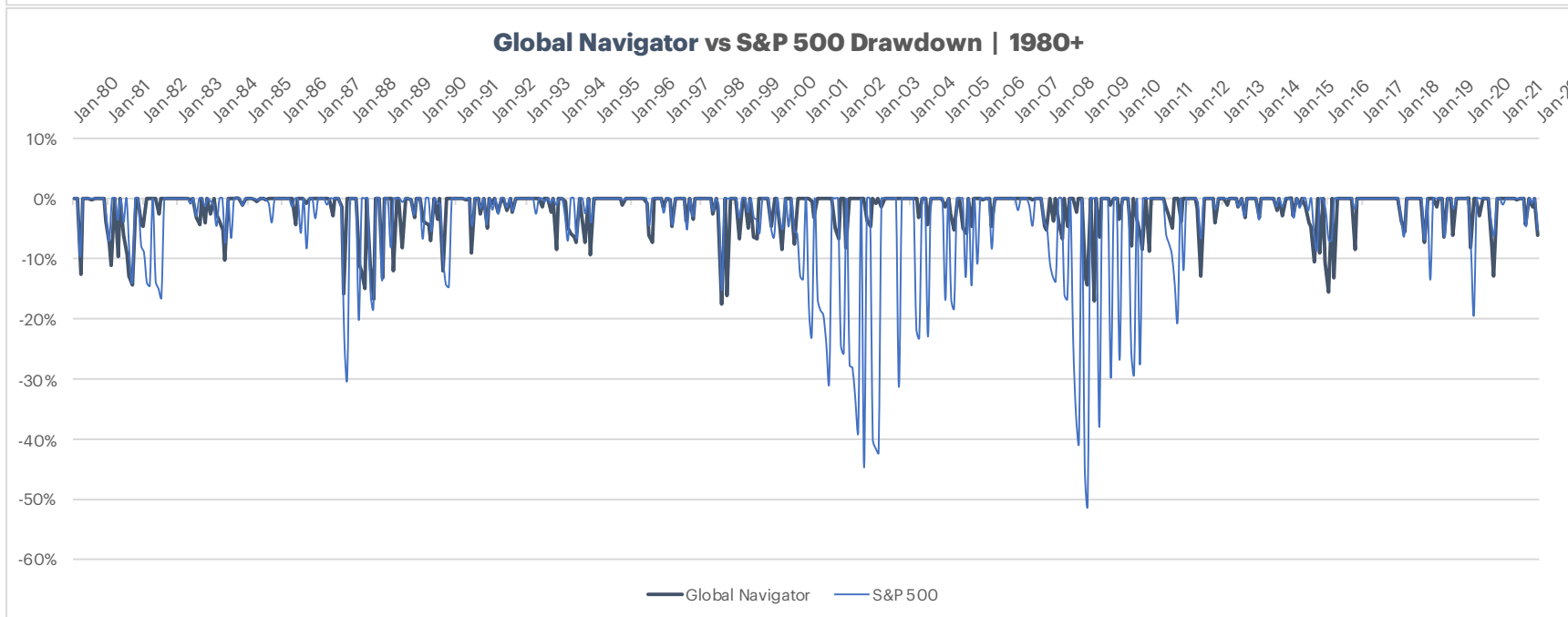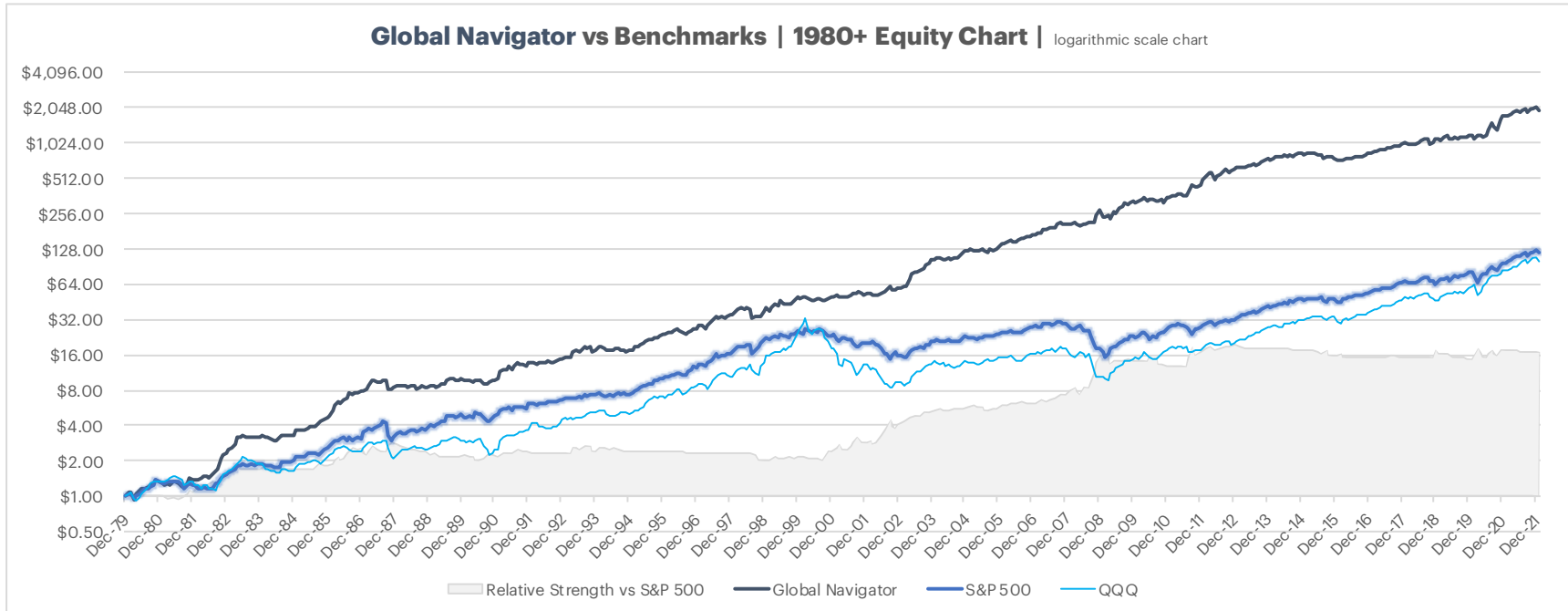
Dual Momentum Strategies: **LT Gain 2X**

Single Momentum Strategy using Smart Leverage

Investment selection for February 2022:
TLT, Long Term Treasuries

Tax friendliness:
LT Gain 2X has mostly Long Term Cap Gains.

Months between change of holdings
LT Gain 2X changes it's holdings every 6.2 months on average.

Portfolio size appropriateness:
Whale, LT Gain 2X can be used for any sized portfolio.

LT Gain 2X Characteristics
Drawdowns: LT Gain 2X has more conservative drawdowns than the S&P.
Volatility: LT Gain 2X is usually less volatile than the S&P over time.
Returns: LT Gain 2X has superior historical returns compared to the S&P 500.

Strategy Description:
LT Gain 2X invests in the United States, when LT Gain 2X 1000 shows positive momentum it invests in it. When these markets aren't experiencing positive momentum the strategy goes into Long Term Treasuries. This strategy uses Smart Leverage and goes into 2X S&P 500 after an outsized drawdown in the markets and will hold that position for up to 1 full year at whick point it would go back into LT Gain 2X 1000 with positive momentum.

Strategy Components
IWB Russell 1000 → Smart Leverage: SSO 2X S&P 500

TLT Long Term Treasuries

	2000+	1980+
Beta	0.48	0.69
Alpha	16.63%	11.72%

Annualized Returns, actual YTD for current year.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
LT Gain 2X	-5.63%	36.31%	30.23%	23.88%	18.89%	20.04%	20.04%
S&P 500	-5.27%	23.23%	20.61%	16.68%	15.31%	7.16%	11.99%
Nasdaq 100	-8.75%	15.96%	28.10%	21.41%	18.25%	6.39%	11.50%

Maximum Drawdown, single largest drawdown.

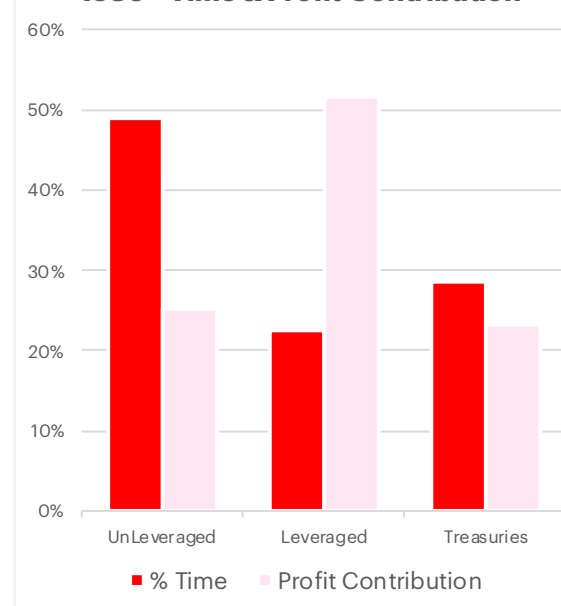| Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
LT Gain 2X	-5.63%	-5.63%	-12.92%	-12.92%	-12.92%	-18.72%	-23.41%
S&P 500	-5.27%	-5.27%	-19.43%	-19.43%	-19.43%	-50.79%	-50.79%
Nasdaq 100	-8.75%	-8.75%	-17.48%	-17.48%	-17.48%	-74.14%	-74.14%

Ulcer Index, the higher the number the more painful downside volatility. Considers all downside not just maximum.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
LT Gain 2X	3.98	2.05	3.70	3.35	3.58	4.67	5.58
S&P 500	3.73	1.96	4.37	4.30	3.46	16.76	12.89
Nasdaq 100	6.19	2.91	4.02	4.38	3.81	41.69	30.95

Sortino Ratio, risk adjusted performance measure - bigger number is better.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
LT Gain 2X	(3.46)	4.42	3.06	2.82	2.39	2.37	2.23
S&P 500	(3.46)	3.08	1.93	1.70	1.90	0.78	1.30
Nasdaq 100	(3.46)	1.54	2.21	2.01	2.10	0.58	1.05

1980+ Time & Profit Contribution

Legend: ■ % Time   Profit Contribution (categories: UnLeveraged, Leveraged, Treasuries)

LT Gain 2X vs Benchmarks | 1980+ Equity Chart | logarithmic scale chart

Relative Strength vs S&P 500 — LT Gain 2X — S&P 500 — QQQ

LT Gain 2X vs S&P 500 Drawdown | 1980+

— LT Gain 2X — S&P 500

LT Gain 2X inception date January 2022.

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Dual Momentum Strategies: LT Gain 3X

Single Momentum Strategy using Smart Leverage

Investment selection for February 2022:
EDV, Extended Duration Treasuries

Tax friendliness:
LT Gain 3X has mostly Long Term Cap Gains.

Months between change of holdings
LT Gain 3X changes it's holdings every 4 months on average.

Portfolio size appropriateness:
Whale, LT Gain 3X can be used for any sized portfolio.

LT Gain 3X Characteristics
Drawdowns: LT Gain 3X has more conservative drawdowns than the S&P.
Volatility: LT Gain 3X is usually less volatile than the S&P over time.
Returns: LT Gain 3X has superior historical returns compared to the S&P 500.

Strategy Description:
LT Gain 3X invests in the United States, when LT Gain 3X 1000 shows positive momentum it invests in it. When these markets aren't experiencing positive momentum the strategy goes into Long Term Treasuries. This strategy uses Smart Leverage and goes into 3X S&P 500 after an outsized drawdown in the markets and will hold that position for up to 1 full year at whick point it would go back into LT Gain 3X 1000 with positive momentum.

Strategy Components
VTI Total US Market → Smart Leverage: UPRO 3X S&P 500
   TLT Long Term Treasuries

	2000+	1980+
Beta	0.60	0.85
Alpha	16.74%	22.83%

Annualized Returns, actual YTD for current year.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
LT Gain 3X	-5.63%	52.79%	43.74%	32.04%	23.73%	27.11%	26.94%
S&P 500	-5.27%	23.23%	20.61%	16.68%	15.31%	7.16%	11.99%
Nasdaq 100	-8.75%	15.96%	28.10%	21.41%	18.25%	6.39%	11.50%

Maximum Drawdown, single largest drawdown.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
LT Gain 3X	-5.63%	-5.63%	-19.70%	-19.70%	-19.70%	-28.54%	-28.54%
S&P 500	-5.27%	-5.27%	-19.43%	-19.43%	-19.43%	-50.79%	-50.79%
Nasdaq 100	-8.75%	-8.75%	-17.48%	-17.48%	-17.48%	-74.14%	-74.14%

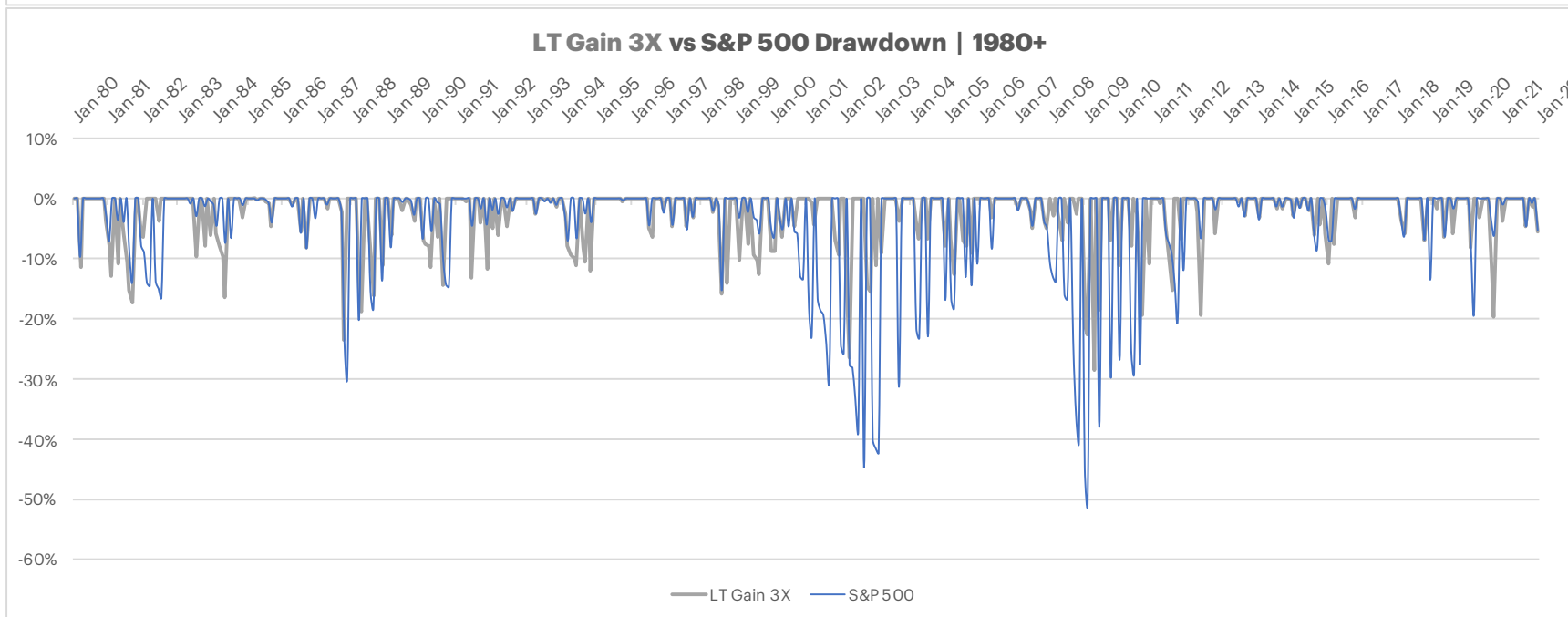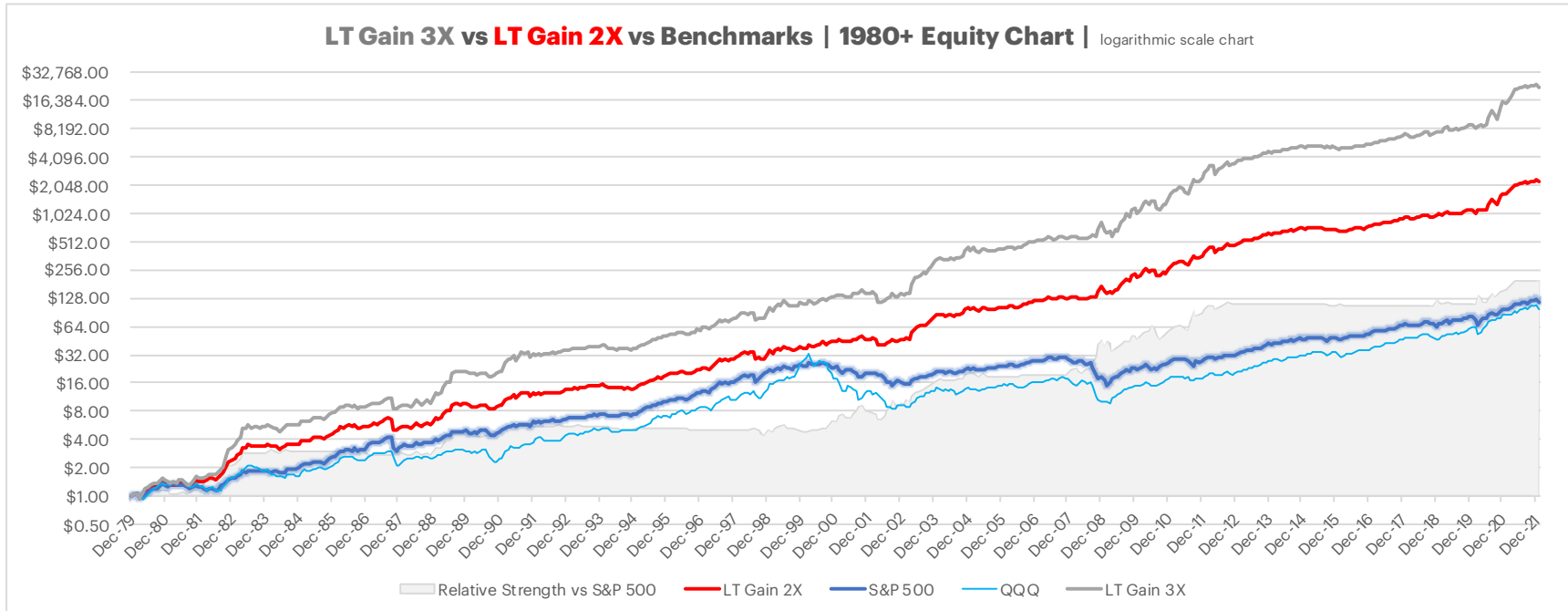**Ulcer Index**, the higher the number the more painful downside volatility. Considers all downside not just maximum.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
LT Gain 3X	3.98	2.05	4.74	4.06	4.17	6.56	6.62
S&P 500	3.73	1.96	4.37	4.30	3.46	16.76	12.89
Nasdaq 100	6.19	2.91	4.02	4.38	3.81	41.69	30.95

Sortino Ratio, risk adjusted performance measure - bigger number is better.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
LT Gain 3X	(3.46)	6.13	3.51	3.15	2.43	2.35	2.38
S&P 500	(3.46)	3.08	1.93	1.70	1.90	0.78	1.30
Nasdaq 100	(3.46)	1.54	2.21	2.01	2.10	0.58	1.05
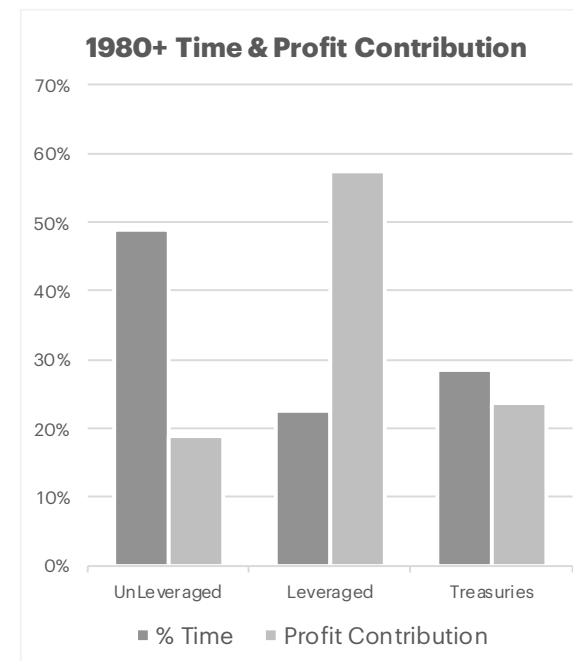
1980+ Time & Profit Contribution

LT Gain 3X inception date January 2022.

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Dual Momentum Systems: Global Navigator

LT Gain 3X vs LT Gain 2X vs Benchmarks | 1980+ Equity Chart | logarithmic scale chart

Legend: Relative Strength vs S&P 500 — LT Gain 2X — S&P 500 — QQQ — LT Gain 3X

LT Gain 3X vs S&P 500 Drawdown | 1980+

Legend: LT Gain 3X — S&P 500

LT Gain 3X inception date January 2022.

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Dual Momentum Strategies: MAX PAIN

USA Momentum Rotational always using triple leverage

Investment selection for February 2022:
  TMF, 3X Long Term Treasuries

Tax friendliness:
  MAX PAIN has mostly Short Term Cap Gains.

Months between change of holdings
  MAX PAIN changes it's holdings every 2.5 months on average.

Portfolio size appropriateness:
  Small Fry, MAX PAIN is only suitable for < $500,000 allocations.

Global Navigator Characteristics
  Drawdowns: MAX PAIN has frequent and larger drawdowns than the S&P.
  Volatility: MAX PAIN is far more volatile than the S&P over time.
  Returns: MAX PAIN has incredibly huge historical returns compared to the S&P 500.

Strategy Description:

MAX PAIN invests in the United States, going into the 3X leveraged version of the best performer of the Russell 1000, Russell MidCap Growth, or Russell Small Cap. When these markets aren't experiencing positive momentum the strategy goes into 3X Long Term Treasuries. This is an extremely high return strategy with equally high volatility and frequent drawdowns, know what you're getting into.

Strategy Components
URTY 3X Russell 2000
MIDU 3X S&P MidCap 400
UPRO 3X S&P 500
  TMF 3X Long Term Treasuries, 1st month in treasuries
  EDV Extended Duration Treasuries, subsequent months in treasuries

	2000+	1980+
Beta	0.98	1.56
Alpha	31.78%	18.43%

Annualized Returns, actual YTD for current year.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
MAX PAIN	-15.89%	35.49%	62.78%	42.24%	41.11%	38.82%	37.17%
S&P 500	-5.27%	23.23%	20.61%	16.68%	15.31%	7.16%	11.99%
Nasdaq 100	-8.75%	15.96%	28.10%	21.41%	18.25%	6.39%	11.50%

Maximum Drawdrown, single largest drawdown.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
MAX PAIN	-15.89%	-15.89%	-23.74%	-23.74%	-35.19%	-35.19%	-67.06%
S&P 500	-5.27%	-5.27%	-19.43%	-19.43%	-19.43%	-50.79%	-50.79%
Nasdaq 100	-8.75%	-8.75%	-17.48%	-17.48%	-17.48%	-74.14%	-74.14%

Ulcer Index, the higher the number the more painful downside volatility. Considers all downside not just maximum.

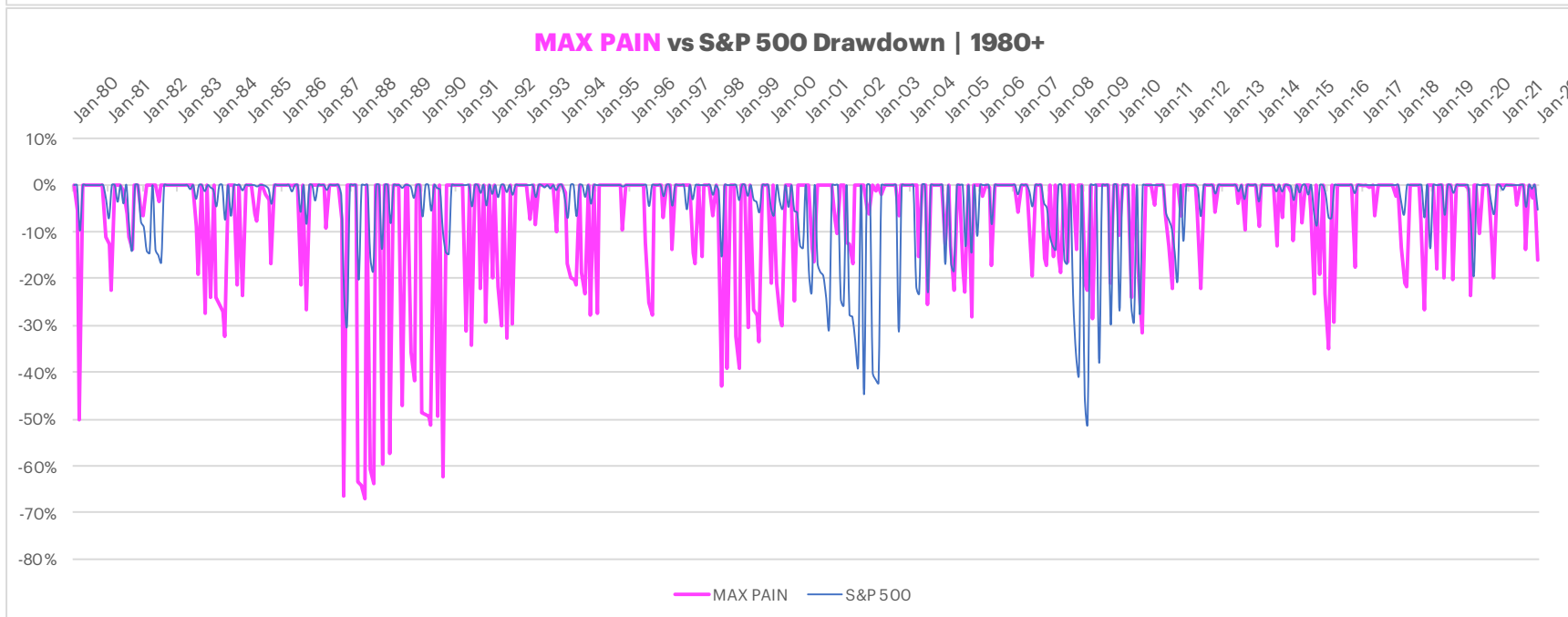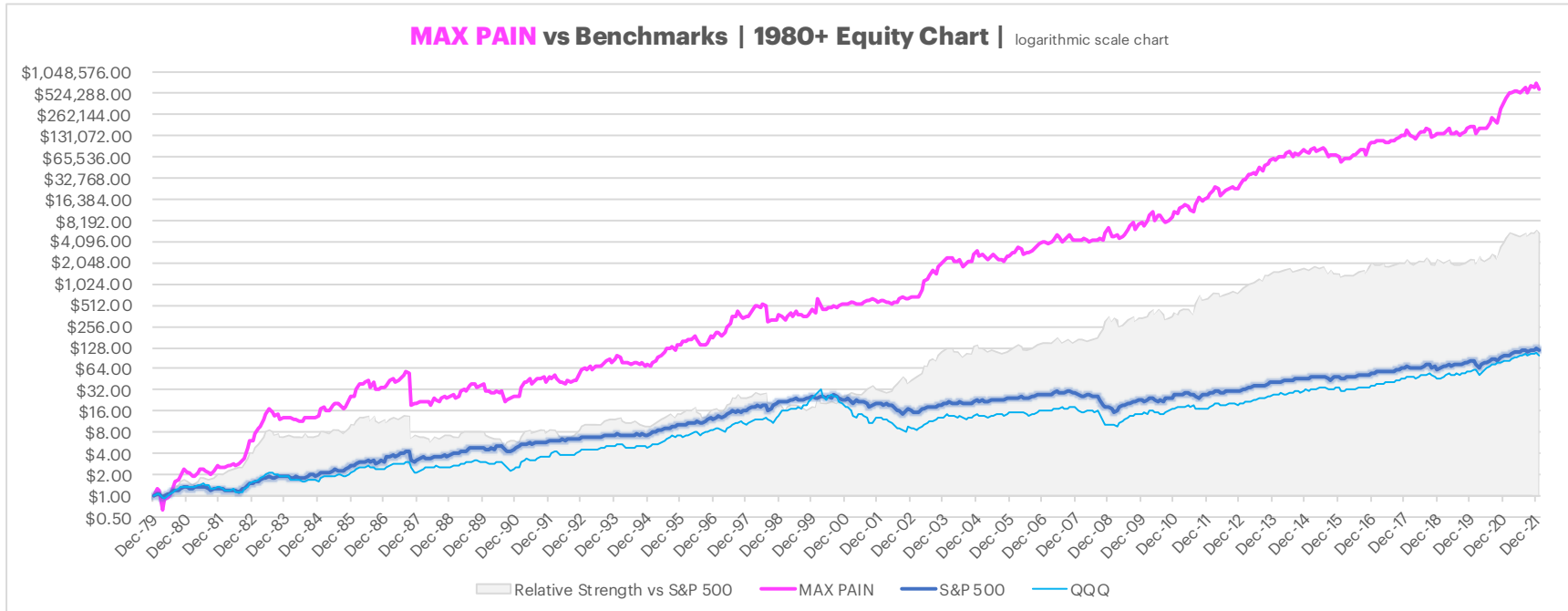| Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
MAX PAIN	11.24	6.02	9.59	10.83	11.49	12.57	21.08
S&P 500	3.73	1.96	4.37	4.30	3.46	16.76	12.89
Nasdaq 100	6.19	2.91	4.02	4.38	3.81	41.69	30.95

Sortino Ratio, risk adjusted performance measure - bigger number is better.

Investment	YTD	1 Year	3 Year	5 Year	10 Year	2000+	1980+
MAX PAIN	(3.46)	1.75	2.65	2.04	2.08	2.00	1.72
S&P 500	(3.46)	3.08	1.93	1.70	1.90	0.78	1.30
Nasdaq 100	(3.46)	1.54	2.21	2.01	2.10	0.58	1.05
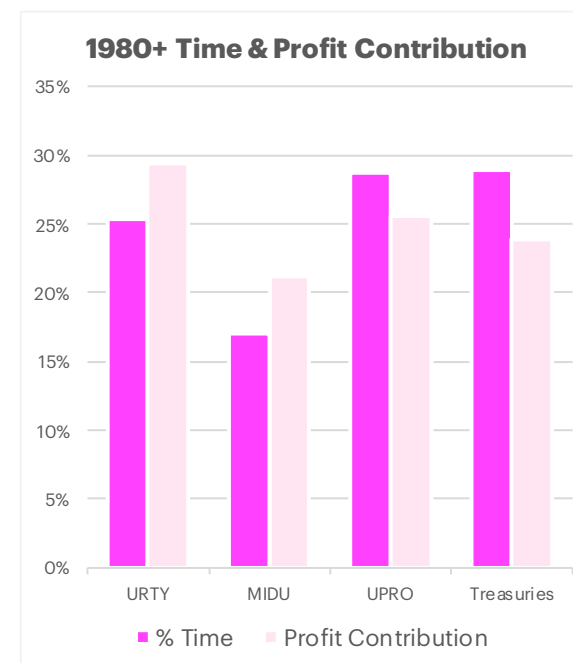
1980+ Time & Profit Contribution

Legend: ■ % Time ■ Profit Contribution

The MAX PAIN inception date January 2021, out of sample since then and before 2000.

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MAX PAIN vs Benchmarks | 1980+ Equity Chart | logarithmic scale chart

Legend: Relative Strength vs S&P 500 — MAX PAIN — S&P 500 — QQQ

MAX PAIN vs S&P 500 Drawdown | 1980+
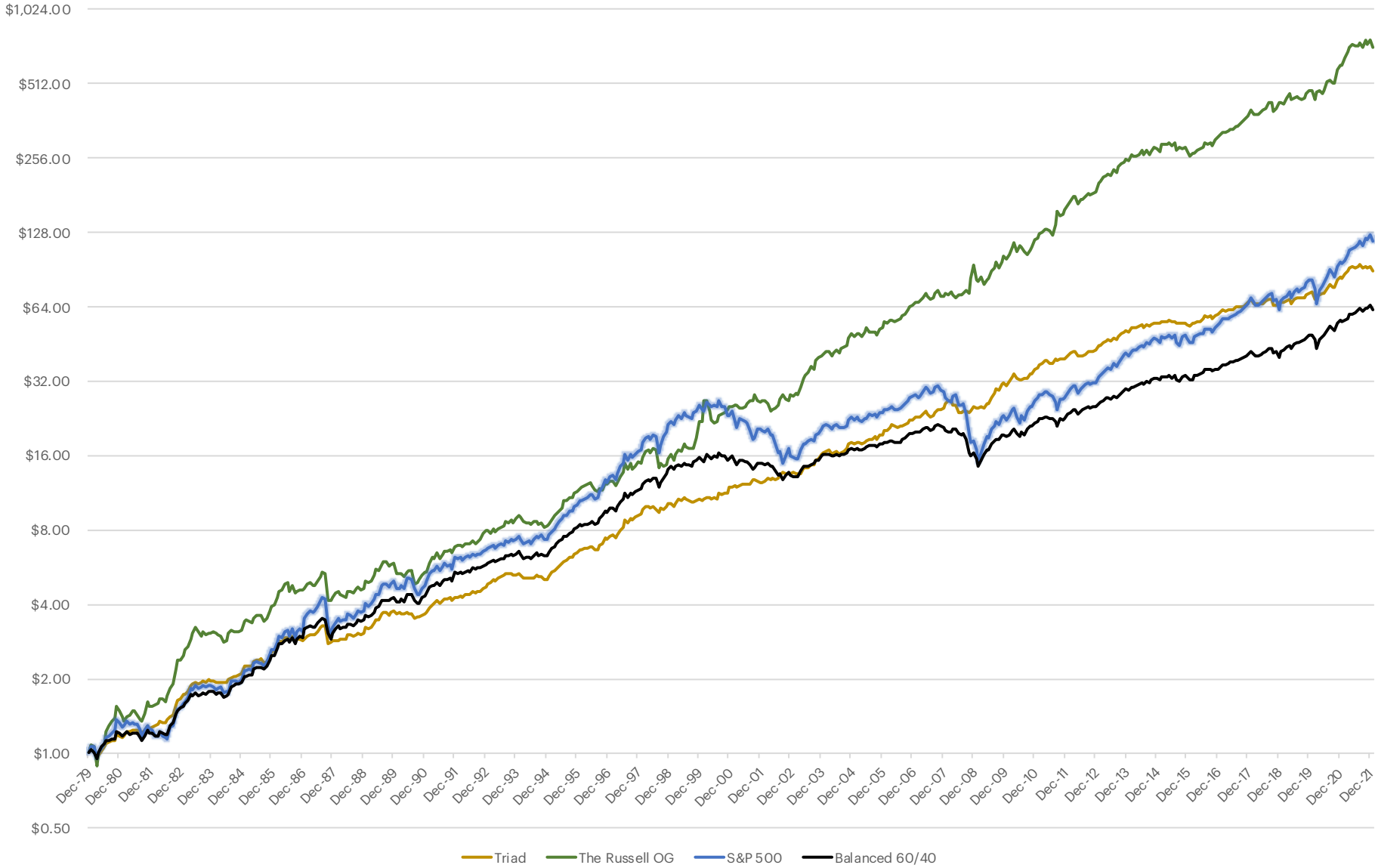
Legend: MAX PAIN — S&P 500

The MAX PAIN inception date January 2021, out of sample since then and before 2000.

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Equity Charts

Triad vs The Russell OG vs Benchmarks
1980+ Equity Chart for Strategies which never use leverage
logarithmic scale chart

Legend: Triad — The Russell OG — S&P 500 — Balanced 60/40

Results through 01/31/2022

Global Navigator vs LT Gain 2X vs LT Gain 3X vs MAX PAIN vs Benchmarks
1980+ Equity Chart for Strategies which use leverage
logarithmic scale chart

Legend: Global Navigator — LT Gain 2X — LT Gain 3X — MAX PAIN — S&P 500 — QQQ

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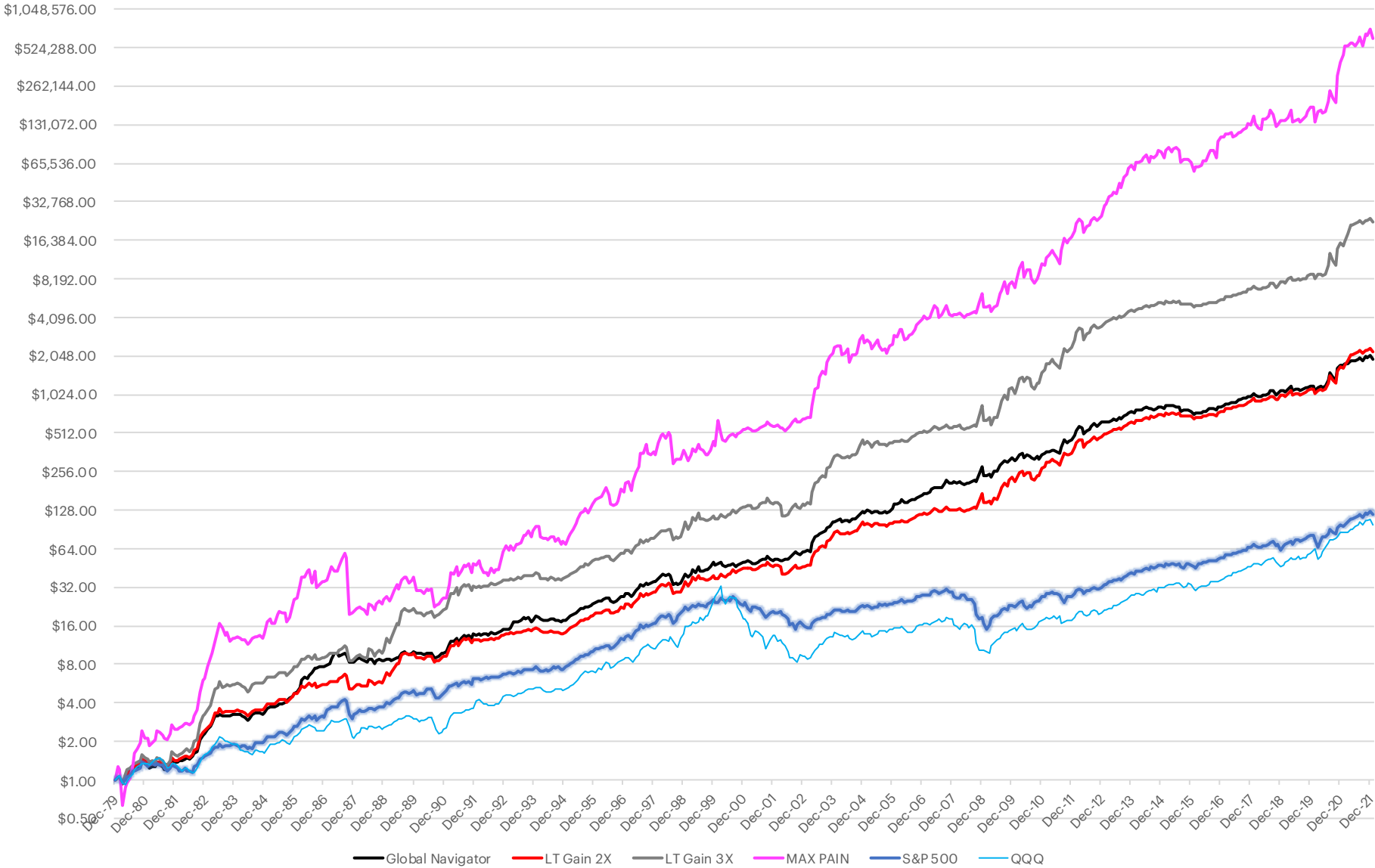
Metrics, Annual Returns

and Correlations

CAGR: Compound Annual Growth Rate, on average how much the strategy has returned per year

Ulcer Performance Index: A risk adjusted performance ratio which uses the Ulcer Index in it's calculations

Sortino Ratio: A risk adjusted performance ratio commonly used

Gain to Pain: Used by the famous Jack Schwager, simply the total net gain divided by net loses along the way
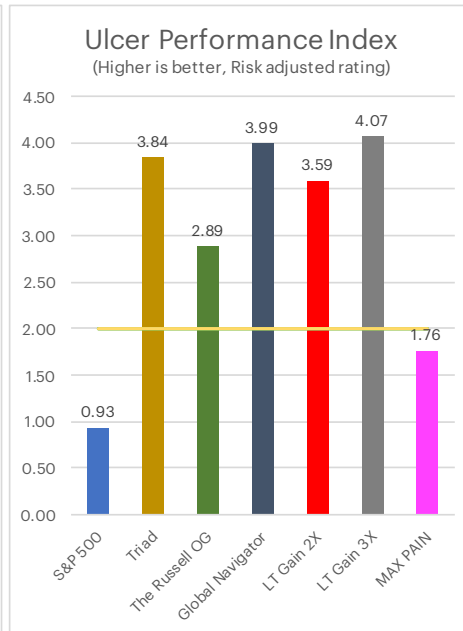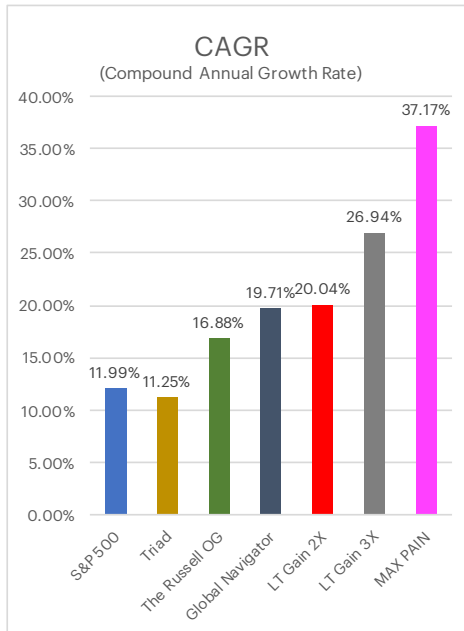
Maximum Drawdown: The largest negative drawdown for the strategy, on a month end basis

Ulcer Index: Measures how bad drawdowns are for an investment, not related to gains, just drawdowns

**Sharpe Ratio:** A commonly used risk adjusted performance measure, however, it penalizes for upside volatility

MAR Ratio: A risk adjusted performance ratio, uses maximum drawdown in it's calculations

"Long Term" Metrics Comparisons: Strategies vs S&P 500
1980 to current

CAGR
(Compound Annual Growth Rate)

- S&P 500: 11.99%
- Triad: 11.25%
- The Russell OG: 16.88%
- Global Navigator: 19.71%
- LT Gain 2X: 20.04%
- LT Gain 3X: 26.94%
- MAX PAIN: 37.17%

Ulcer Performance Index
(Higher is better, Risk adjusted rating)

- S&P 500: 0.93
- Triad: 3.84
- The Russell OG: 2.89
- Global Navigator: 3.99
- LT Gain 2X: 3.59
- LT Gain 3X: 4.07
- MAX PAIN: 1.76

Sortino Ratio
(> 1 good, > 2 very good, > 3 excellent)

- S&P 500: 1.30
- Triad: 2.42
- The Russell OG: 1.98
- Global Navigator: 2.41
- LT Gain 2X: 2.23
- LT Gain 3X: 2.38
- MAX PAIN: 1.72

Gain to Pain
(> 1 is quite good, > 2 is Excellent, Risk adjusted rating)

- S&P 500: 0.87
- Triad: 1.94
- The Russell OG: 1.42
- Global Navigator: 1.69
- LT Gain 2X: 1.56
- LT Gain 3X: 1.67
- MAX PAIN: 1.20

Maximum Drawdown
(Single largest drawdown)

- S&P 500: -50.79%
- Triad: -15.29%
- The Russell OG: -23.41%
- Global Navigator: -17.56%
- LT Gain 2X: -23.41%
- LT Gain 3X: -28.54%
- MAX PAIN: -67.06%

Ulcer Index
(Considers duration and intensity of drawdowns, lower is better)

- S&P 500: 12.89
- Triad: 2.93
- The Russell OG: 5.84
- Global Navigator: 4.94
- LT Gain 2X: 5.58
- LT Gain 3X: 6.62
- MAX PAIN: 21.08

Sharpe Ratio
(> 1 is good, > 2 very good)

- S&P 500: 0.83
- Triad: 1.38
- The Russell OG: 1.14
- Global Navigator: 1.24
- LT Gain 2X: 1.17
- LT Gain 3X: 1.14
- MAX PAIN: 0.99

MAR Ratio
(> 0.5 is quite good, > 1 is very impressive)

- S&P 500: 0.24
- Triad: 0.74
- The Russell OG: 0.72
- Global Navigator: 1.12
- LT Gain 2X: 0.86
- LT Gain 3X: 0.94
- MAX PAIN: 0.55

All Metrics are calculated from Monthly returns

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"Modern Era" Metrics Comparisons: Strategies vs S&P 500
2000 to current

Results through 01/31/2022

All Metrics are calculated from Monthly returns

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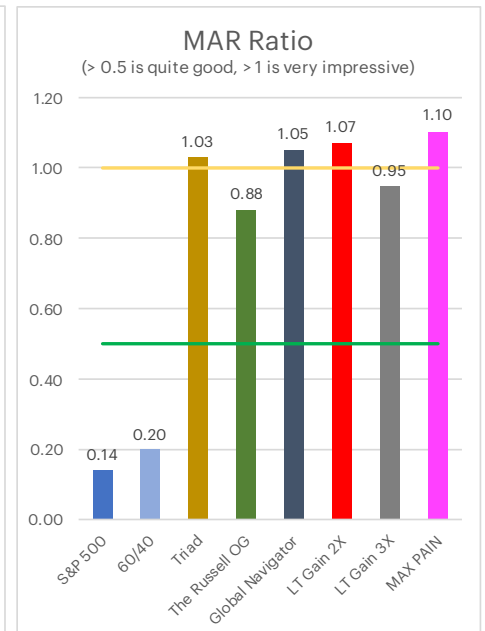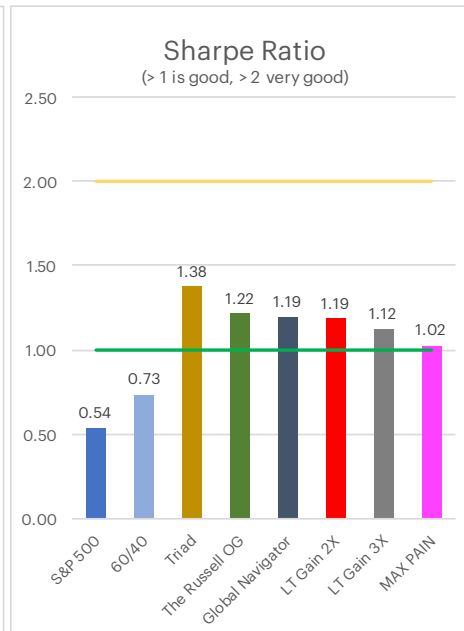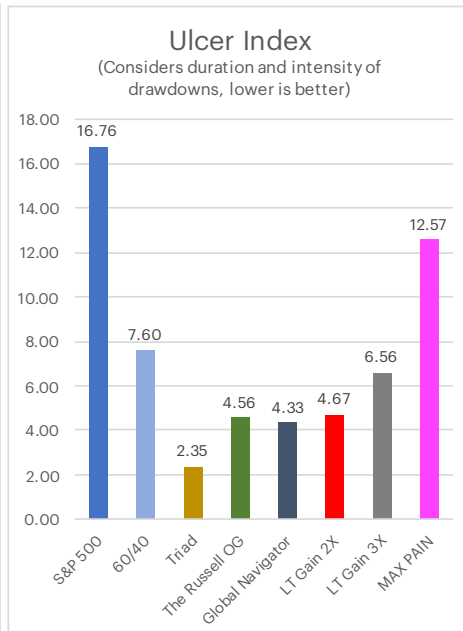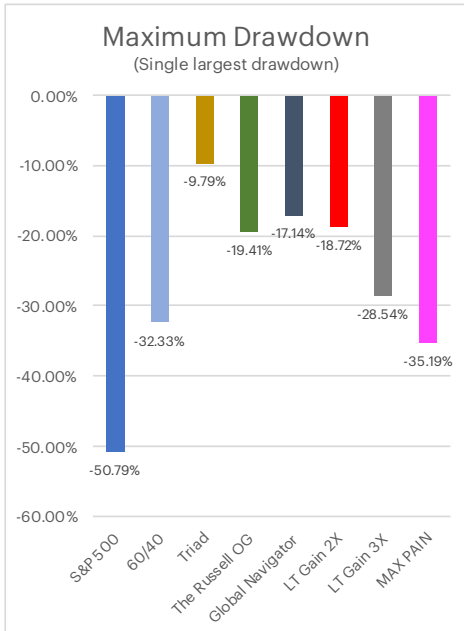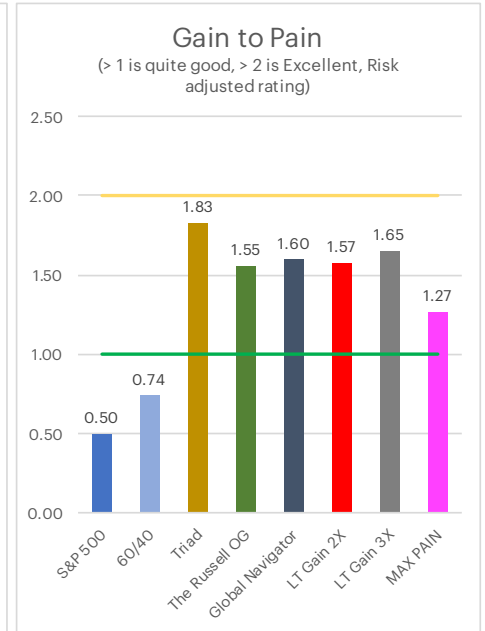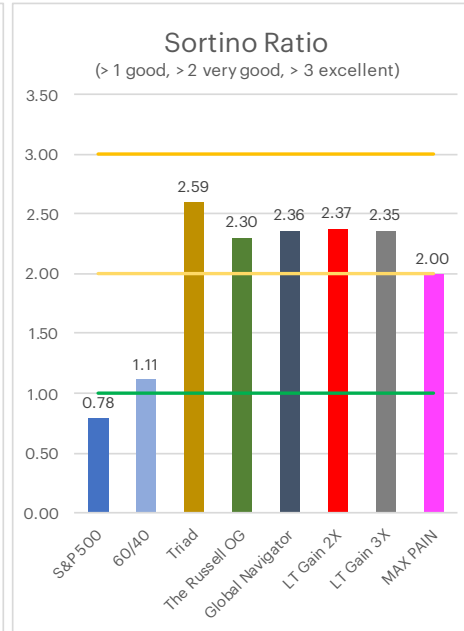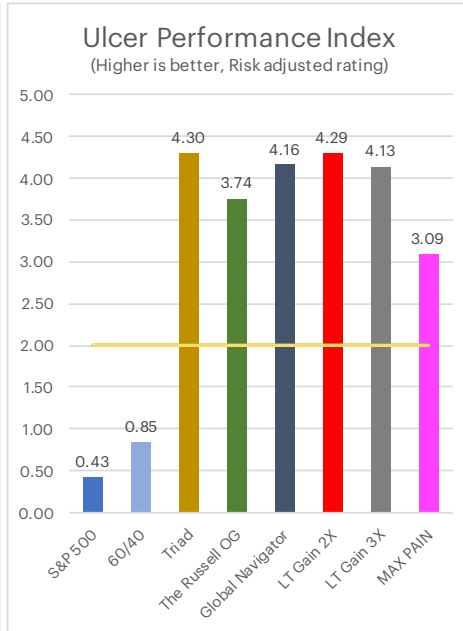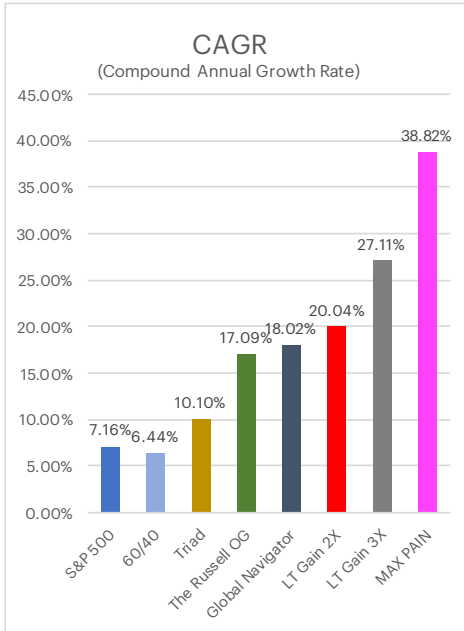
36 Month Strategy Return Correlations

←Conservative   Aggressive →

	S&P 500	Balanced 60/40	QQQ	Triad	The Russell OG	Global Navigator	LT Gain 2X	LT Gain 3X	MAX PAIN
S&P 500	1.00								
Balanced 60/40	0.99	1.00							
QQQ	0.72	0.75	1.00						
Triad	0.70	0.67	0.29	1.00					
The Russell OG	0.56	0.53	0.20	0.91	1.00				
Global Navigator	0.60	0.58	0.25	0.86	0.86	1.00			
LT Gain 2X	0.62	0.59	0.27	0.89	0.88	0.96	1.00		
LT Gain 3X	0.58	0.56	0.23	0.84	0.83	0.95	0.99	1.00	
MAX PAIN	0.56	0.52	0.20	0.85	0.88	0.93	0.88	0.85	1.00

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Thank you for your time, my hope is that these strategies may help you grow your investments more than a market index fund, with less drawdowns along the way.

Countless hours of thought, development, and modeling have gone into these strategies which were inspired from the work of Gary Antonacci at www.OptimalMomentum.com. I have entrusted my invested net worth into these strategies, I am not looking to gain from anybody else who chooses to use them, I simply want to share what I think are fantastic ways to invest money for the long run. Receive the strategy information free by emailing me and getting on the distribution list, your information is kept private.

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Appendix:

How to invest in Dual Momentum

and

How it works

How would a person invest in these Strategies?

- At the end of the month notice of which investments the strategies should be invested in for the next month are distributed. You can make any necessary trades the first day or two of the month. This is a free service, these models are run for my own investment portfolio, I like to share with interested people who want more than a buy and hold strategy.
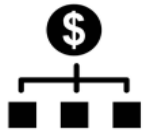
- Determine your allocation, you'll need to decide if you want to go with Global Navigator, The Russell, or some combination of both. In the reporting you'll see a "30/70 Model Portfolio", that is because this is what I do personally: 30% Global Navigator and 70% The Russell.

- Place your trade at your brokerage company so that you are in the investment that the ETF which the strategy indicates for the next month. There is no need to scale in when you start the strategies, every month is a new investment decision to be fully in equities or in Treasuries. You only need to make sure that you are holding the investment for the month that the models tell you to hold.
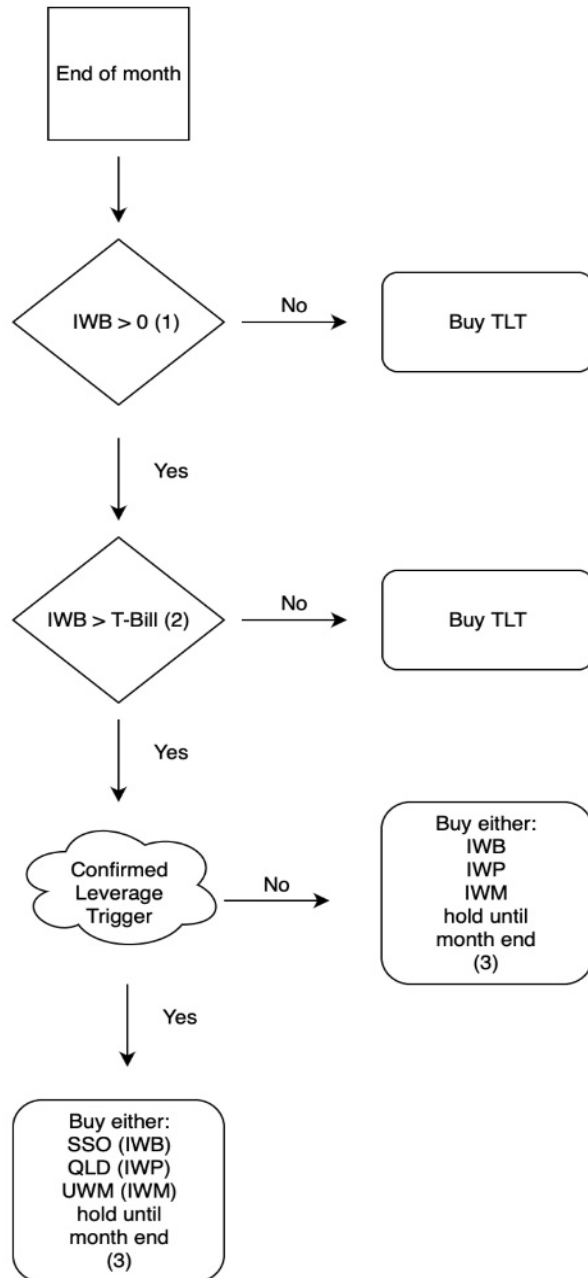
- When the models are in Risk OFF mode they are out of equities and in Treasuries. When in Risk OFF mode the models set to go into UST which is a 2X Intermediate Treasuries ETF. For most of us, this is a great choice. If you are a whale investor then you should probably be considering going into either ZROZ or EDV instead for maximum gain prospects, a whale could instead buy VGLT if they want less volatility when are out of equities.

- These strategies move differently than a market index fund, and on any given day, week, month, or year could underperform the market index, however, this does not mean that the strategies are no longer working - they are best evaluated over a longer time period. Please look closely at the annual performance compared to the S&P on the Bar Chart, it shows very clearly on an annual basis how great these strategies perform to the market, but not every year. Also look closely at the Maximum Drawdown chart, yes, there are some big dips on the dual momentum strategies, but the drawdowns are both more shallow and fewer in number than the market.

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How do the strategies select where to invest?

End of month

IWB > 0 (1) → No → Buy TLT

Yes ↓

IWB > T-Bill (2) → No → Buy TLT

Yes ↓

Confirmed Leverage Trigger → No → Buy either: IWB IWP IWM hold until month end (3)

Yes ↓

Buy either: SSO (IWB) QLD (IWP) UWM (IWM) hold until month end (3)

This example to the left shows the decision process for **The Russell**.

Decision 1) When the month is over the full month results are used to calculate the weighted returns: 25% of the 1 month return plus 25% of the 3 month return plus 50% of the 6 month return. If the weighted return for the Russell 1000 is less than zero, then the strategy goes into Treasuries for the next month.

Decision 2) If the Russell 1000 weighted return was positive, check to see if the weighted return is greater than the 90 day T-Bill weighted return, if not the strategy goes into Treasuries for the next month.

Decision 3 No) If the Russell 1000 weighted return was higher than the 90 day T-Bill weighted return, do we have a confirmed Leverage Trigger (which can happen after an outsized drawdown in the Russell 1000), if not we invest in either the Russell 1000, Russell Mid-Cap Growth, or Russell 2000, the one of those three selected is the one with the highest relative strength determined by comparing their weighed returns.

Decision 3 Yes) If there was a confirmed Leverage Trigger, then we invest in SSO instead of Russell 1000, and QLD instead of Russell Mid-Cap Growth, and UWM instead of Russell 2000.

The investment is held until the end of the month, and the process is done again. On average, investments are held about 4 months before changing.

DUAL MOMENTUM SYSTEMS

Extended Data & Out of Sample

Extended Data

The strategies use ETF monthly total return data. Leveraged ETF data is used as far back as it is available, it is simulated using the available daily return total data to extend the leverage returns back in time. At this time, only the leveraged S&P 500 from 1970 through 1979 had to be simulated on monthly data instead of daily, if that information becomes available to me it will be updated. This deck is reporting back to 1980 for all strategies, I do have Global Navigator and LT Gain 3X back to 1970 but as mentioned the extended data for the 1970's should based on daily returns.

The Nasdaq 100 benchmark data is based on Nasdaq 100 back to 1986, however, it didn't exist or data can't be found before that time, so the Nasdaq Composite is used pre-1986 as a proxy. I couldn't reliably emulate Nasdaq 100 from Nasdaq comp.

In Sample, and Out of Sample

The strategies were created with available data from 2000 through the time each strategy was created. Because this data was available and used in the modeling of each strategy, it is considered "In Sample". "Out of Sample" is the periods that the strategy is looking at for which returns were not available when the strategies were created. 1980 through 2000, and from when the strategy was finalized forward is all out of sample.

Nothing was changed to any of the strategies after seeing the additional 20 years from 1980 through 2000, nor were any of the strategies changed or modified due to any returns which have resulted after the strategies were created. I use these strategies myself to invest my hard earned dollars in them, I don't want to fool anybody, most especially not myself by tweaking the strategies to handle some big incident better than it was originally designed to do, no data mining!

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