Sector Rotation and Risk Management

Houston AAII Chapter Sat. Nov. 19, 2022

SectorSurfer
Change the Game

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Scott Juds

President & CEO SumGrowth Strategies

Chairman & CEO Merlyn.AI Corporation

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- Investing in securities is speculative. You may lose some or all of the money invested.
- Past results of any particular trading system are not a guarantee of future performance.

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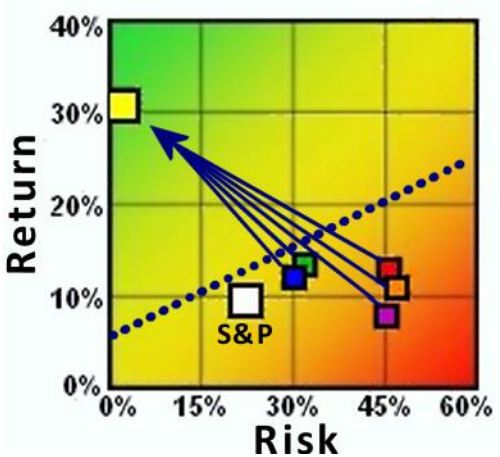
Part 1 – Practical Stuff

- Introducing Sector Surfer
- Markets – No Place to Hide
- SectorSurfer Online Practical Demo
- StormGuard & Bear Market Strategies
- The Tactical Risk Mitigation Index
- The Dual Defense Strategies
- Hall of Fame, Publications, Videos
- Newsletter, Subscriptions

Take a Break Here

Part 2 – Technical Stuff

- MPT: Diversify & Rebalance
- Momentum Exists in Market Data
- Improving the Signal to Noise Ratio
- Bear Markets, StormGuard, SwanGuard
- Alpha Daily Brief Resources
- Hindsight Bias – Tuning and Selection
- Merlyn.AI's Genetic Algorithms
- Formal Indexes: What Lies Ahead?



Momentum

Breaking Through the Efficient Frontier

SectorSurfer
Change the Game

SumGrowth Strategies, LLC Seattle, WA

Momentum

king Through the Efficient Frontier

New Tools Destroy Old Rules

Diversification:

Own a Bit of Everything …

… Produces Precisely Average Performance.

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Change the Game

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My 1st Momentum Strategy

Late 1980s

The Best Fund Families of 1988

Successful funds like Delaware Management focused on stocks that could withstand shoc

Rank	Family	Mutual Fund Assets (mil)	Weighted Score	FUND RANKING U.S. Equity	World Equity	Mixed Equity	Taxable Bond	Tax-Exempt Bond	P
1.	Delaware Mgmt	$25,503.7	75.03	2	4	27	7	35	8
2.	Vanguard Group	1,253,912.3	70.17	6	49	6	3	29	8
3.	Neuberger Berman Mgmt	24,427.3	69.31	7	13	2	33	7	8
4.	First Investors Mgmt	5,658.3	67.53	4	40	4	23	41	8
5.	State Farm Invst Mgmt	11,026.1	67.50	30	35	8	2	22	8
6.	State Street Bank & Trust	42,133.2	67.48	1	31	53	21	10	8
7.	MainStay Funds	40,092.4	67.26	17	9	18	6	14	8
8.	Charles Schwab Invst Mgmt	29,068.1	65.71	9	27	13	17	17	8
9.	American Century Invst Mgmt	80,068.9	64.85	20	23	10	11	24	8
10.	MFS Invst Mgmt	86,573.2	64.20	11	5	21	20	25	8
11.	Invesco	126,556.0	62.99	16	7	17	24	19	8
12.	Wells Fargo Fund Mgmt	79,642.2	62.55	24	28	14	8	40	8
13.	TIAA-CREF	43,648.2	62.44	13	42	29	9	1	8
14.	BlackRock	426,254.5	62.20	10	26	22	19	26	8
15.	Northern Trust	25,945.0	61.70	26	43	1	26	18	8
16.	Virtus Investment Partners	12,874.8	61.64	14	1	19	42	12	800-243-4361
17.	SEI Group	22,104.3	60.72	15	16	26	18	46	800-342-5734
18.	GE Asset Mgmt	15,907.5	59.95	37	56	15	1	44	800-242-0134
19.	Waddell & Reed Invst Mgmt	18,370.7	59.83	22	3	46	13	51	888-923-3355
20.	USAA Invst Mgmt	34,086.8	58.72	29	11	28	27	3	800-531-8722
21.	Eaton Vance Mgmt	56,895.3	58.69	47	6	20	12	9	800-225-6265
22.	PIMCO/Allianz	474,936.7	57.29	8	12	7	52	54	800-426-0107
23.	Columbia Mgmt	135,029.7	55.74	45	21	16	14	13	800-345-6611
24.	Principal Mgmt	81,744.8	55.70	21	24	24	34	11	800-247-4123
25.	Ivy Investment Mgmt	37,412.0	55.53	18	44	50	5	33	800-777-6472
26.	HighMark Capital Mgmt	2,166.6	55.37	5	50	37	29	58	800-433-6884
27.	PNC Funds	2,389.1	54.52	3	48	30	47	43	800-551-2145
28.	UBS Global Asset Mgmt	9,631.3	54.44	39	10	41	25	8	888-793-8637
29.	Fidelity Mgmt & Research	830,747.9	53.22	27	32	45	15	39	800-544-8544

*No 800 phone number; available only throughadvisors.

45.	Frost Investment Adv	2,451.2	42.66	32	38				
46.	John Hancock Group	930,92.7	42.27	49	20				
47.	Calvert Funds	90,57.3	41.80	40	47				
48.	DWS Investments	38,213.5	40.93	44	45				
49.	Goldman Sachs	54,113.7	40.77	43	39				
50.	Aberdeen Asset Mgmt	2,227.4	40.42	53	2				
51.	Pioneer Invst Mgmt	32,726.1	40.11	50	19				
52.	Hartford	48,935.4	36.68	58	41				
53.	Russell Investment	37,897.6	35.71	35	53				
54.	Nuveen Fund Adv	33,056.9	35.53	48	46				
55.	Thrivent Financial	13,092.5	35.20	56	17				
56.	Victory Capital Mgmt	6,891.3	31.56	51	34	33	58	21	800-539-3863
57.	Putnam Invst Mgmt	42,904.2	29.40	54	52	34	56	28	800-225-1581
58.	Manning & Napier Adv	15,799.4	29.36	57	55	36	45	56	800-466-3863

FUND RANKING: World Equity | Mixed Equity | Taxable Bond | Tax-Exempt Bond | Phone Number

15	11	57	6	800-342-5236
30				
14				
22				
8				
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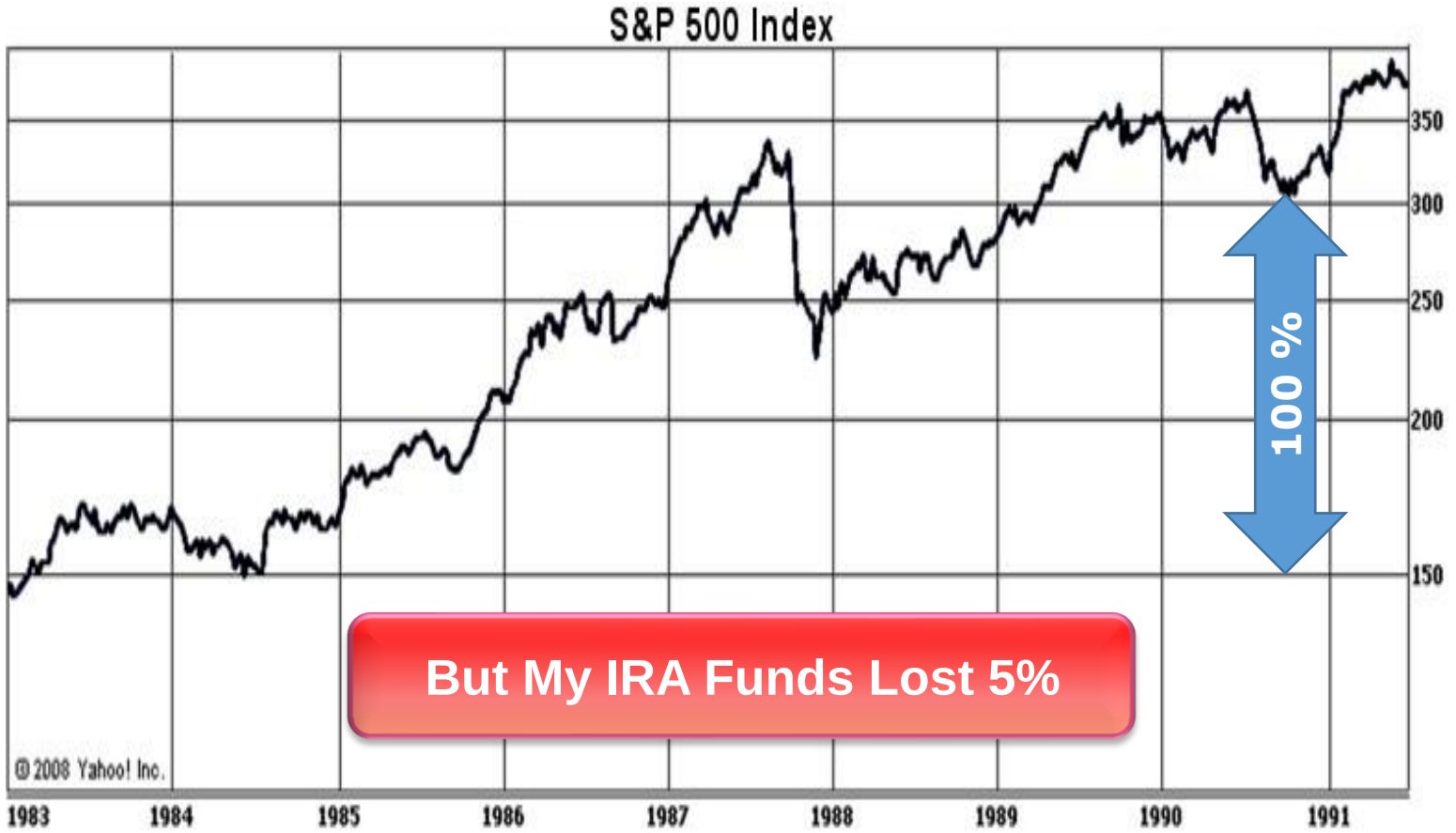
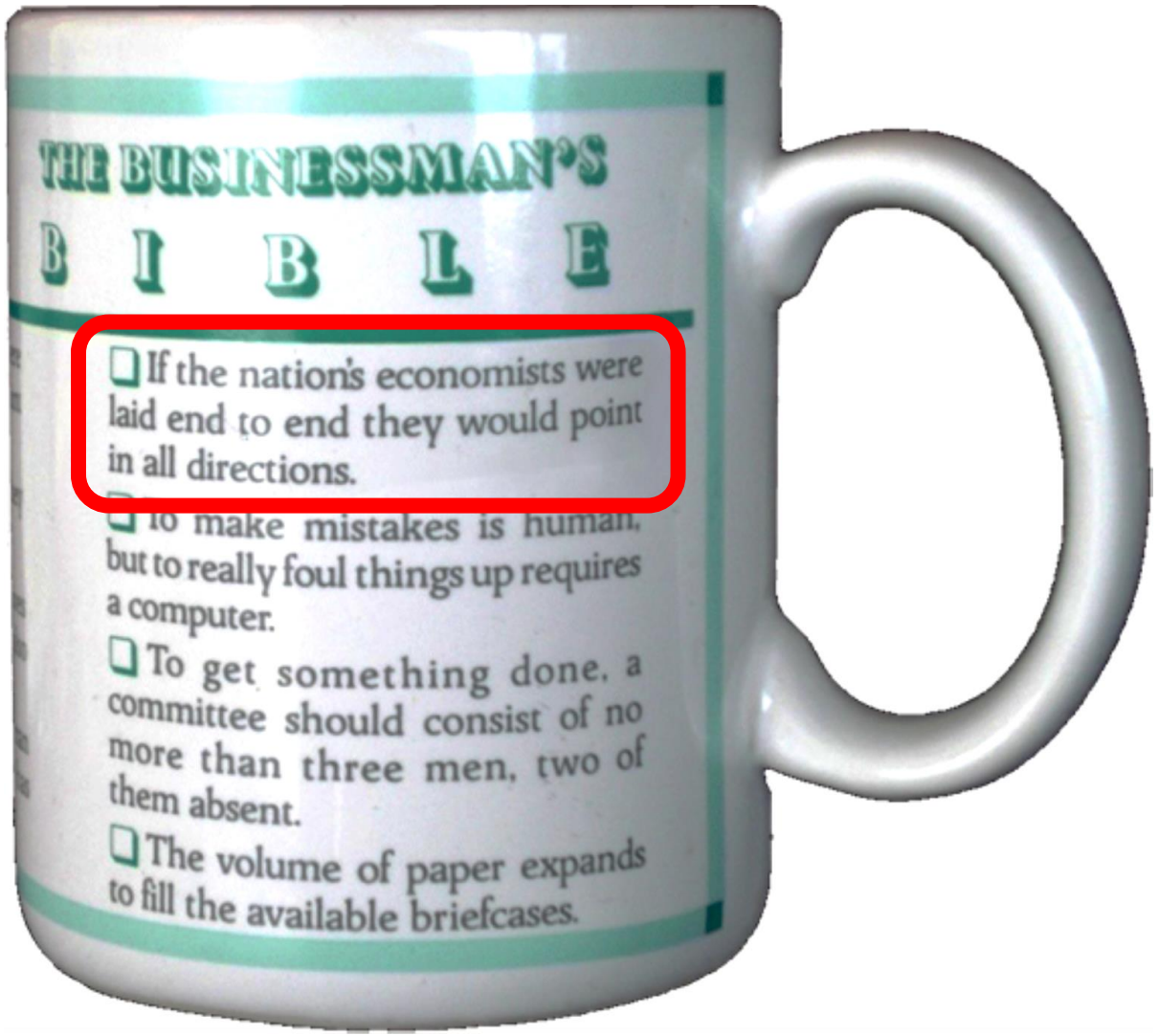
My 1st Momentum Strategy
Late 1980s



But My IRA Funds Lost 5%

Advice From Experts?

Advice From Experts?



Experts do Point in All Directions

Inherently a 50-50 Crap Shoot For Market Prediction

The Advice Problem

Mass Hypnotism

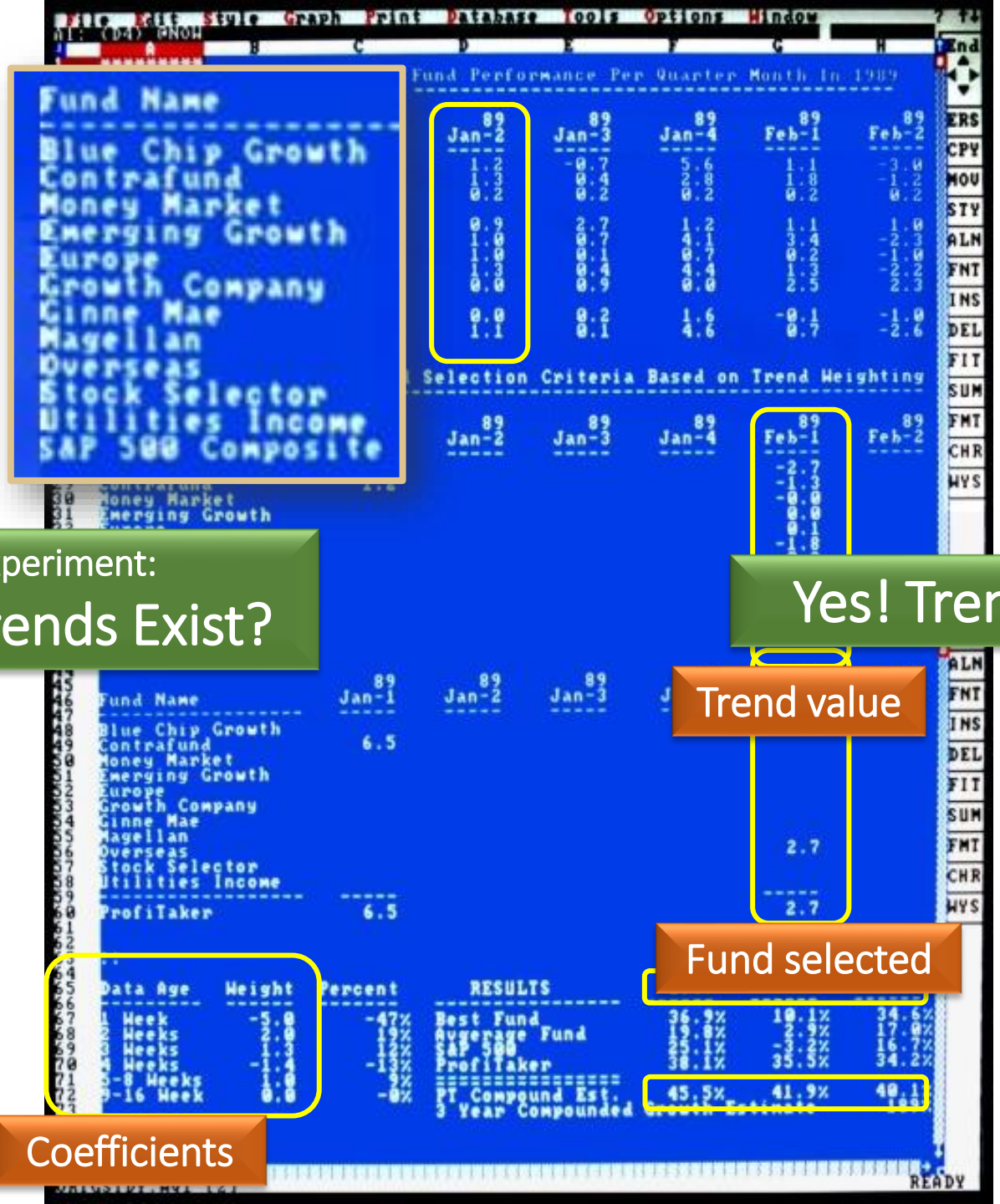
What About the Data?

Does Recent Market Data
Hold Clues for Future Prices?

Do Price Trends Exist?

1992 Spreadsheet Experiment:

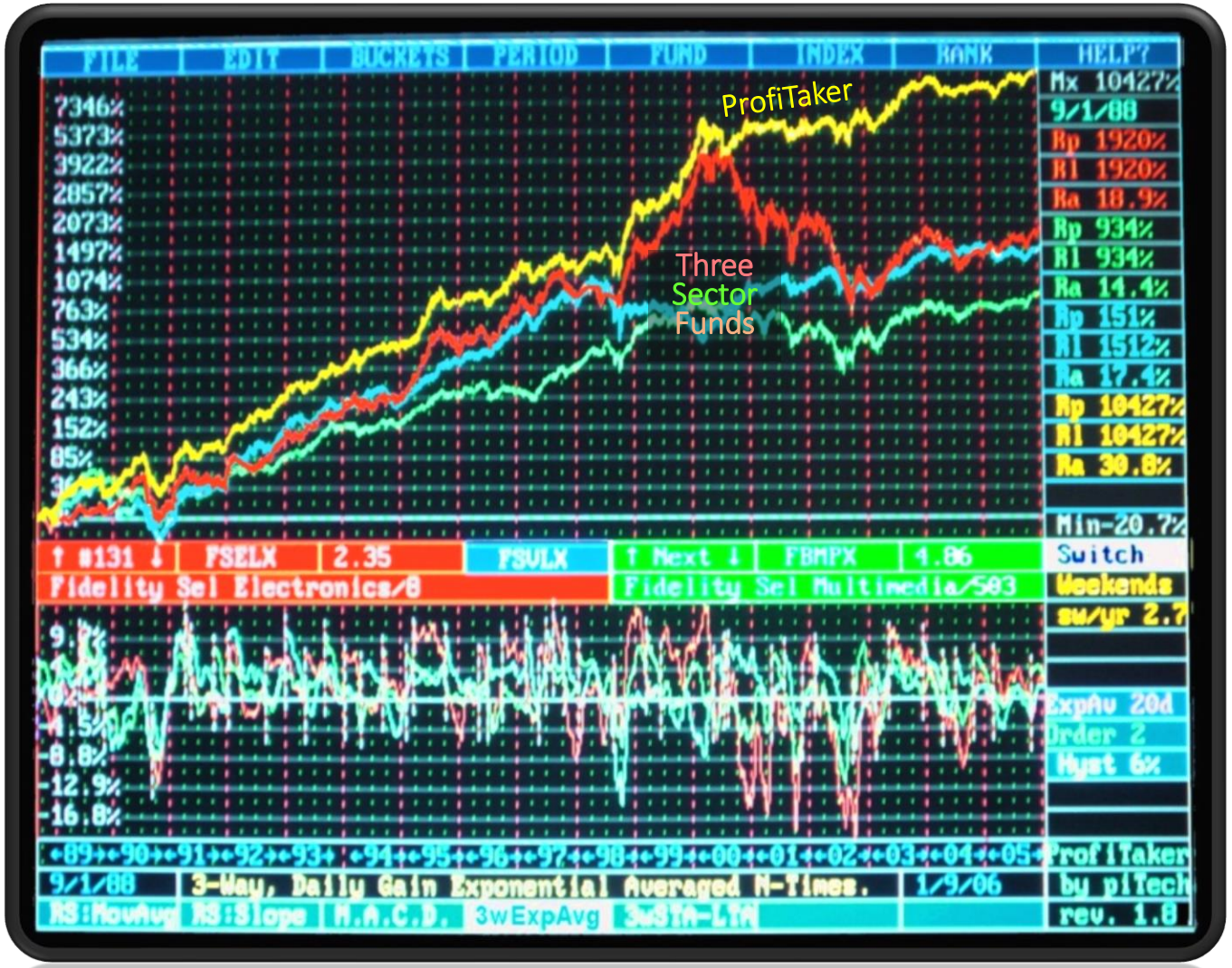
Do Market Data Trends Exist?



Yes! Trends Exist.

SectorSurfer Development

ProfiTaker for DOS – 1996



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Seattle WA

2010

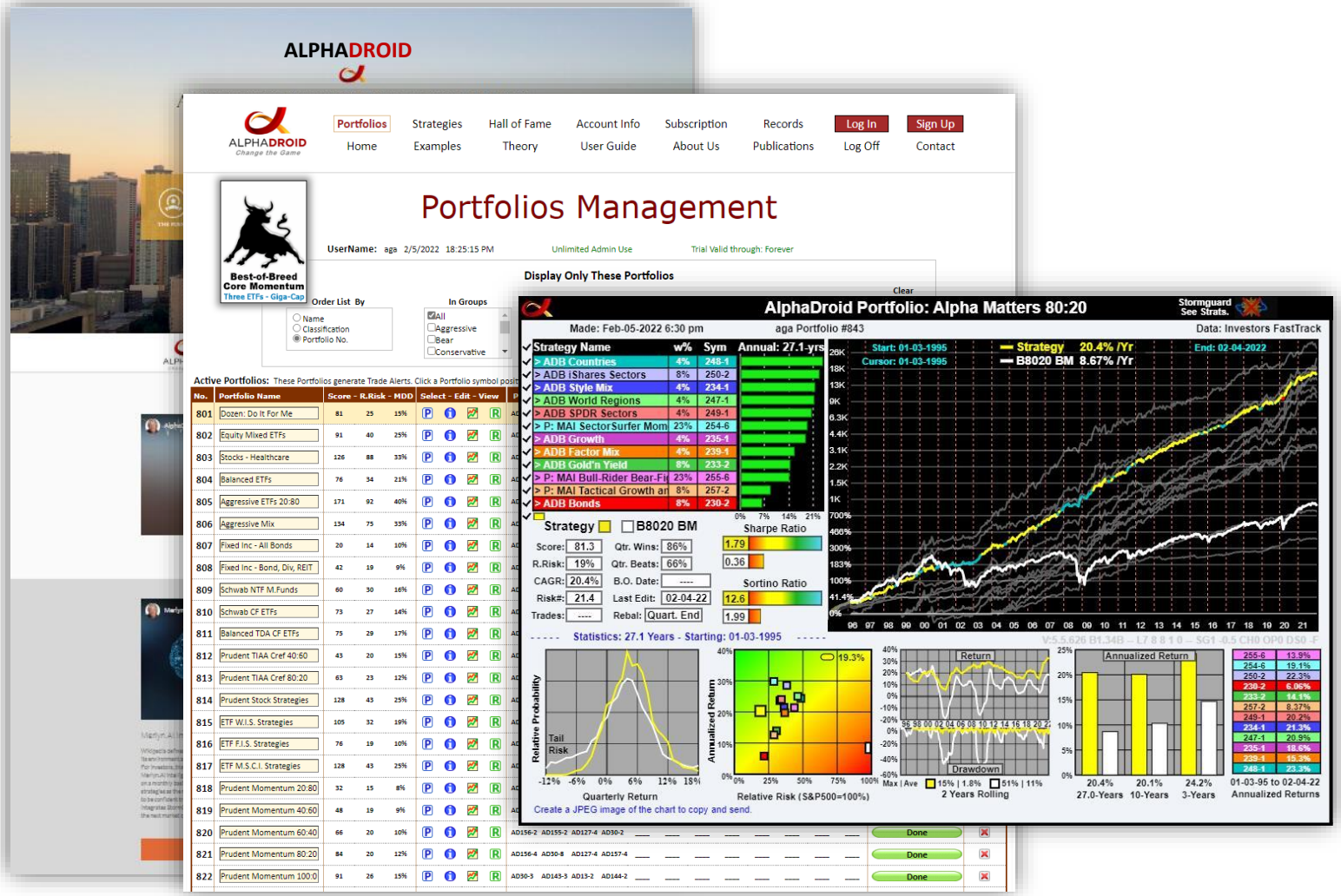
Subscription Service – Individuals

SumGrowth Strategies, LLC

Seattle WA

2010
Subscription Service – Individuals

2017
Subscription Service – Advisors



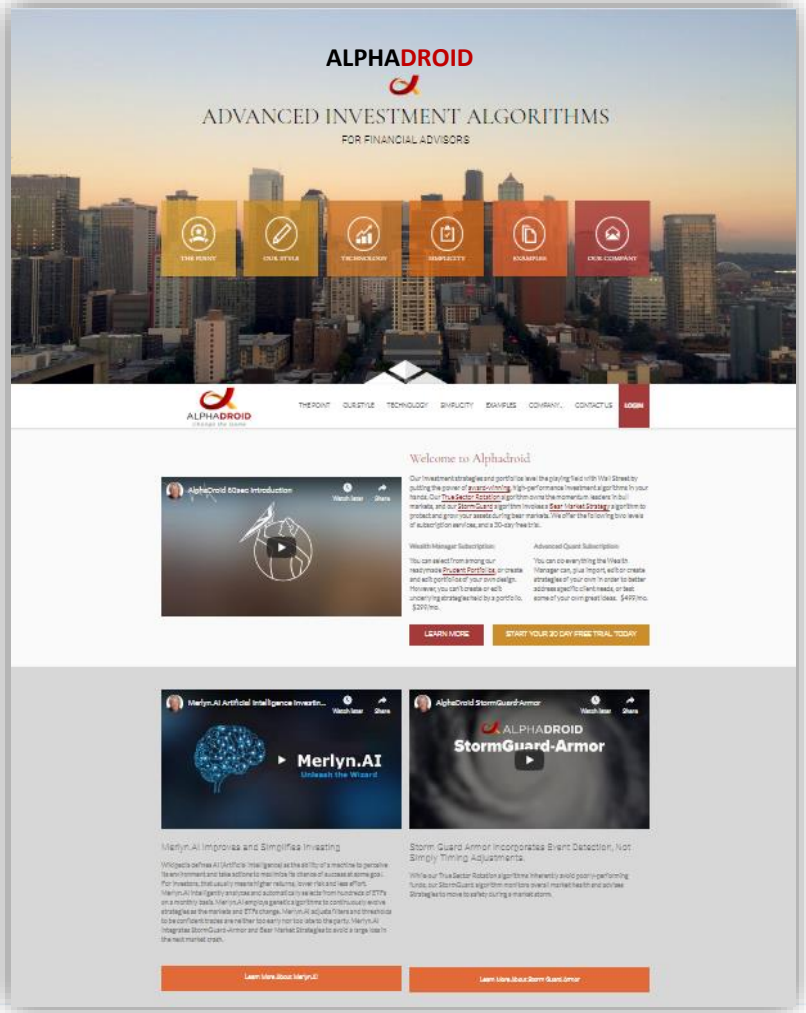
SumGrowth Strategies, LLC

Seattle WA

2010
Subscription Service – Individuals

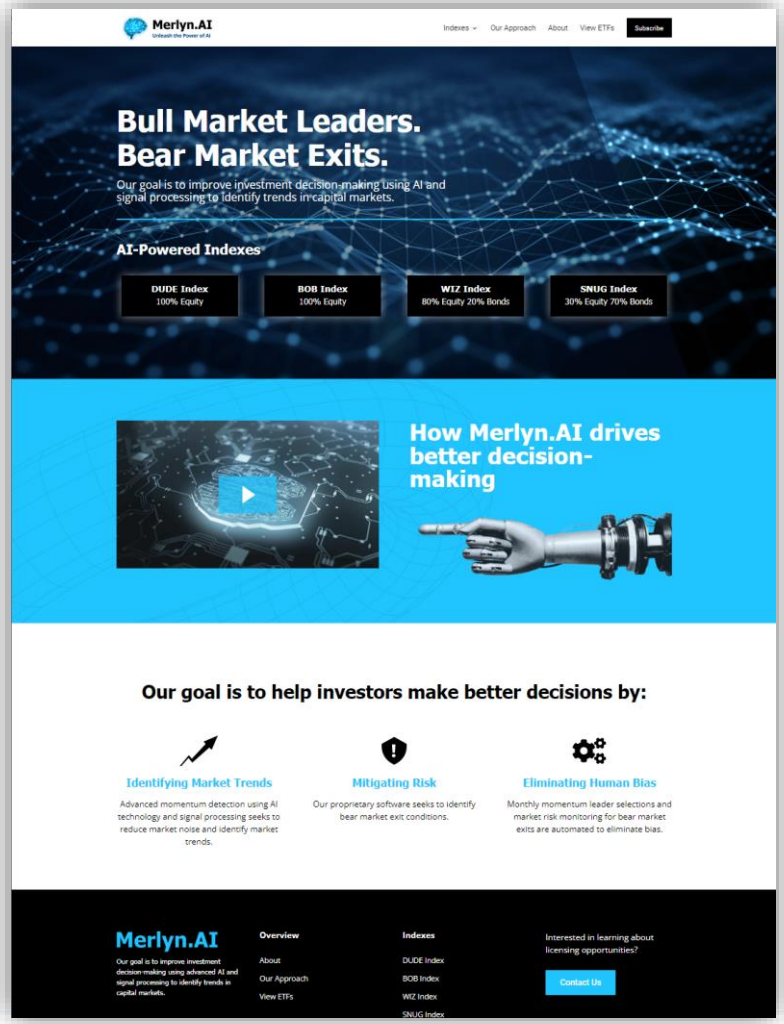
www.SectorSurfer.com

2017
Subscription Service – Advisors



www.AlphaDroid.com

2019
Index Provider to Merlyn.AI



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Perspective: Is It "Deja Vu All Over Again?"

Sept. 29, 2022

Overview: Worse than a Normal Recession?

The S&P500 lost 15% since the Bear Market Rally peaked in mid-August, and has just retested the mid-June market low and today is heading lower. Jim Cramer of CNBC recently stated "We're now in 'good news is bad news' mode, because the Fed's not going to stop bringing the pain until we see real deterioration." Morgan Stanley strategists warned on Monday that the recent rally in the U.S. dollar is creating an "untenable situation" for riskier assets that could end in a financial or economic crisis. Morgan Stanley further warned on Wednesday that a corporate earnings recession may be coming that could be worse than a "normal" recession. Until the VIX volatility indicator exceeds 40, professional traders generally won't believe there has been sufficient capitulation to confirm a market bottom. Currently the VIX is at about 30, indicating that the market bottom is quite likely lower. Slowing the economy means business revenues drop, earnings shrink, and stock prices follow suit. **Similarities to 2008 abound. Buckle up and "Don't fight the Fed."**

Buckle Up Options

Our StormGuard indicator remains negative and is declining. Unfortunately, proficiently buckling up in 2022 has been quite a challenge – sharply rising interest rates have pummeled bond and treasury funds concurrent with the ongoing decline in the equities market. Many professionals are beginning to question the future viability of the classic 60/40 portfolio. The BlackRock 60/40 Target Allocation Fund (BIGPX), for example, is now down 20.6% YTD. Even the SPDR Gold ETF (GLD) has declined similarly over the past 7 months.

The 10% summer rally in long-term Treasuries was among factors that led a number of our Bear Market Strategies to select from this category in September. However, the Fed surprised many in September with the seriousness of its hawkish stance on inflation and interest rate hikes resulting in the further decline in bonds and treasuries. The two primary options for buckling up are described below.

Buckle Up - Basic

While StormGuard seeks to determine when equities markets appear to be bullish or bearish, the purpose of a Bear Market Strategy is to evaluate defensive fund candidates when StormGuard is triggered. We have recently reviewed our many posted Bear Market Strategies (that you may integrate into your own equity Strategies) to ensure their defensive candidates include a robust range of short-term to long-term bond options. At this time, it appears that the more stable shorter-term bond candidates will be favored. If your Strategies employ an integrated Bear Market Strategy you are buckled up.

What Lies Ahead?

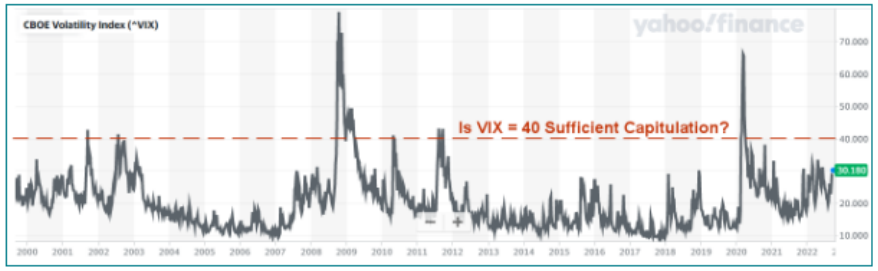
Parking a car with precision would be virtually impossible if there were only a few seconds of delay in your visual perception. Given that most economic indicators have one to six months of lag in response to stimulative action taken by the Fed or Congress, by the time economic indicators are reported and actionable, economic reality is already a few months further down the road. That, by itself, makes a soft landing virtually impossible. On August 31, it was unknown whether or not the market would retest the June lows. Today the S&P500 broke through the June low for a second time this week, resulting in a new 2022 market low. Still, having had no sign of capitulation but having steadily deteriorating economic news, it appears that the market is poised for another leg down.

Three Hypothetical Technical Support Levels for the Market

VIX History

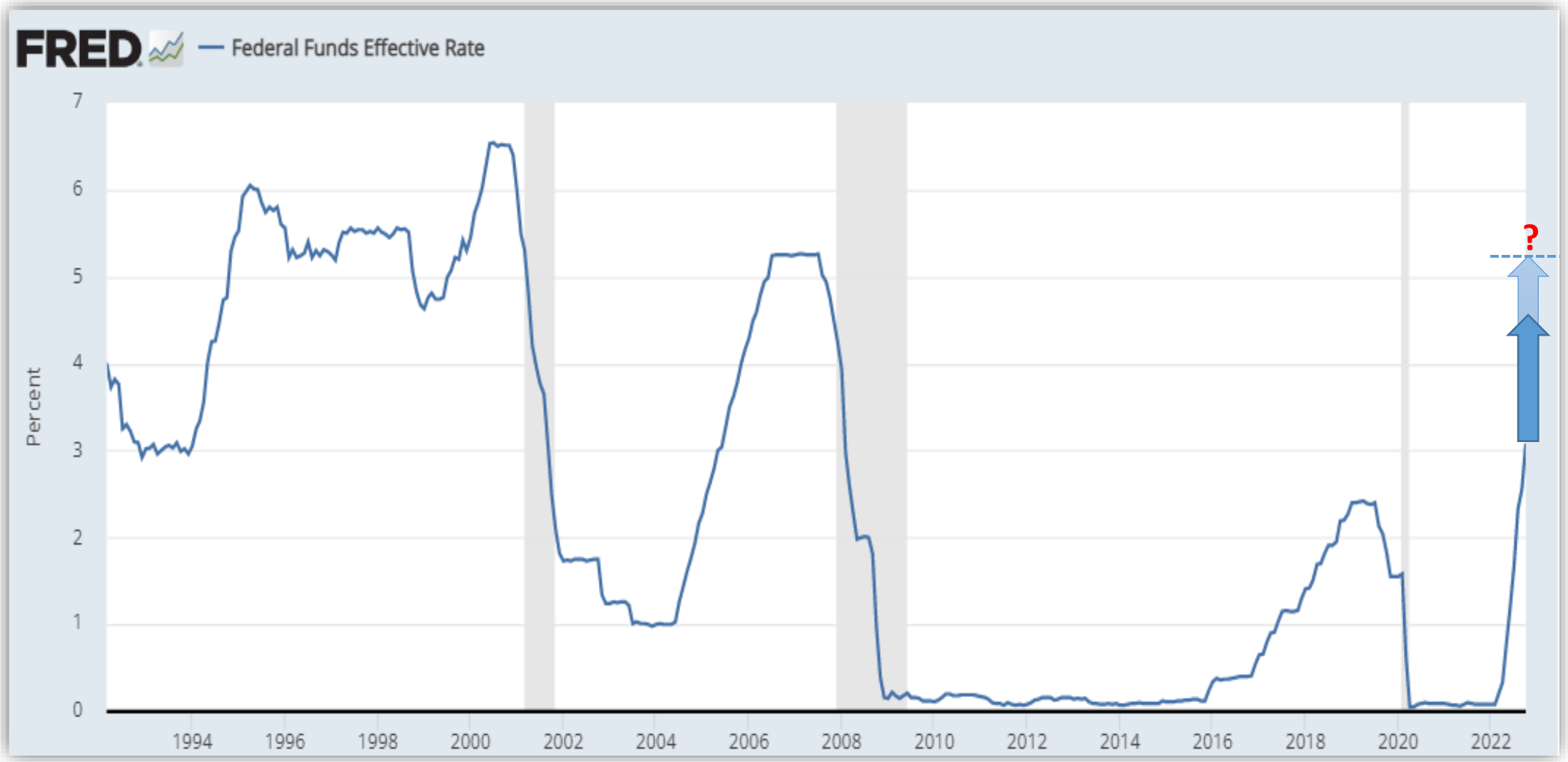
When the VIX Volatility Index exceeds 40, it is believed to be a sign of capitulation indicating fear is rampant and rapidly declining prices are producing margin calls in over-leveraged accounts.

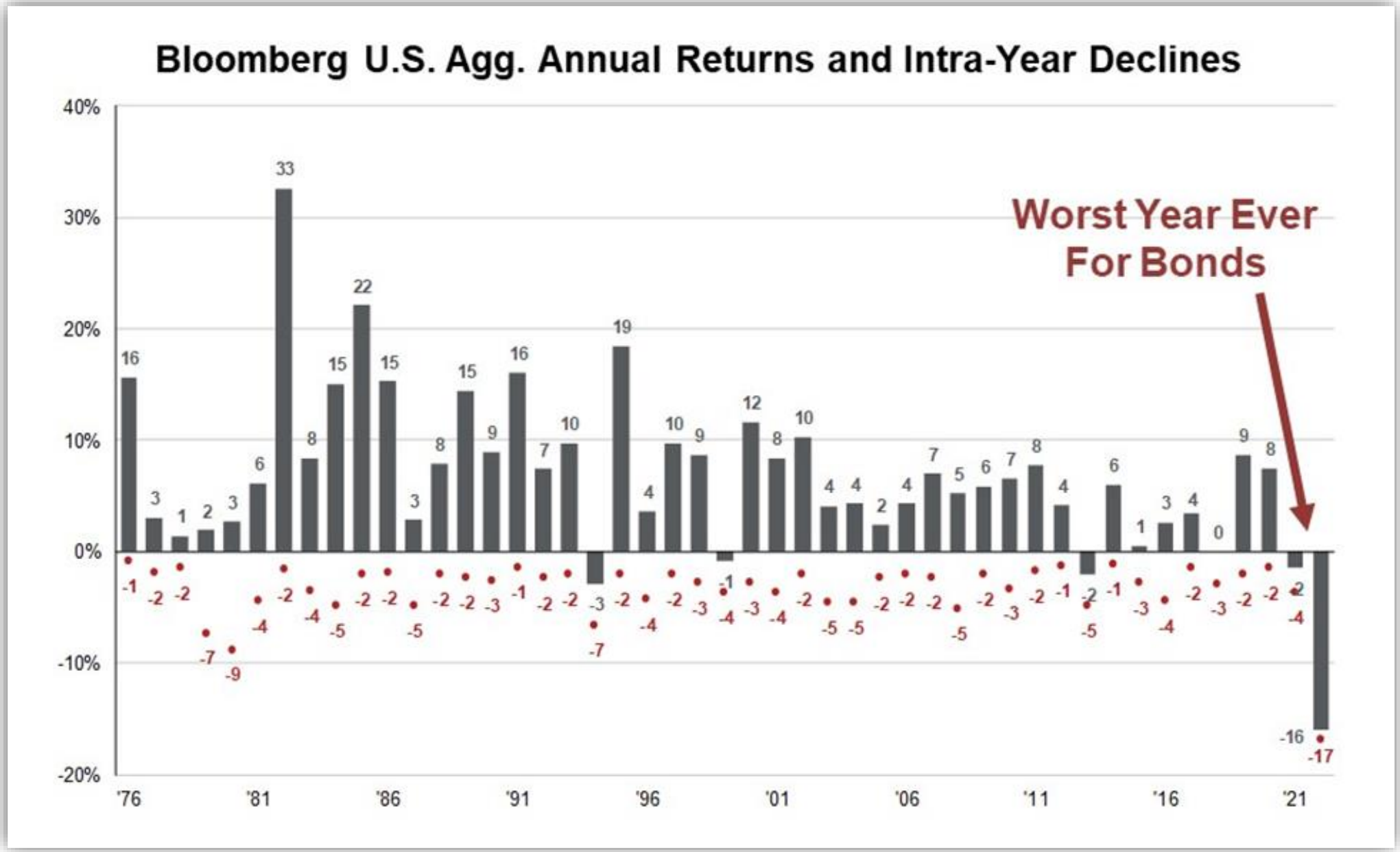
VIX Volatility Index



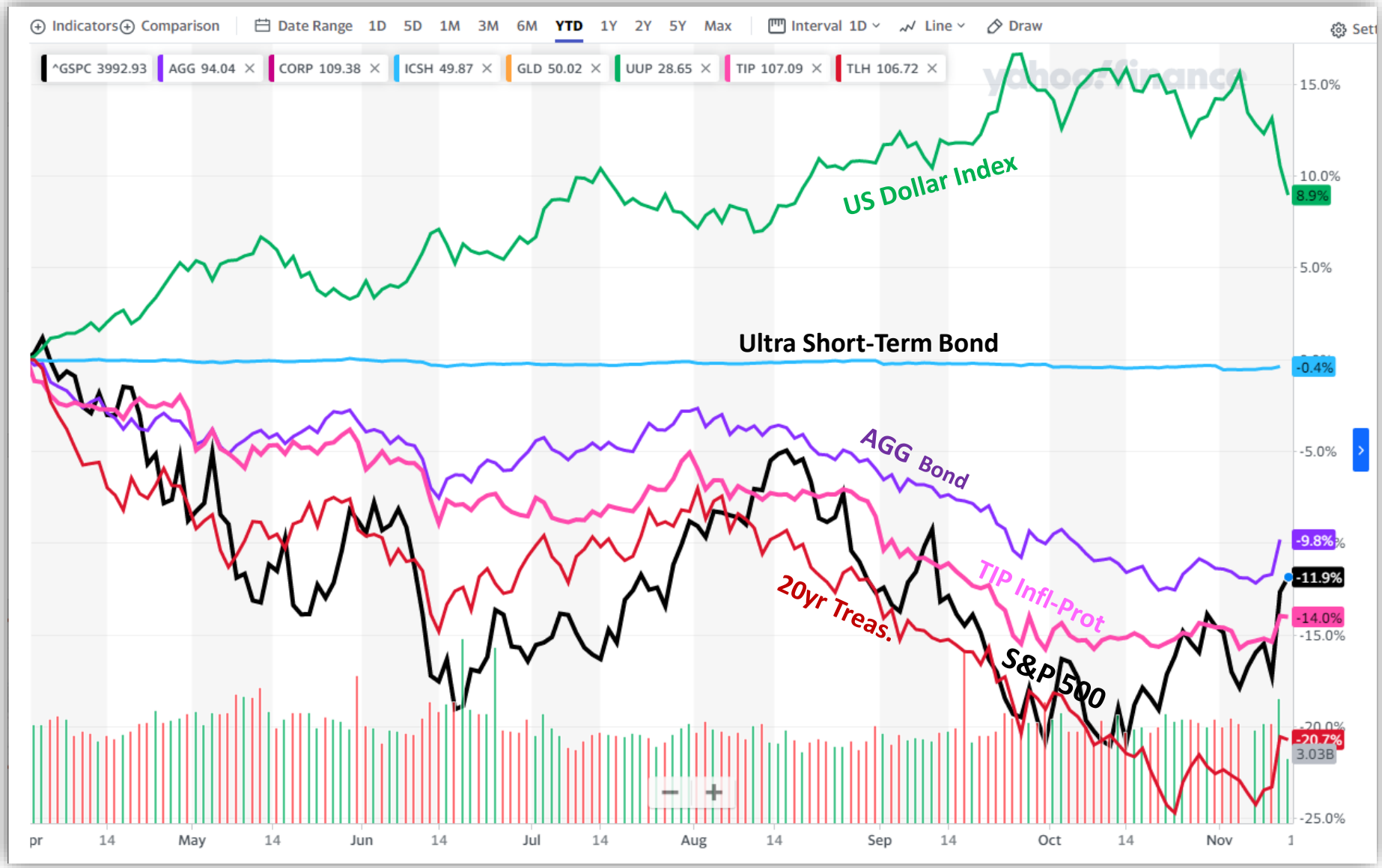
Backdrop for Today's Discussion:

Federal Funds Rate – Sharp Rise ⇨ Bonds Drop

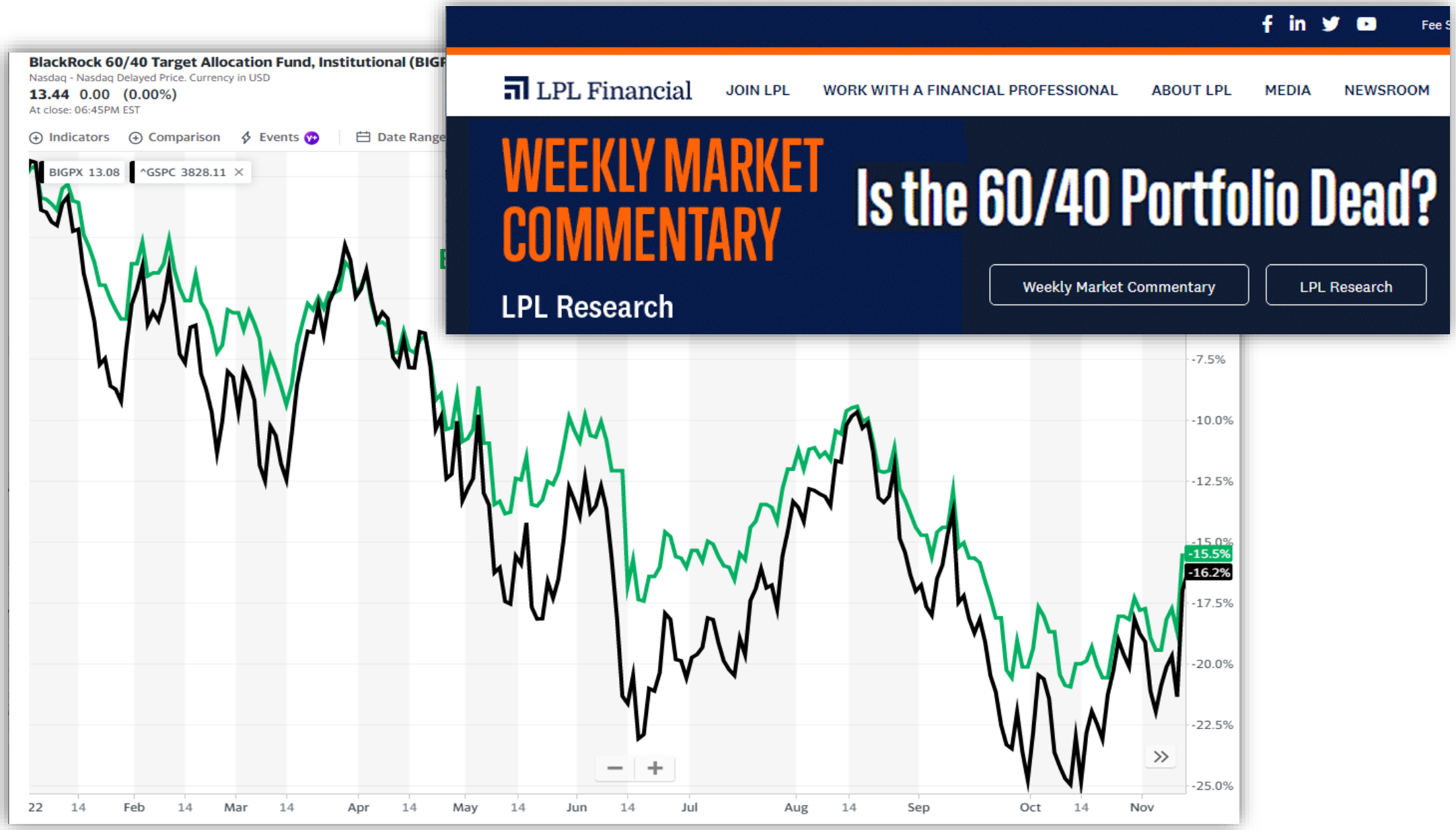



Bloomberg U.S. Agg. Annual Returns and Intra-Year Declines
Worst Year Ever For Bonds
40%
30%
20%
10%
0%
-10%
-20%
'76
'81
'86
'91
'96
'01
'06
'11
'16
'21

YTD 2022 - Defensive Funds

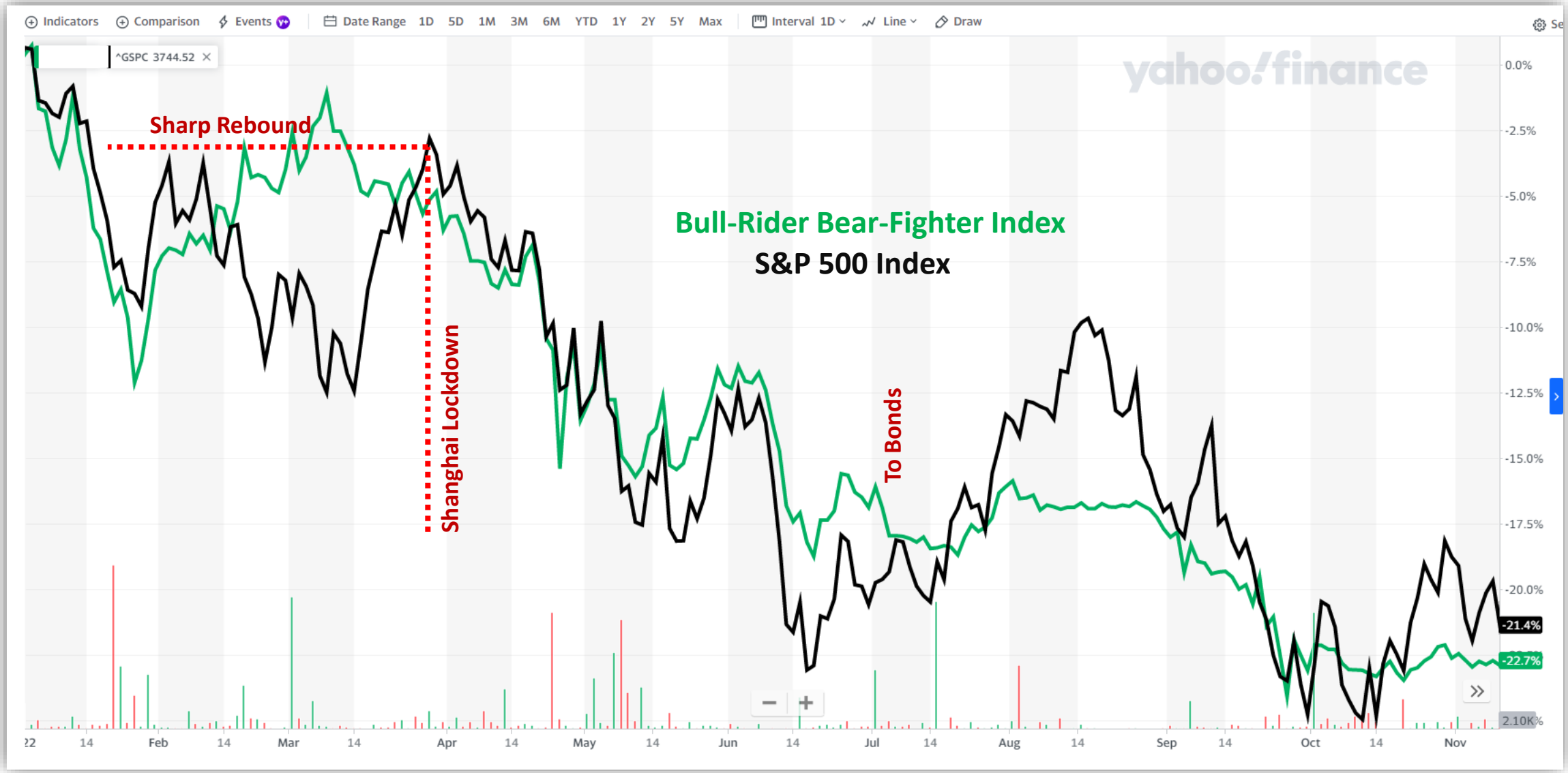


Standard 60/40 Portfolio – YTD 2020

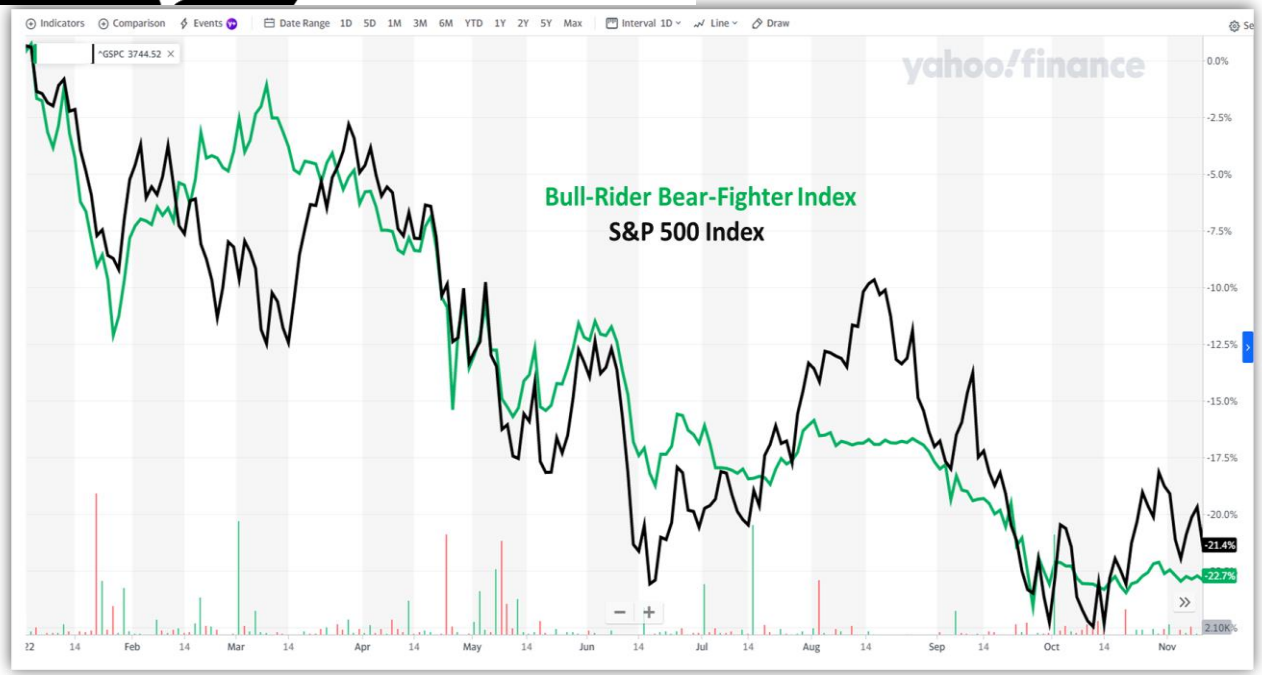


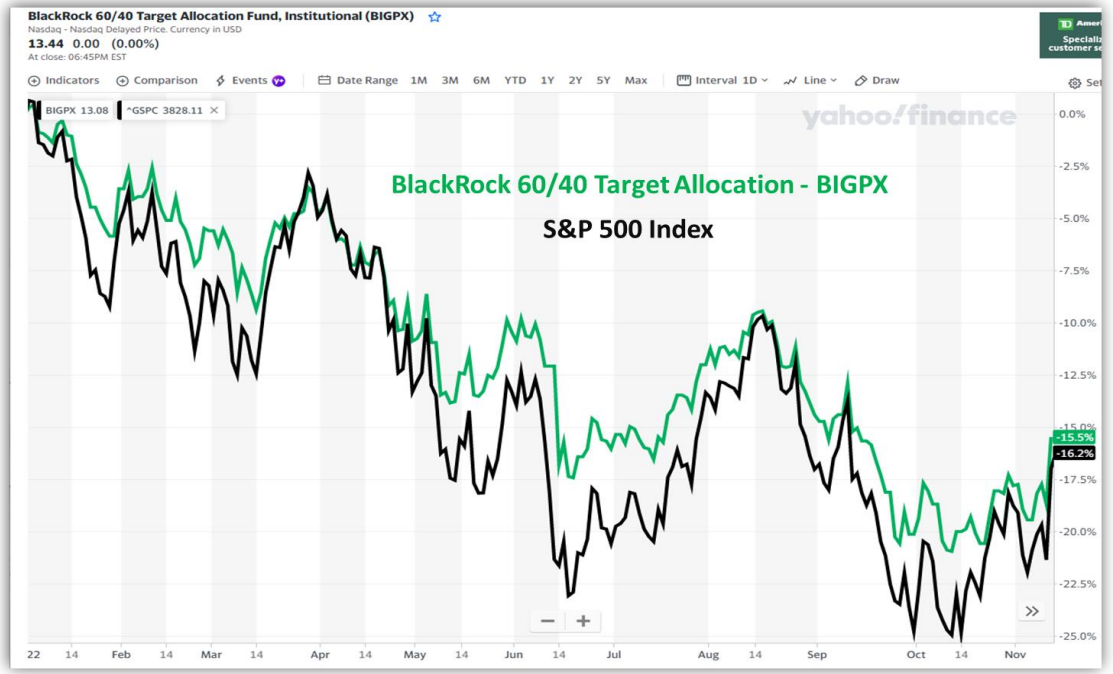
Bull-Rider Bear-Fighter Index

YTD to 11/9/2022



Hey!
These Aren't Working!
Will Someone Please Fix It?





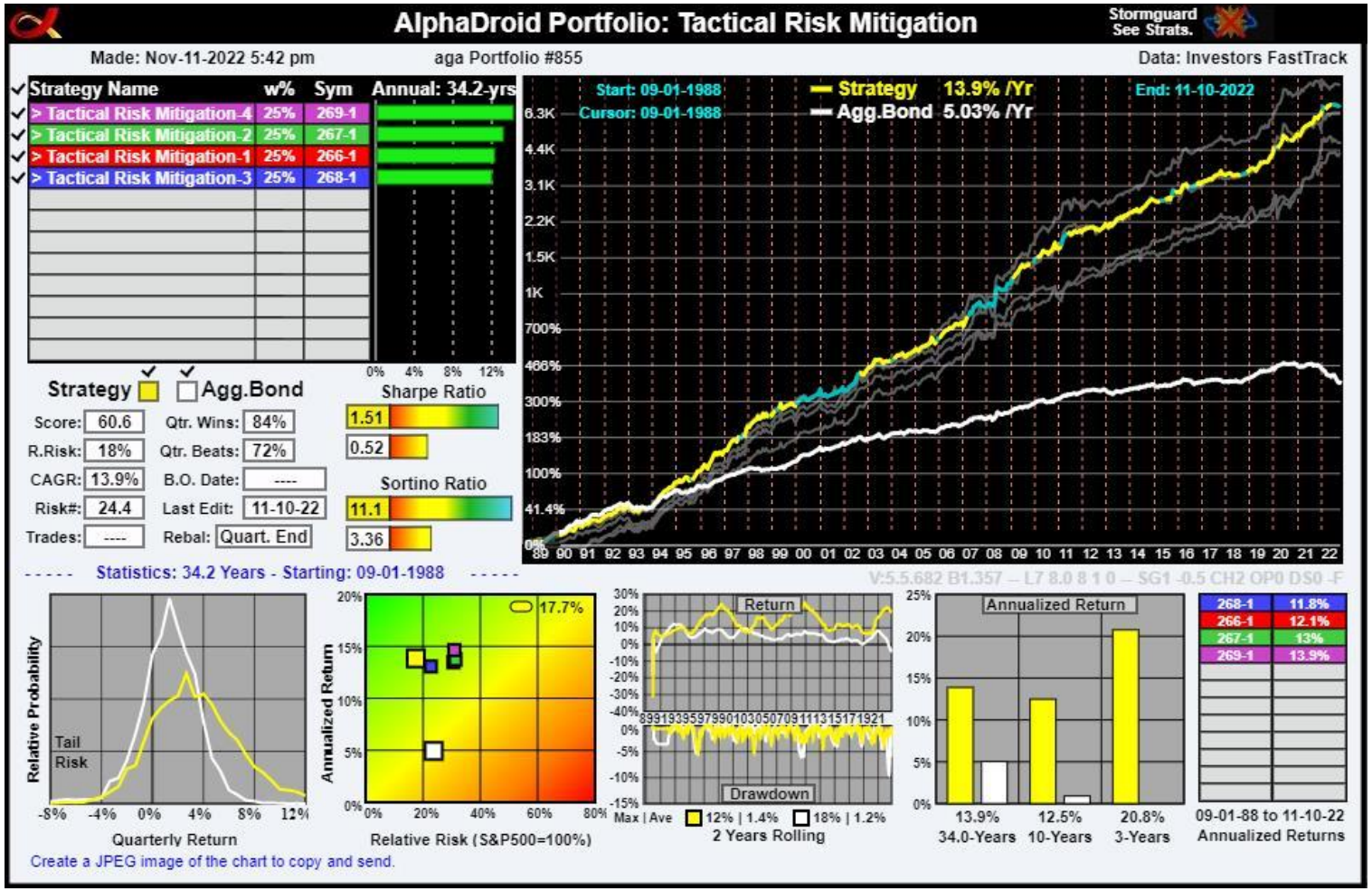
You Asked For

More Safety!

We Went to Work!

Introducing the

Tactical Risk Mitigation Index

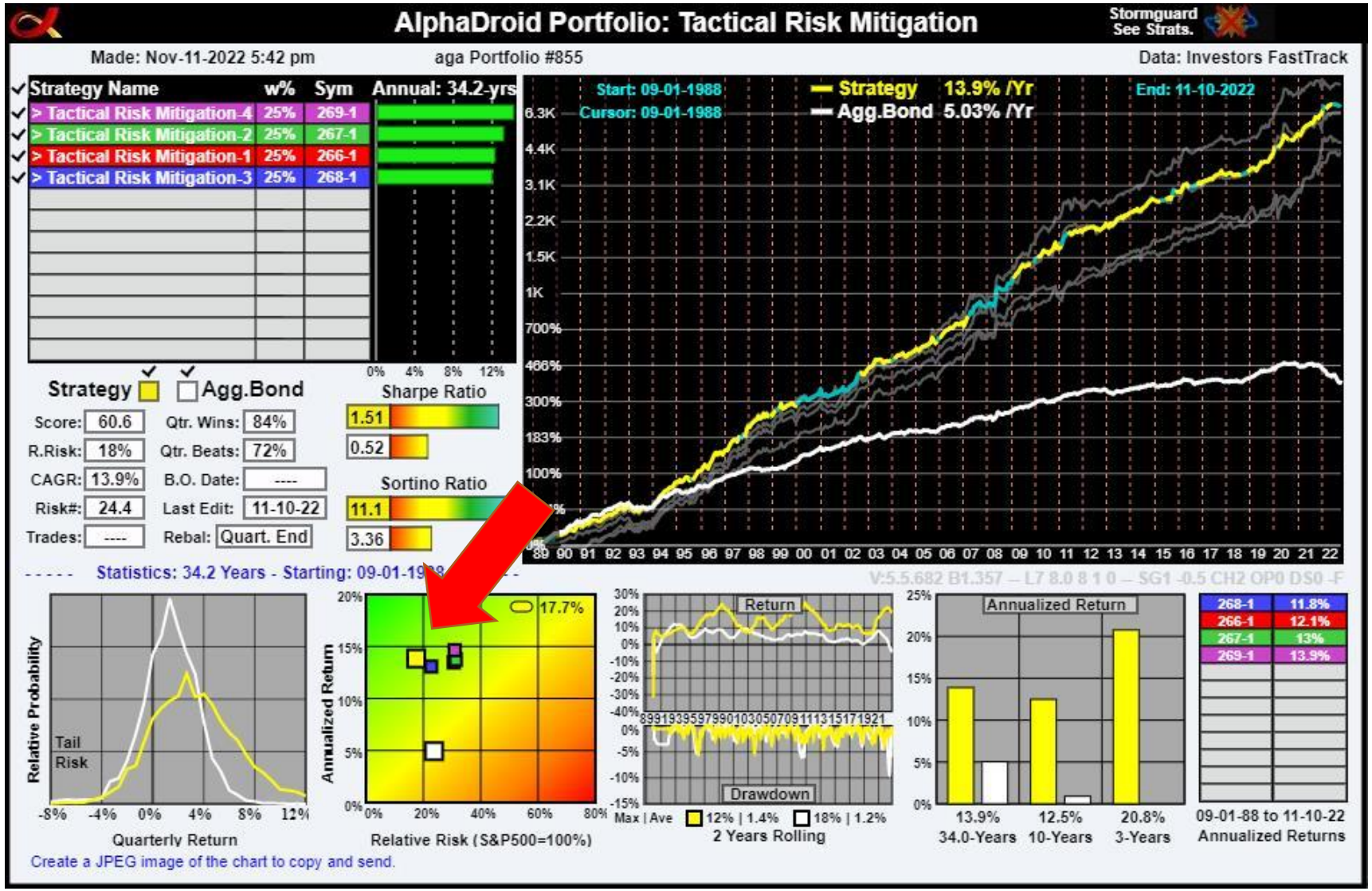


Introducing the

Tactical Risk Mitigation Index

- **Lower Risk than AGG**
- **Higher Return than SPY**
- **Best All Weather Index**

Let's Go Online



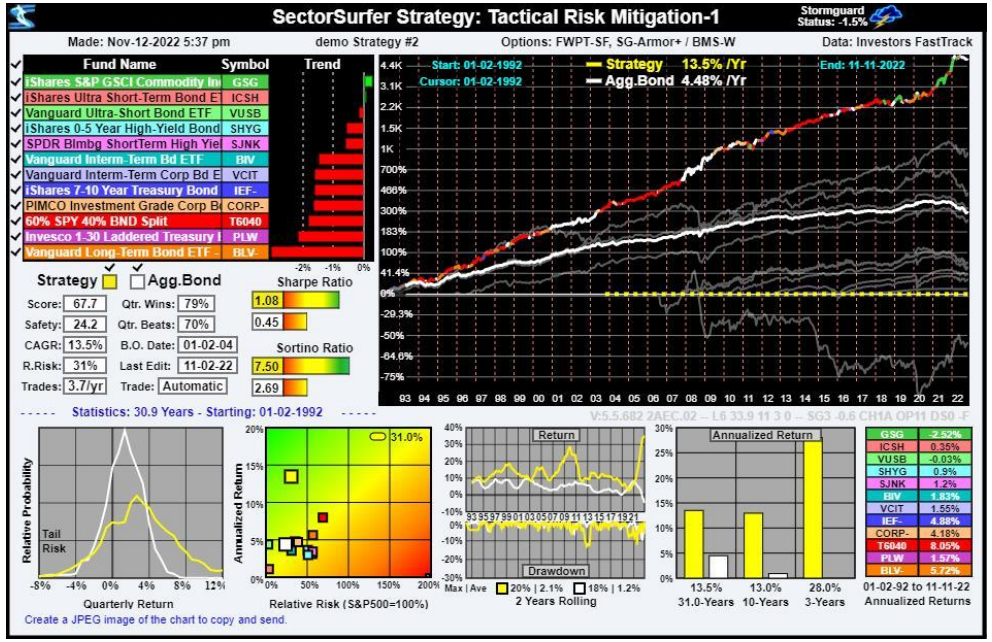
Online SectorSurfer Demo

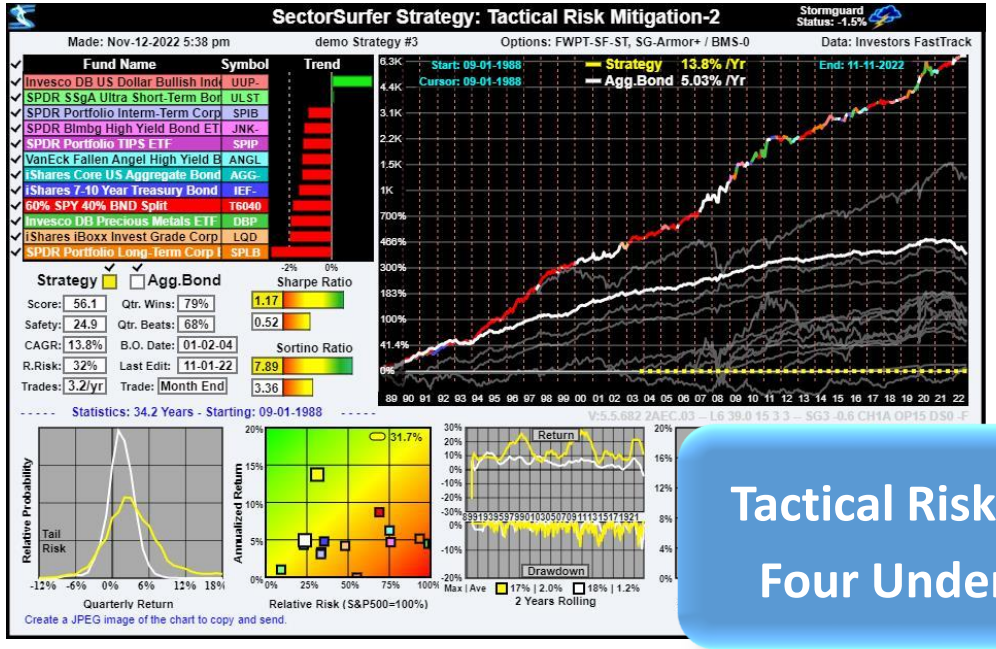
Focussed on Tactical Risk Mitigation Index

Tactical Risk Mitigation Design

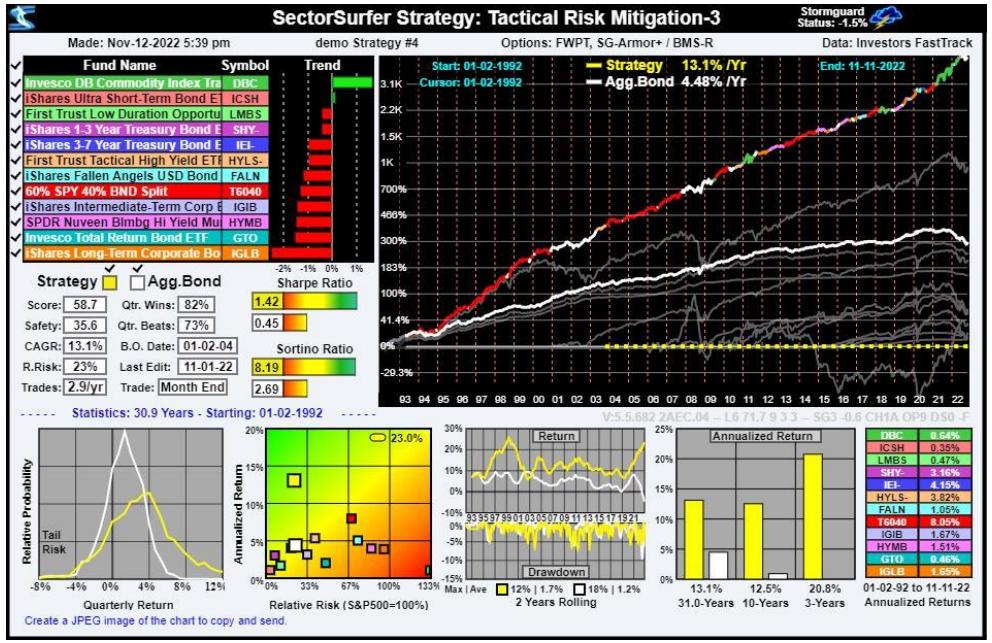
1. T6040 Backbone (Target Allocation 60% SPY 40% AGG. (Like putting on body armor to reduce injury.)
2. Backbone direct momentum-challengers: bonds, treasuries, and commodities. (Like a guard dog at the front door.)
3. StormGuard-Armor oversight override: bonds, treasuries, and commodities. (Like a guard dog at the back door.)

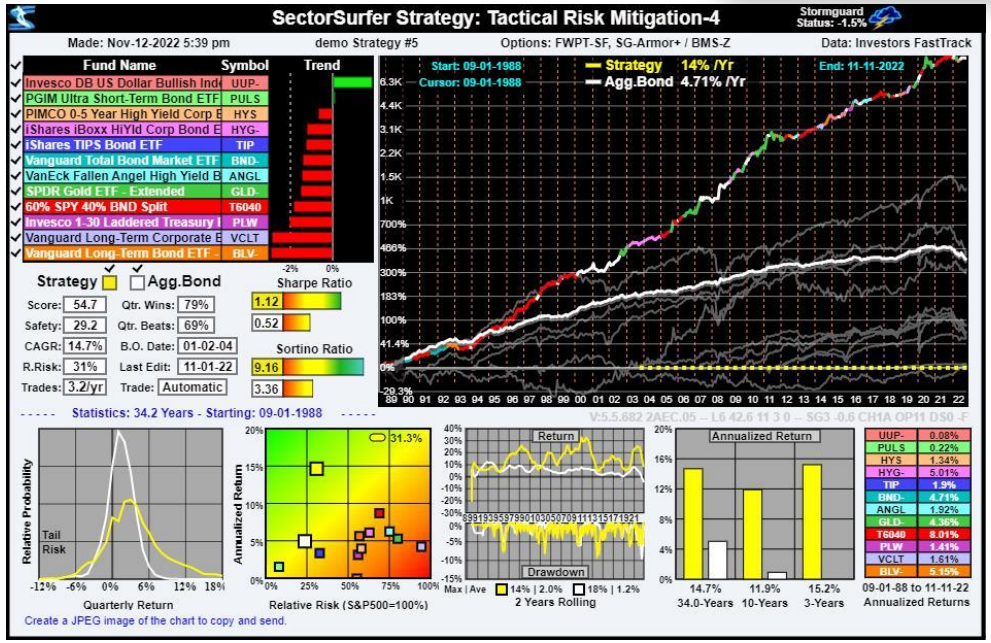
2	Name: Tactical Risk Mitigation-1		T6040	GSG	IEF-	PLW	BLV-	BIV	SELL: -New-
PAID	Score: 68 Safety: 24 MDD: 20%		VUSB	ICSH	VCIT	CORP-	SJNK	SHYG	BUY: BSV
3	Name: Tactical Risk Mitigation-2		T6040	DBP	IEF-	SPIP	SPLB	AGG-	SELL: -New-
PAID	Score: 56 Safety: 25 MDD: 17%		ULST	UUP-	SPIB	LQD	JNK-	ANGL	BUY: ICSH
4	Name: Tactical Risk Mitigation-3		T6040	DBC	IEI-	SHY-	IGLB	GTO	SELL: -New-
PAID	Score: 59 Safety: 36 MDD: 12%		LMBS	ICSH	IGIB	HYLS-	HYMB	FALN	BUY: MINT
5	Name: Tactical Risk Mitigation-4		T6040	GLD-	TIP	PLW	BLV-	BND-	SELL: -New-
PAID	Score: 55 Safety: 29 MDD: 14%		PULS	UUP-	VCLT	HYS	HYG-	ANGL	BUY: MINT
6	Name: P: Tactical Risk Mitigation Index		SSS2	SSS3	SSS4	SSS5	____	____	SELL: -New-
FREE	Score: 61 Safety: 62 MDD: 12%		____	____	____	____	____	____	BUY: Rebal

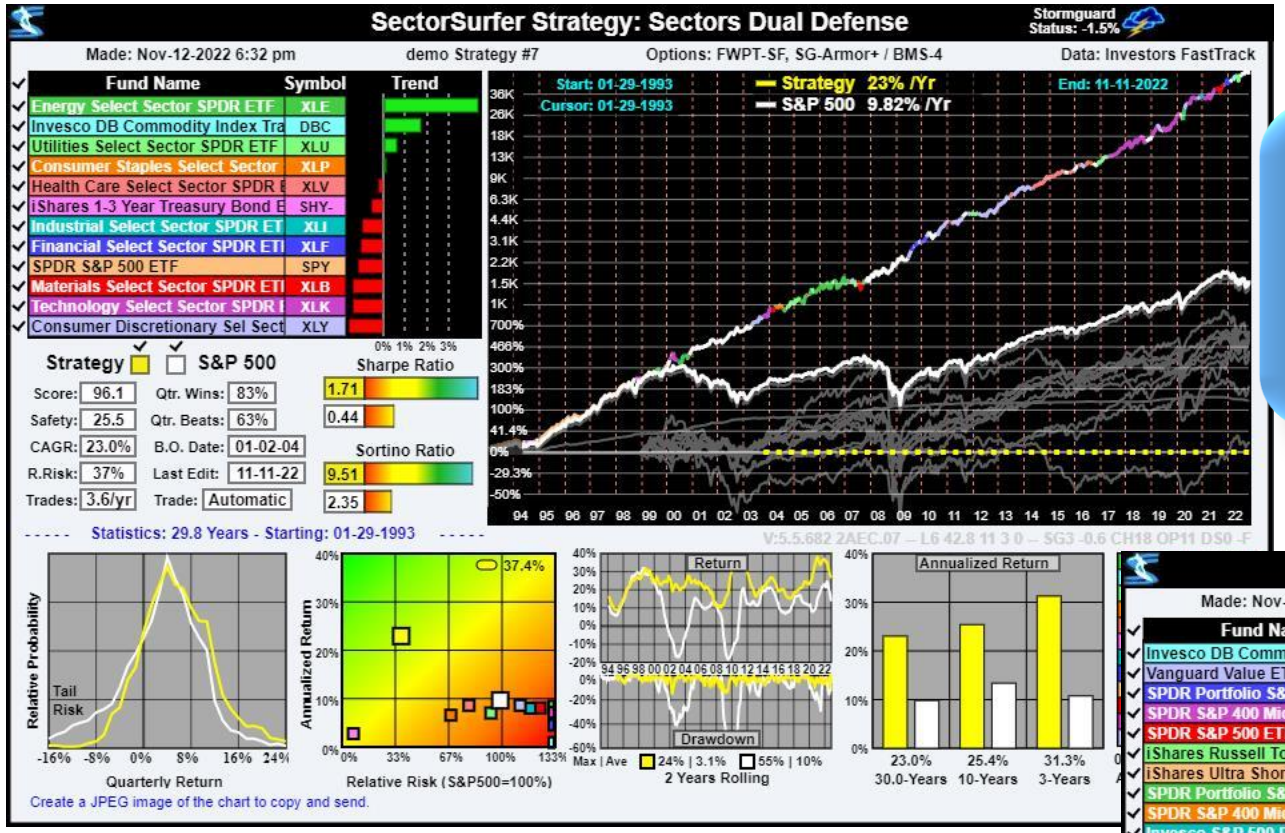




Tactical Risk Mitigation Index
Four Underlying Strategies





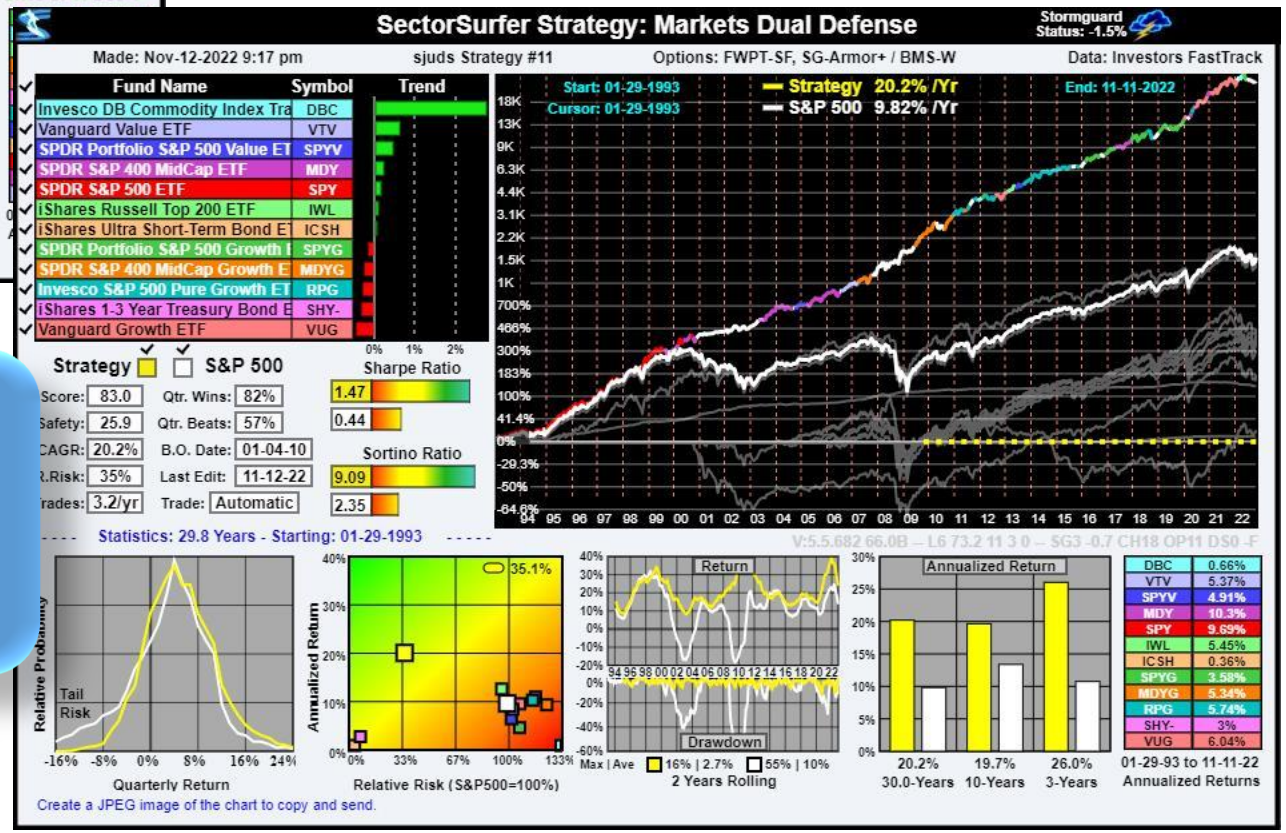


Sectors Dual Defense Strategy:

- Based on the original SPDR-9 Sectors

1st Defense: StormGuard-Armor BMS-W

2nd Defense: Direct Momentum Challenge with DBC, SHY, and SPY



Markets Dual Defense Strategy:

- Based on mid, large, value, growth ETFs

1st Defense: StormGuard-Armor BMS-W

2nd Defense: Direct Momentum Challenge with DBC, ICSH, and SHY

ALPHA DROID
Change the Game

Alpha Daily Brief

Heat Map, Risk Avoidance, and Portfolio Tools

ALPHA: the additional return of an investment over the S&P500 after adjustment for risk.

Risk Avoidance

Risk is Not a One-Dimensional Problem

-1.55%

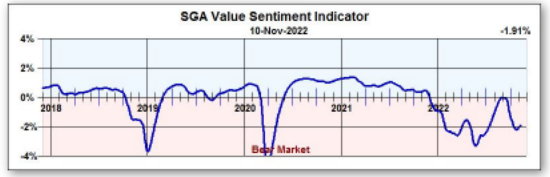
Please Read Narrative Below

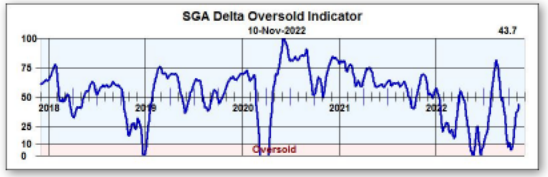
0-5 Years | 5-10 Years | 10-20 Years | 20-30 Years

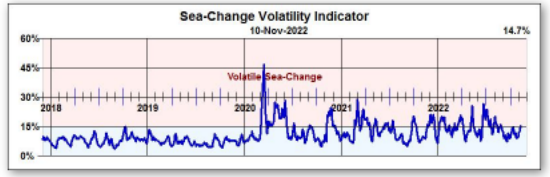
Explore

- A Quick Video Tour
- StormGuard-Armor
- Black Swan Vaccination
- Bear Market Strategies
- StormGuardData.csv

Click a chart below to expand it.





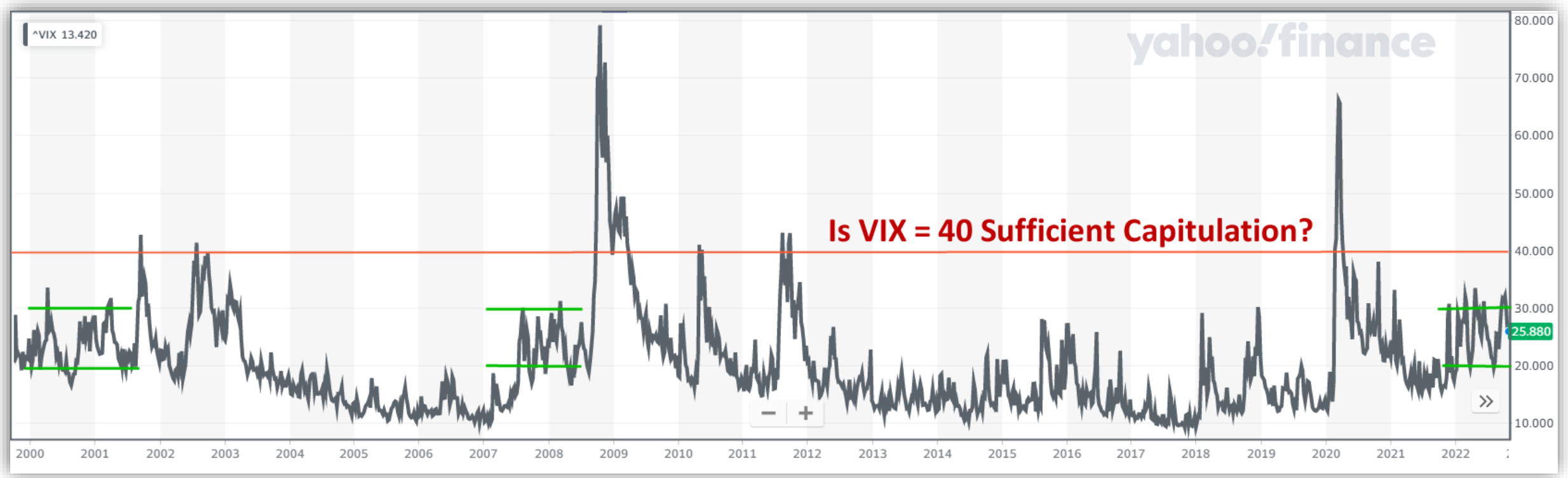


Narrative: StormGuard-Armor has formally triggered for month-end traded Strategies and its designated defensive Bear Market Strategy will be employed. The market is now in a "Prolonged Bear" condition, which will persist until both the Price-Trend and Institutional Momentum Indicators turn positive and drive the SG-Armor Indicator positive. NOTE: StormGuard-Armor, like a smoke alarm, is not perfectly clairvoyant but helps improve your long-term batting average.

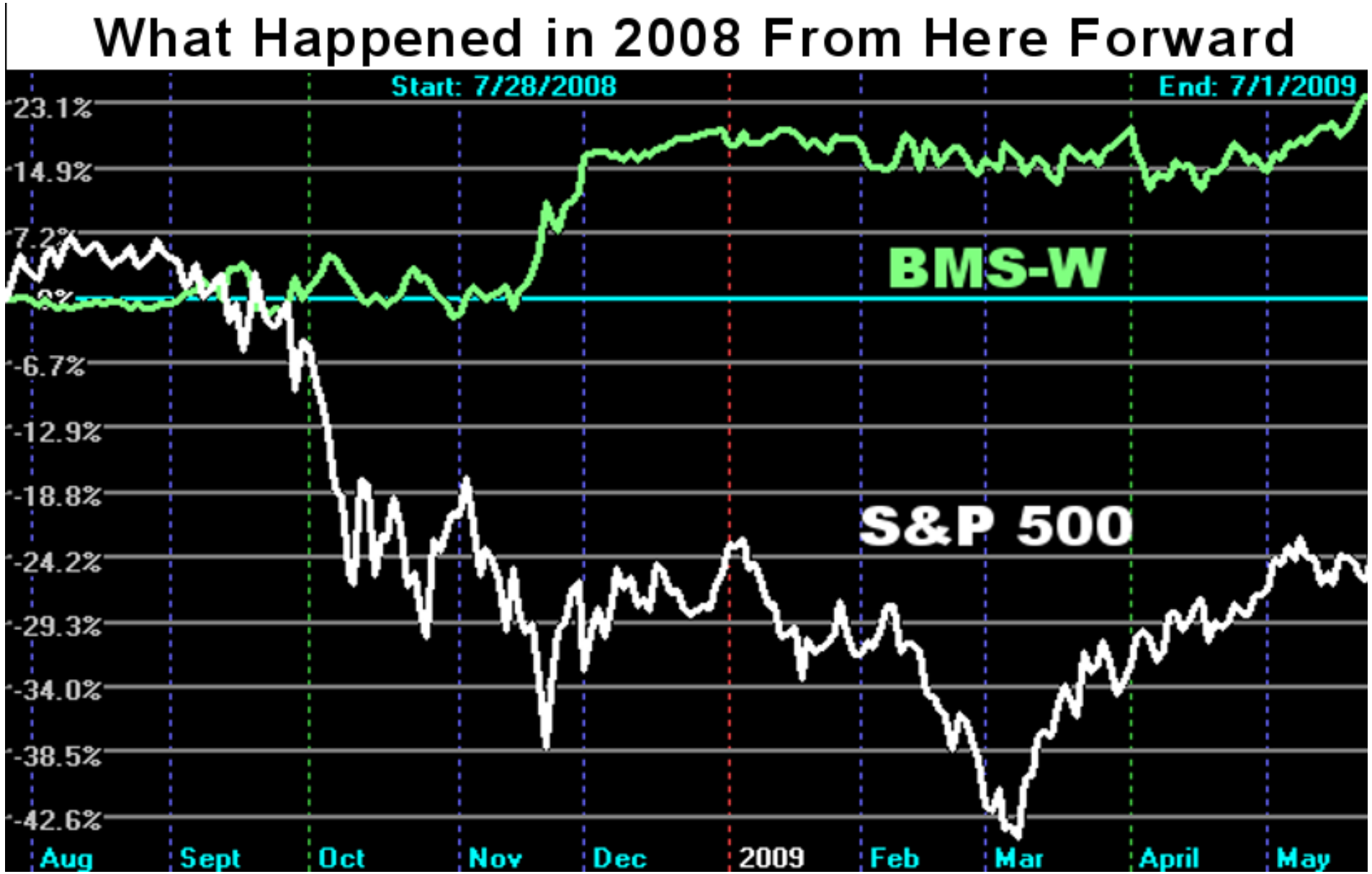
VIX-40 Capitulation?

Was Inflation Response a Head Fake?

- AI now reads the inflation news and trades instantly!
- What about bull rebound hardening resolve of the Fed?
- What about need to drain excess cash and fear for jobs?
- What about energy tight supply & inflation this winter?
- What about Fed hikes hurting Xmas sales/earnings/price?



2008 All Over Again?


What Happened in 2008 From Here Forward
Start: 7/28/2008
End: 7/1/2009
23.1%
14.9%
7.2%
-6.7%
-12.9%
-18.8%
-24.2%
-29.3%
-34.0%
-38.5%
-42.6%
BMS-W
S&P 500
Aug
Sept
Oct
Nov
Dec
2009
Feb
Mar
April
May

5 Minute Break

Then Dive into the Tech Details

Please Check Out the Essential Videos Found Here:

https://www.alphadailybrief.com/Pages/HeatMap.aspx

https://www.alphadailybrief.com/Pages/RiskAvoidance.aspx

https://www.alphadailybrief.com/Pages/BearStrategies.aspx

https://www.merlyn.ai/

https://www.alphadailybrief.com/Pages/EssentialVideos.aspx

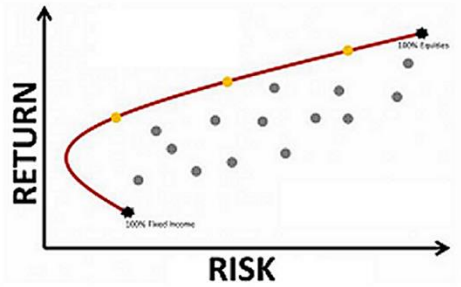
MPT: Diversify and Rebalance

The Efficient Frontier Is The Best You Can Do

Vintage 1952

65 Years Old Is Retirement Age

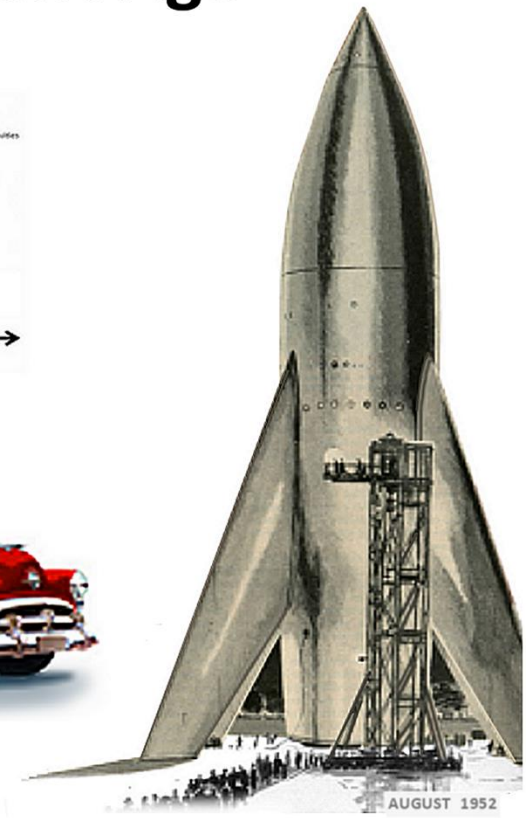
Modern Portfolio Theory



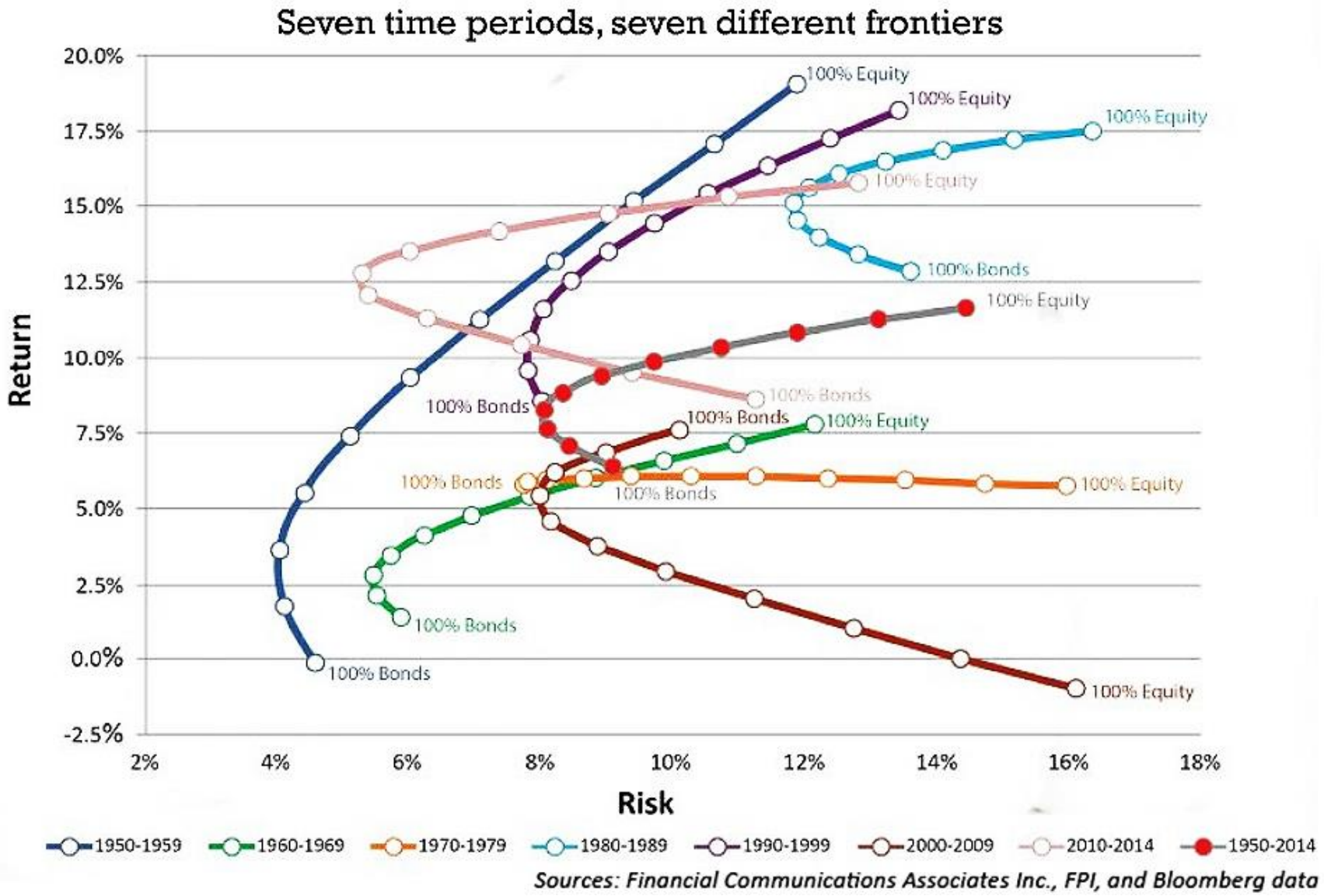
Printers

Phones

Cars



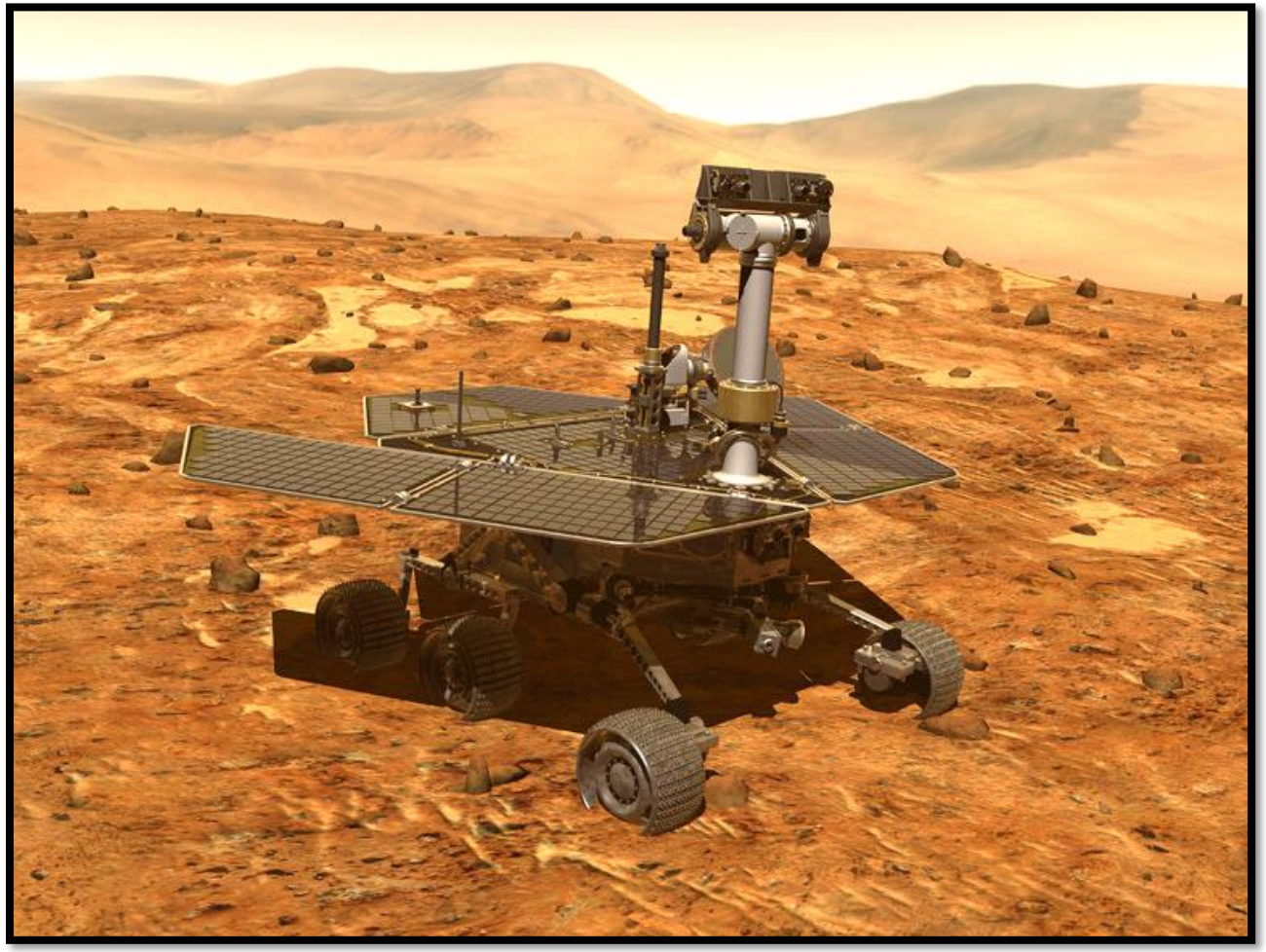
The Efficient Frontier Is The Best You Can Do



MPT:
Based On
Hindsight Bias

MPT:
Momentum
Not Employed

What Changed After 1952 to Get Us Here?



Mars Rover - Opportunity

iPhones

Momentum in Market Data

Narasiman Jegadeesh
Emory University

Sheridan Titman
U. of Texas, Austin

Seminal Academic Paper:

"Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency"

(1993)

Profitability of Momentum Strategies:
An Evaluation of Alternative Explanations
By Narasiman Jegadeesh and Sheridan Titman (2001)

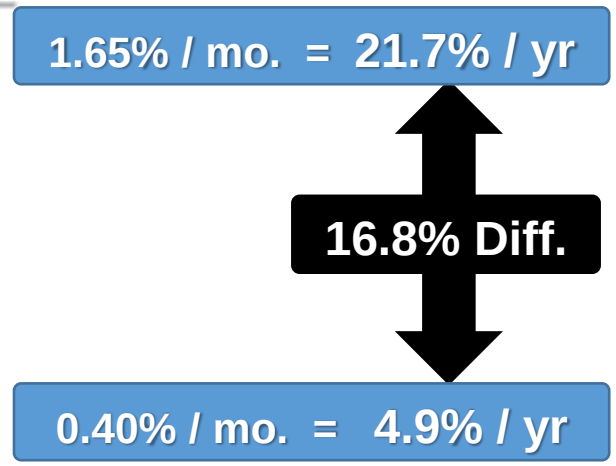
Following Jegadeesh and Titman (1993), at the end of each month we rank the stocks in our sample based on their past six-month returns (Month −5 to Month 0) and then group the stocks into 10 equally weighted portfolios based on these ranks. Each portfolio is held for six months (Month 1 to Month 6) following the ranking month.

Table I

Momentum Portfolio Returns

This table reports the monthly returns for momentum portfolios formed based on past six-month returns and held for six months.

	All Stocks		
	1965–1998	1965–1989	1990–1998
P1 (Past winners)	1.65	1.63	1.69
P2	1.39	1.41	1.32
P3	1.28	1.30	1.21
P4	1.19	1.21	1.13
P5	1.17	1.18	1.12
P6	1.13	1.15	1.09
P7	1.11	1.12	1.09
P8	1.05	1.05	1.03
P9	0.90	0.94	0.77
P10 (Past losers)	0.42	0.46	0.30



Momentum in Market Data

Eugene Fama
Nobel Prize, 2013

Kenneth French
Dartmouth College

“the premier market anomaly” that’s “above suspicion.”

Academic Paper:

“Dissecting Anomalies”

(2008)

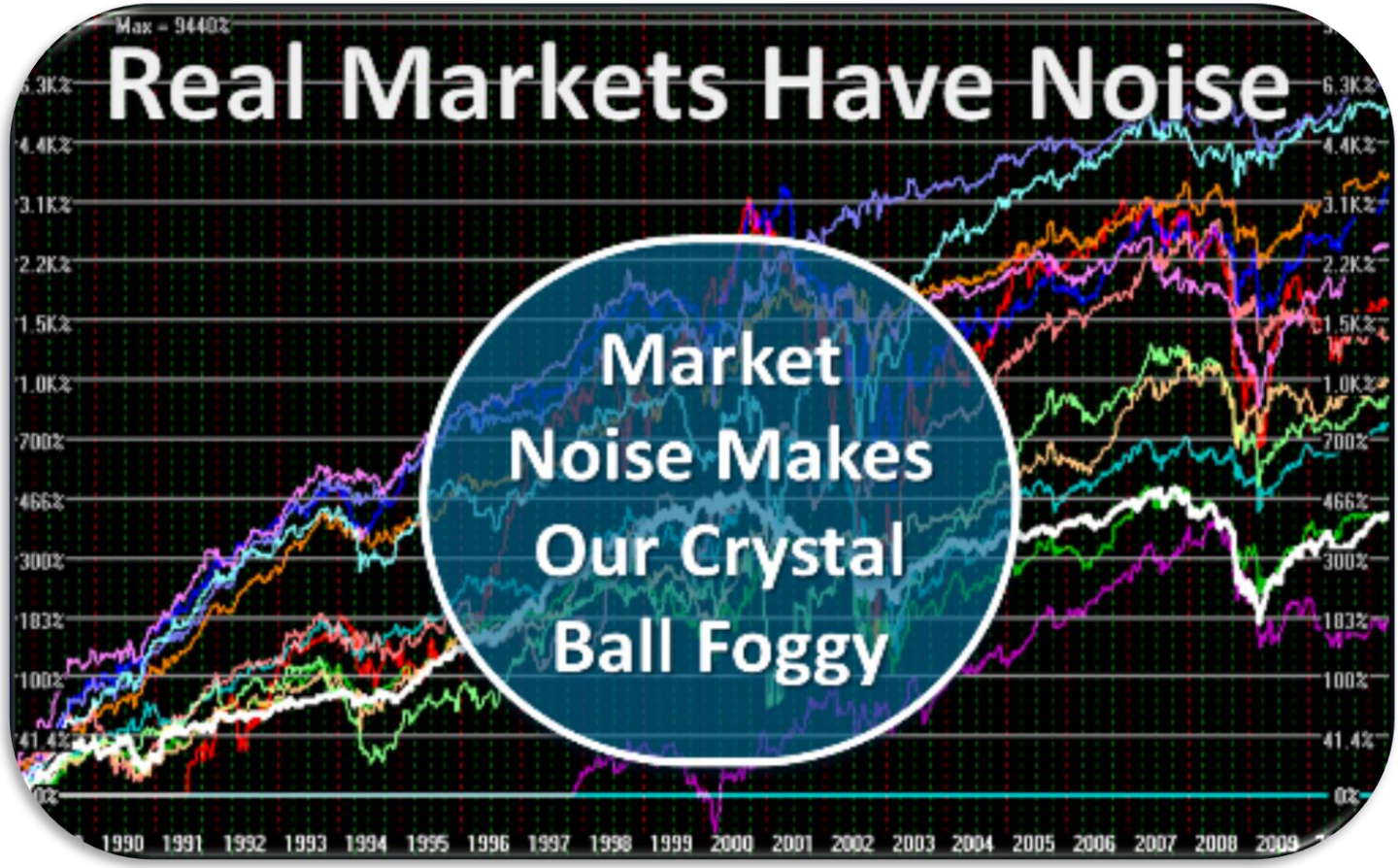
Trends / Momentum are Real

By definition, momentum is a "Portal to the Future."

Where something in the recent past ...

... tells us something about the near future.

Momentum **IS** the crystal ball we all hope to find.

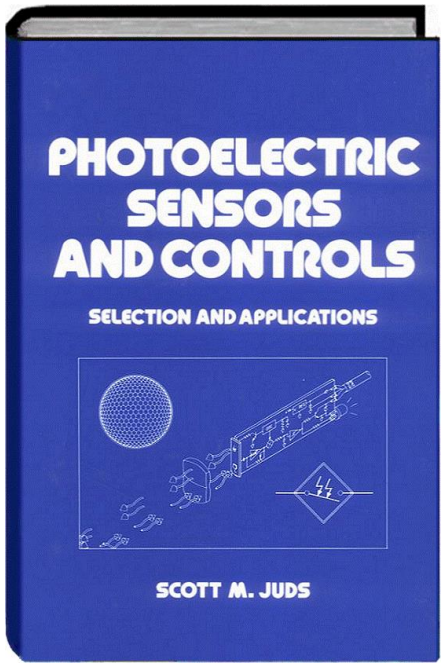


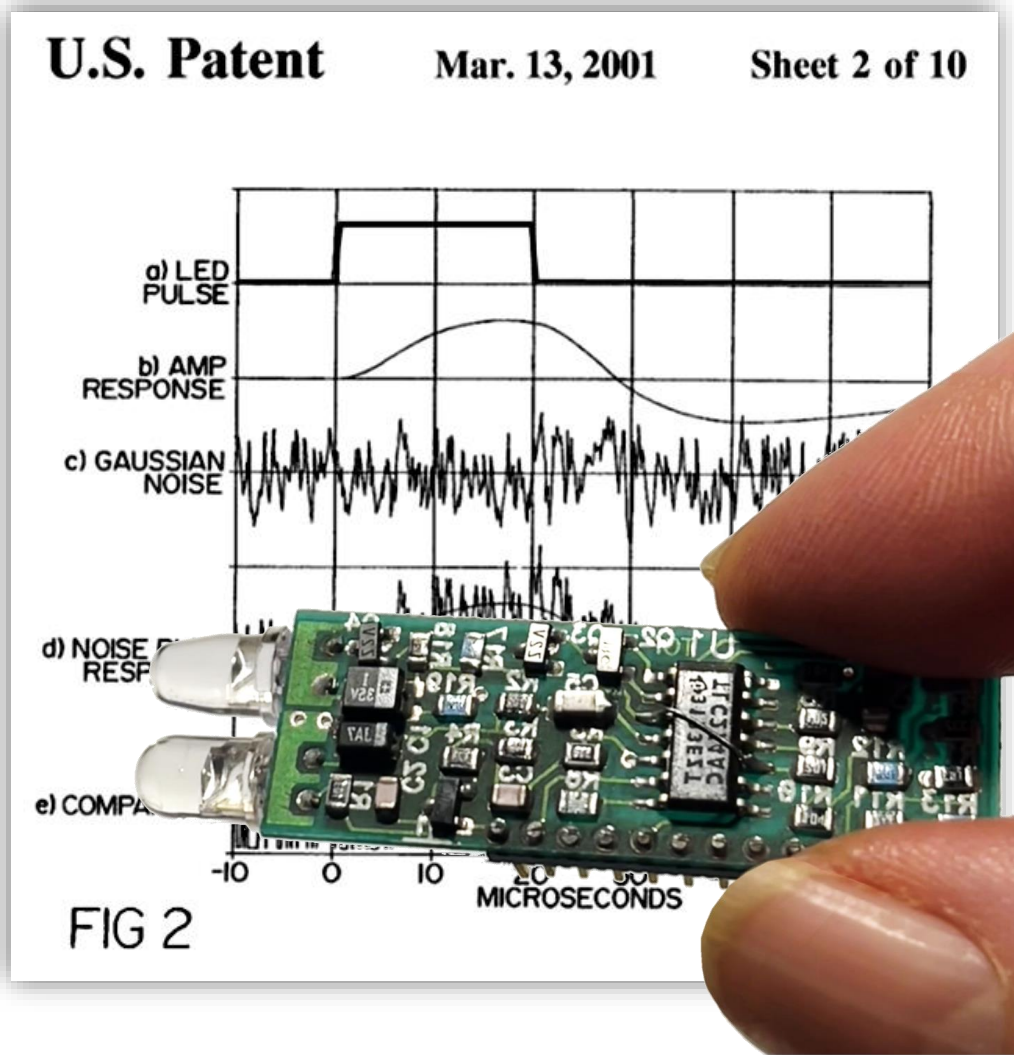
Reducing the Noise
Is the Whole Game

Reducing the Noise Is the Whole Game

Signal Processing Theory is Required

- MSEE from Stanford University
- Over 40 U.S. and foreign patents
- VP Eng. Eaton's optical sensor division





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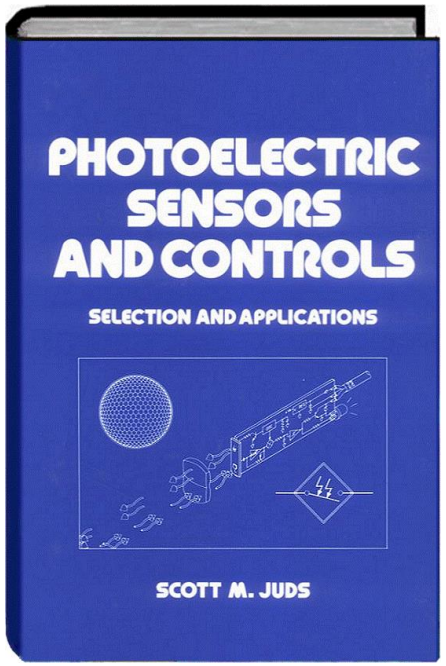
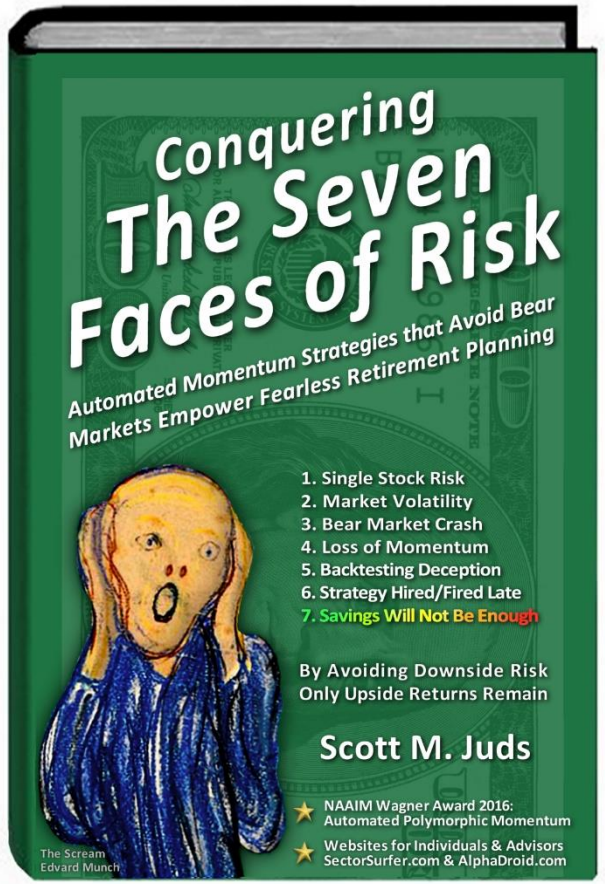
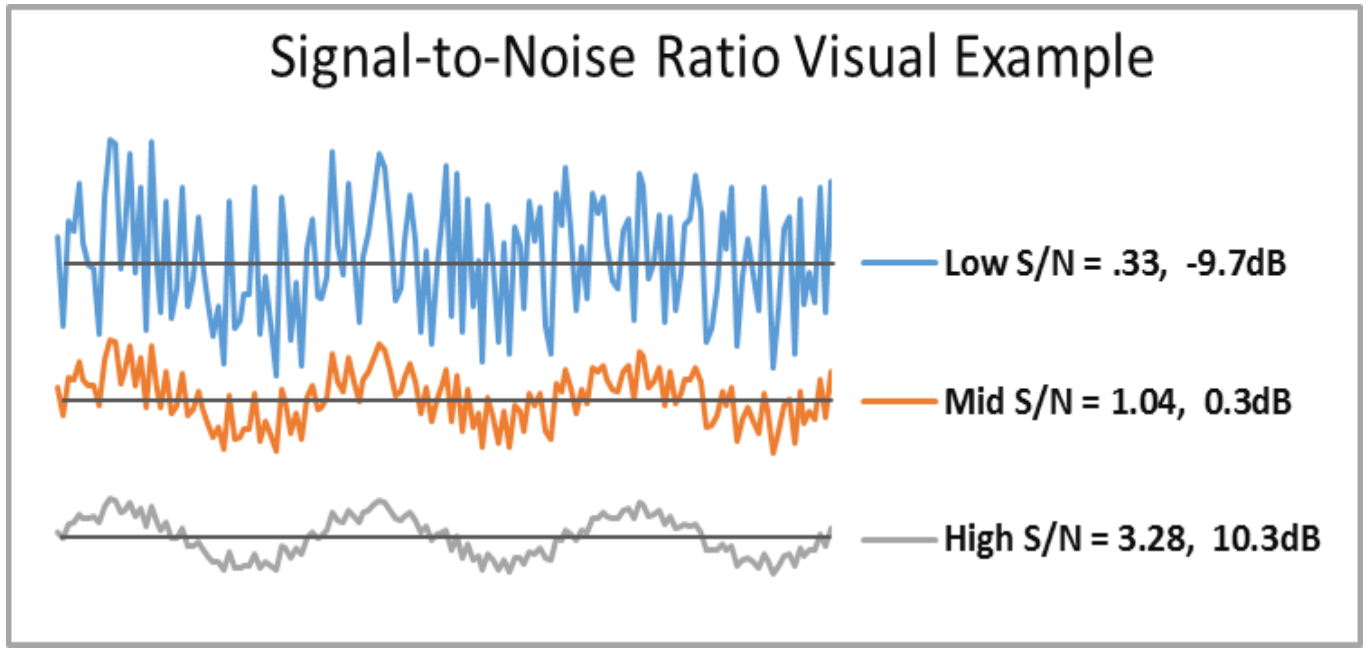




Claude Shannon
National Medal of
Science, 1966

Signal-to-Noise Ratio

Controls the Probability of Making the Right Decision

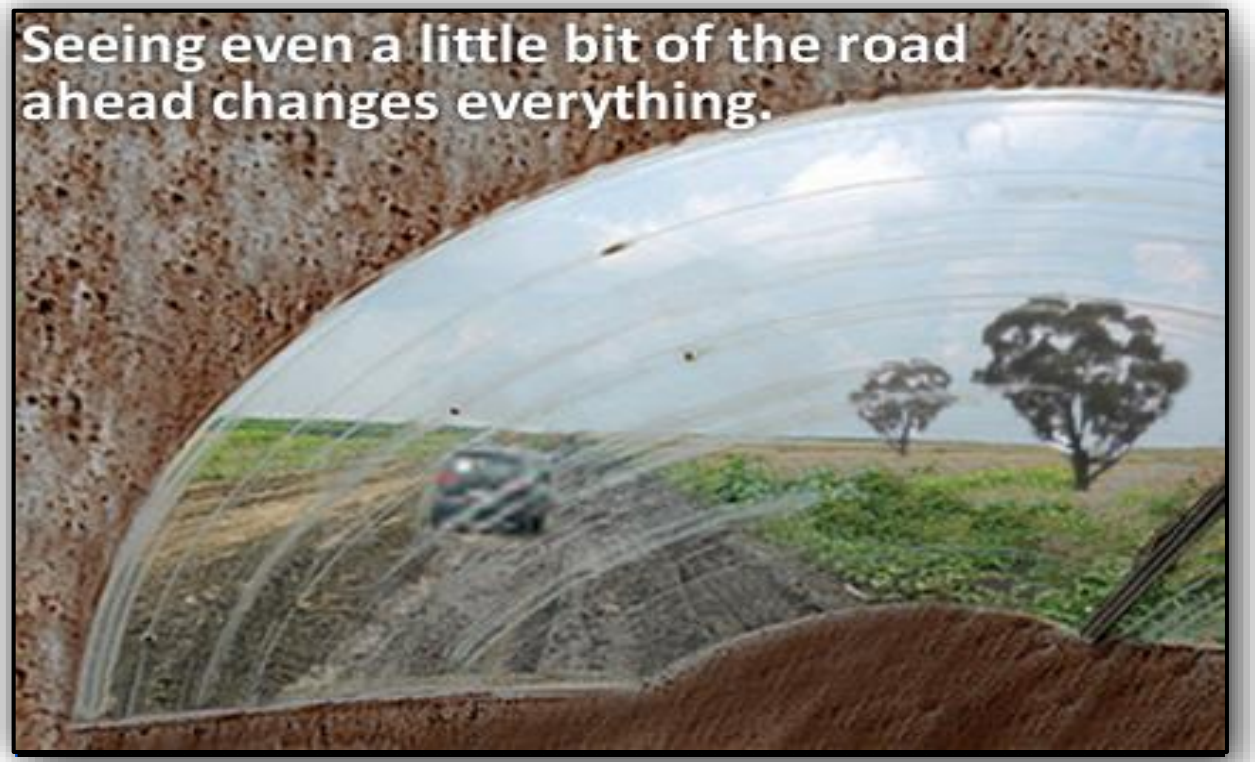


Claude Shannon
National Medal of
Science, 1966

Proved

Signal-to-Noise Ratio

Controls the Probability of Making the Right Decision

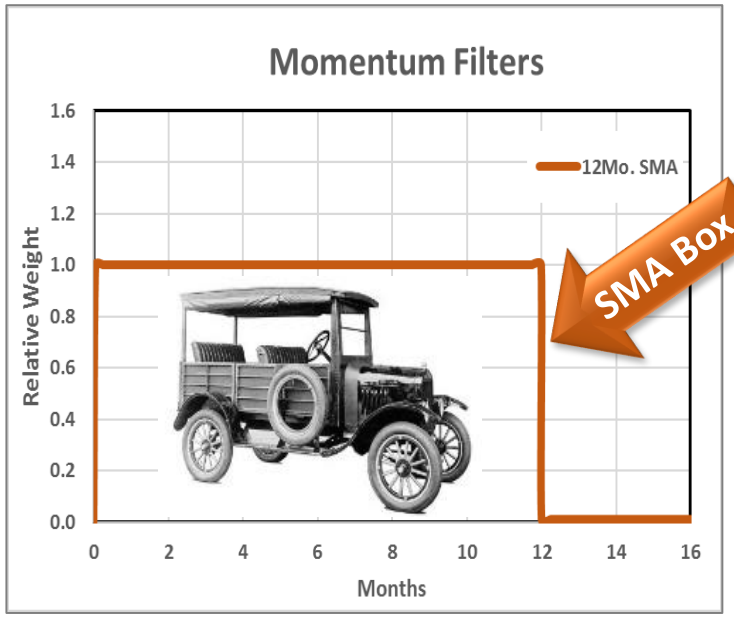


J. H. Van Vleck
Noble Prize, 1977

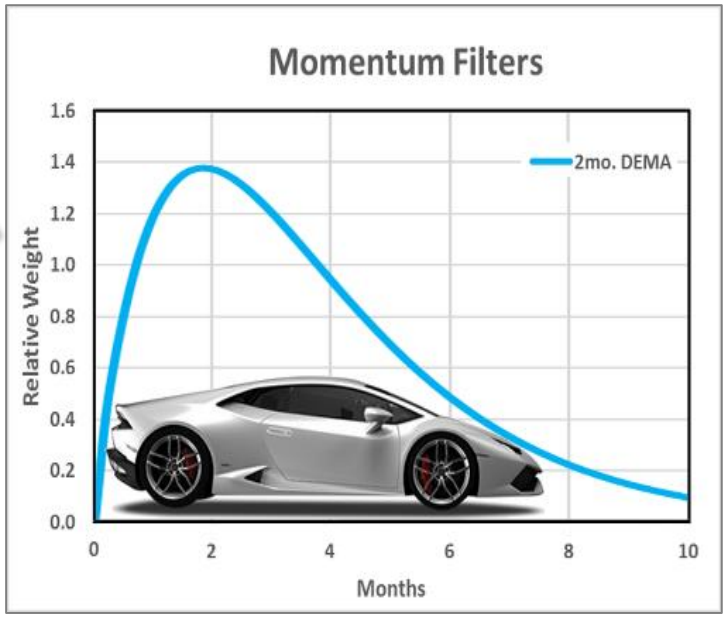
Matched Filter Theory

Design for Optimum
Signal-to-Noise Ratio

Think Outside of the Box



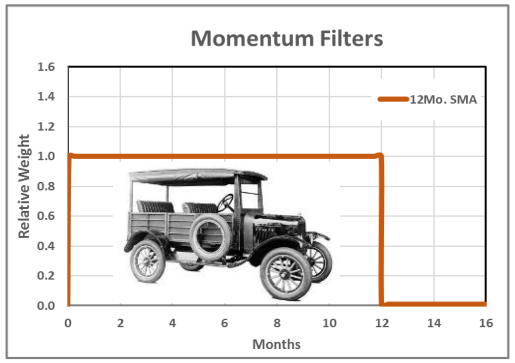
Someplace to Start



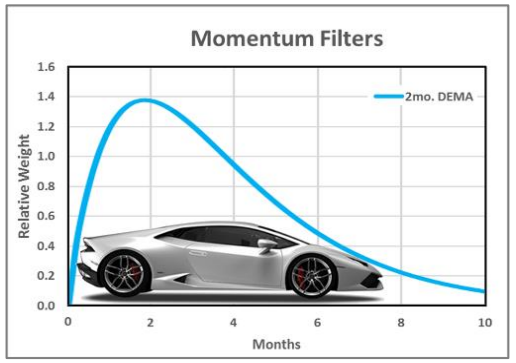
Designed for Performance

J. H. Van Vleck
Noble Prize, 1977

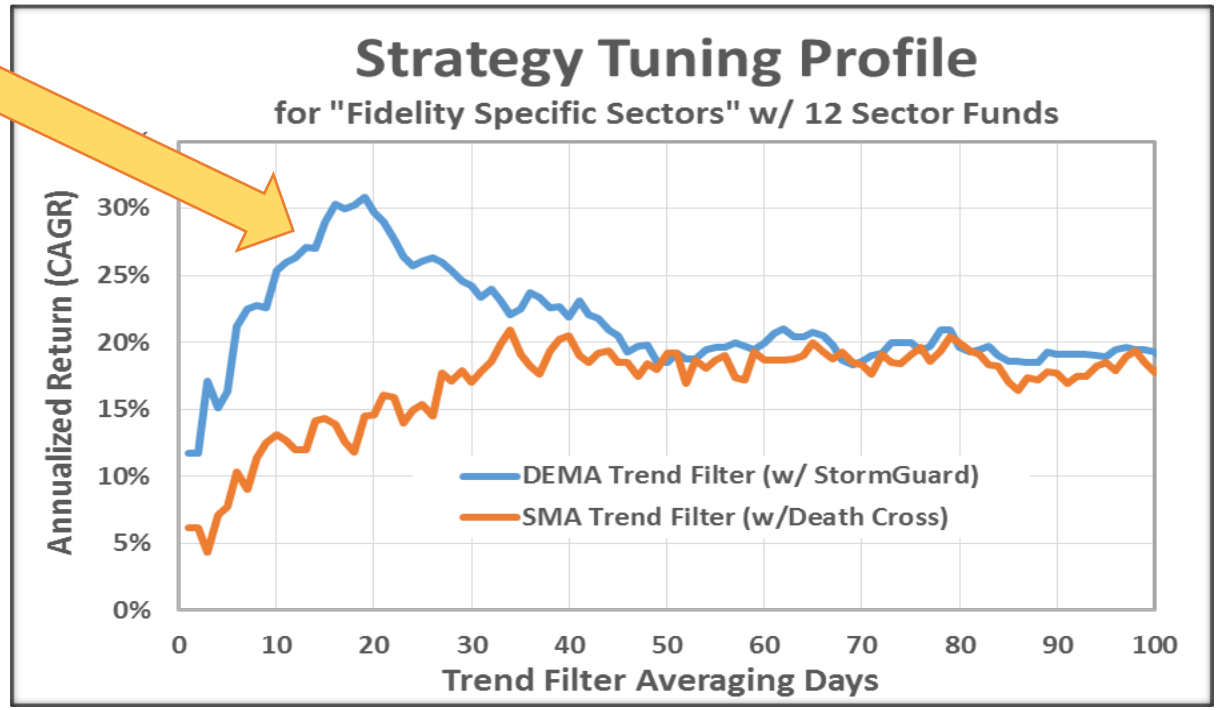
Think Outside of the Box



Someplace to Start



Designed for Performance

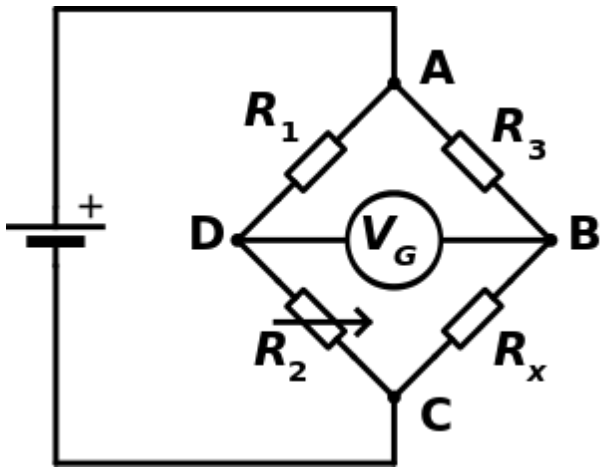


Samuel H. Christie
Royal Society 1836

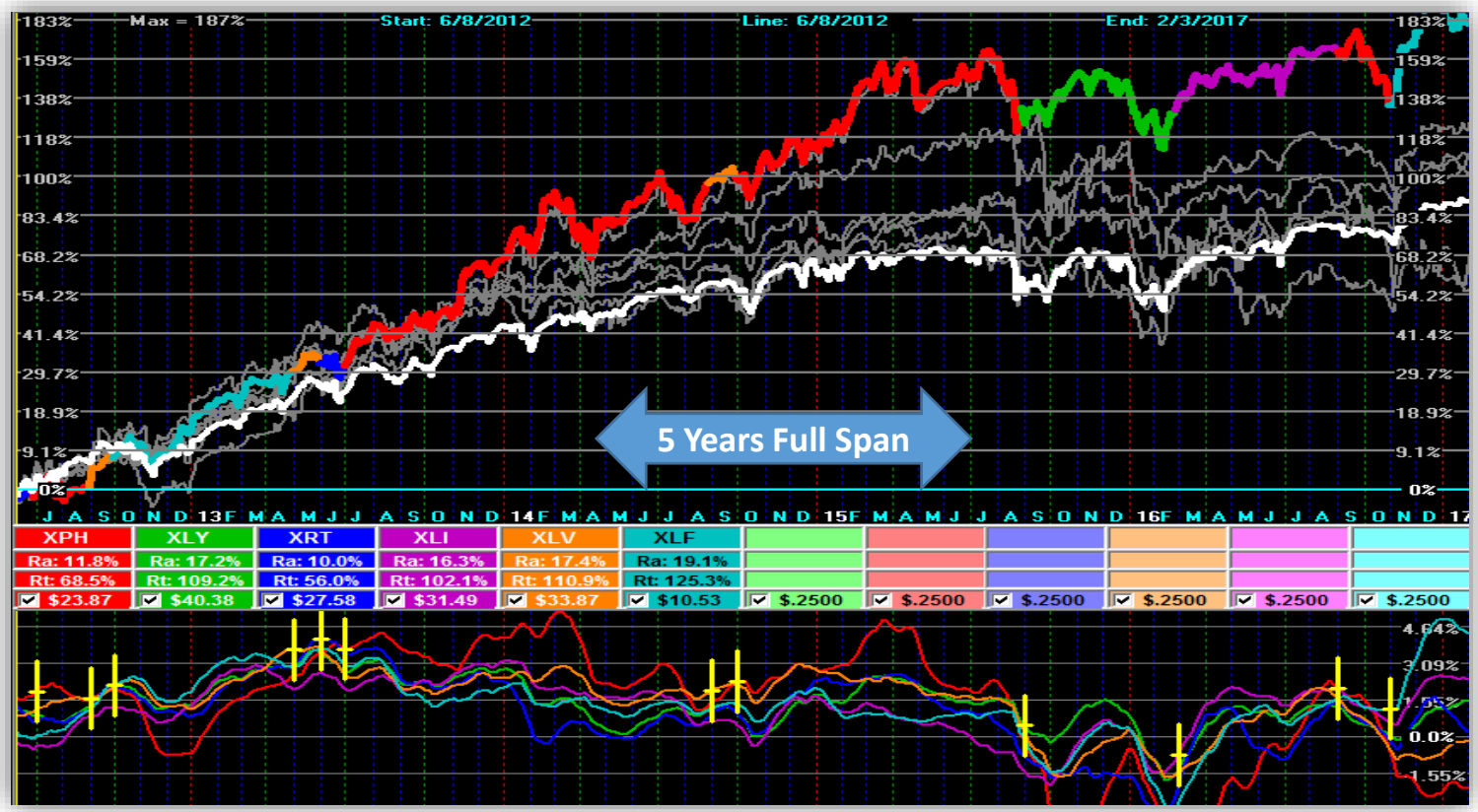
Differential Signal Processing

Removes Common Mode Noise

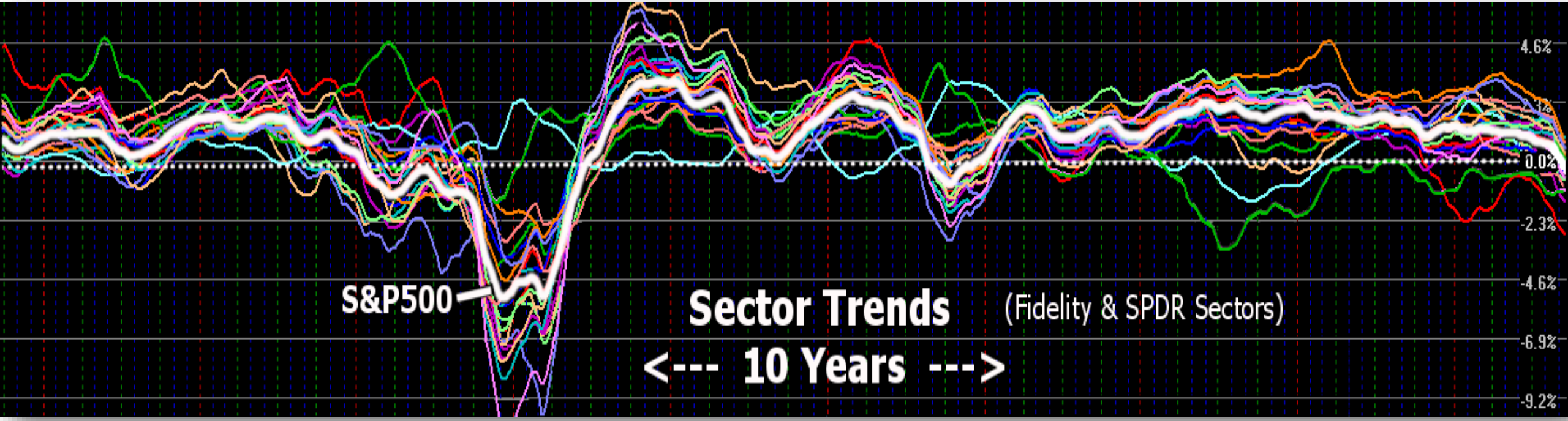
(Relative Strength)

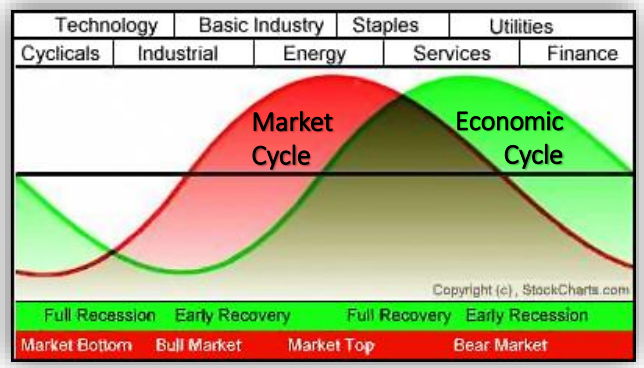


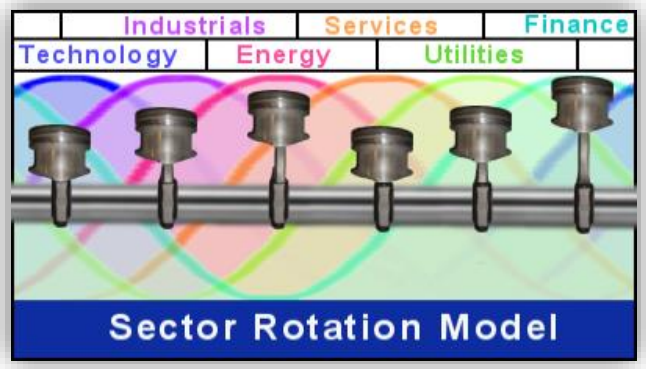
Wheatstone Bridge



Sectors Provide Power Strokes







The Bear Market Problem

S&P 500

50 %

65 %

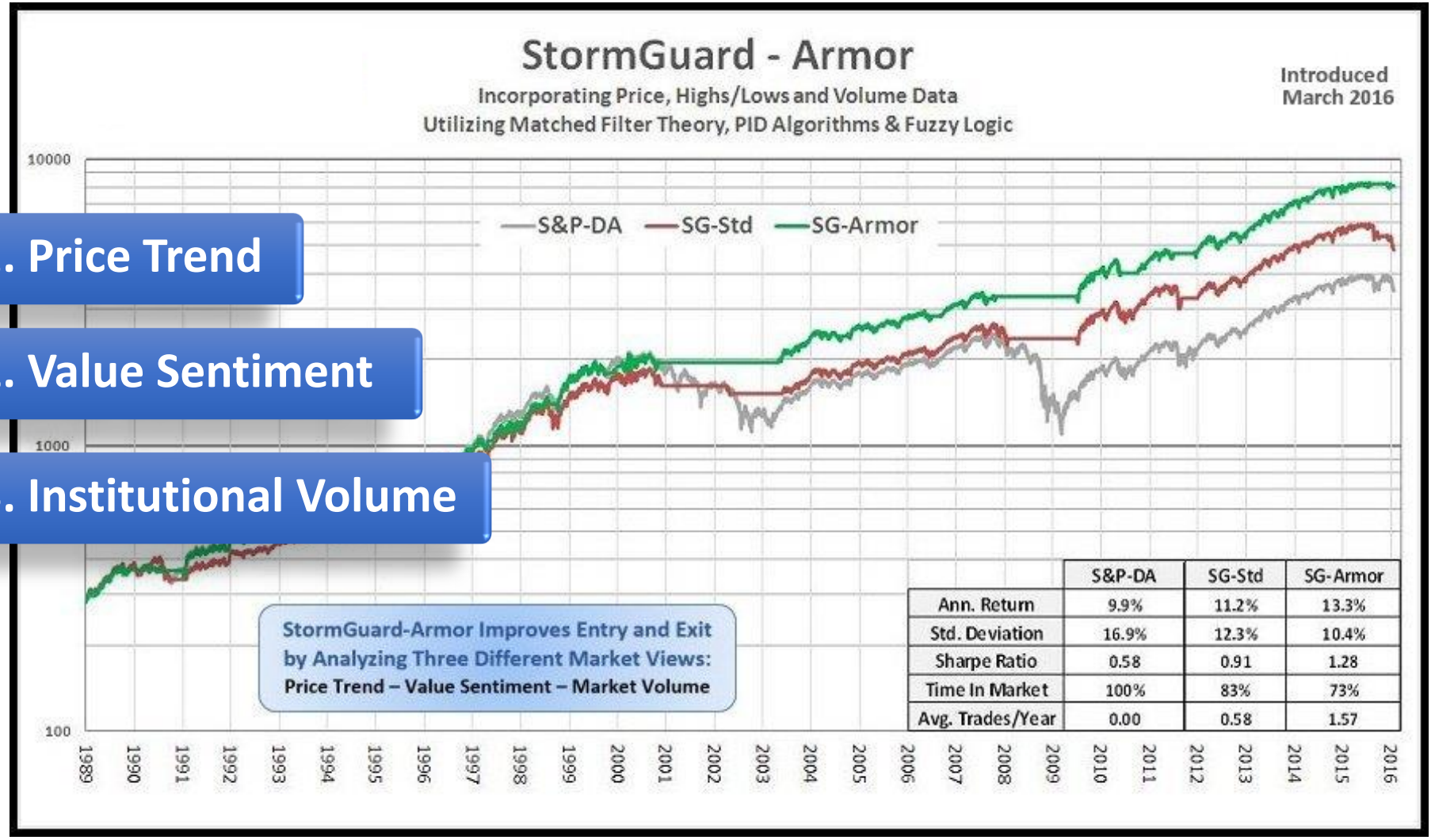
1991

2018

The Death Cross Problem

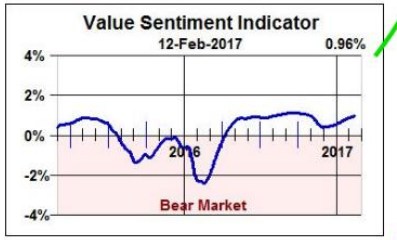
50d Moving Average Crosses the 200d Moving Average

StormGuard-Armor
Detect the Onset of Bear Markets

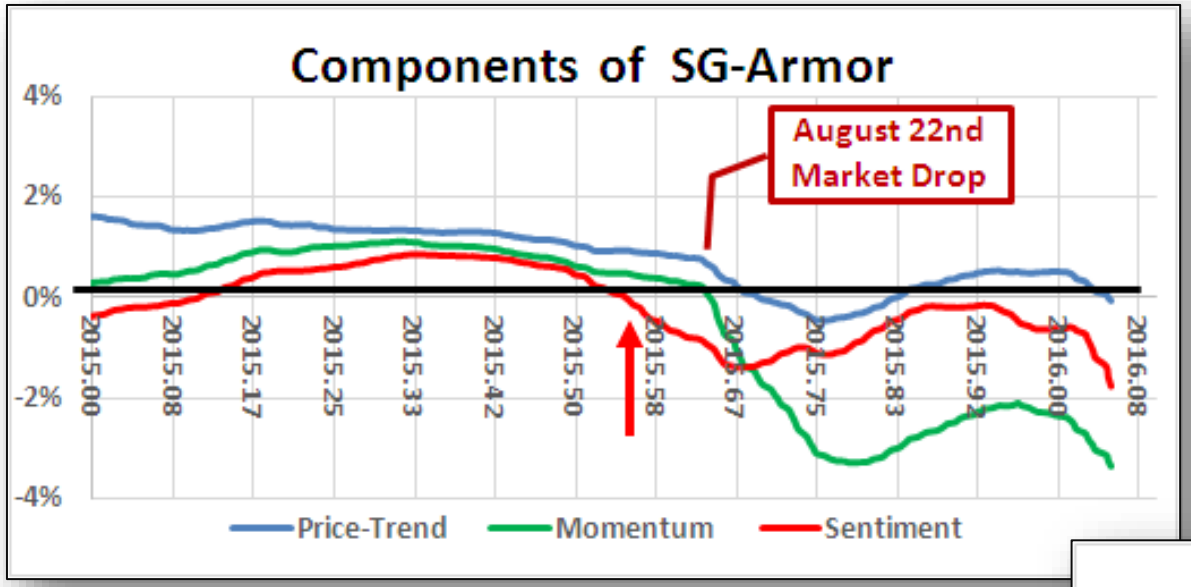


	S&P-DA	SG-Std	SG-Armor
Ann. Return	9.9%	11.2%	13.3%
Std. Deviation	16.9%	12.3%	10.4%
Sharpe Ratio	0.58	0.91	1.28
Time In Market	100%	83%	73%
Avg. Trades/Year	0.00	0.58	1.57

1. Price Trend
2. Value Sentiment
3. Institutional Volume

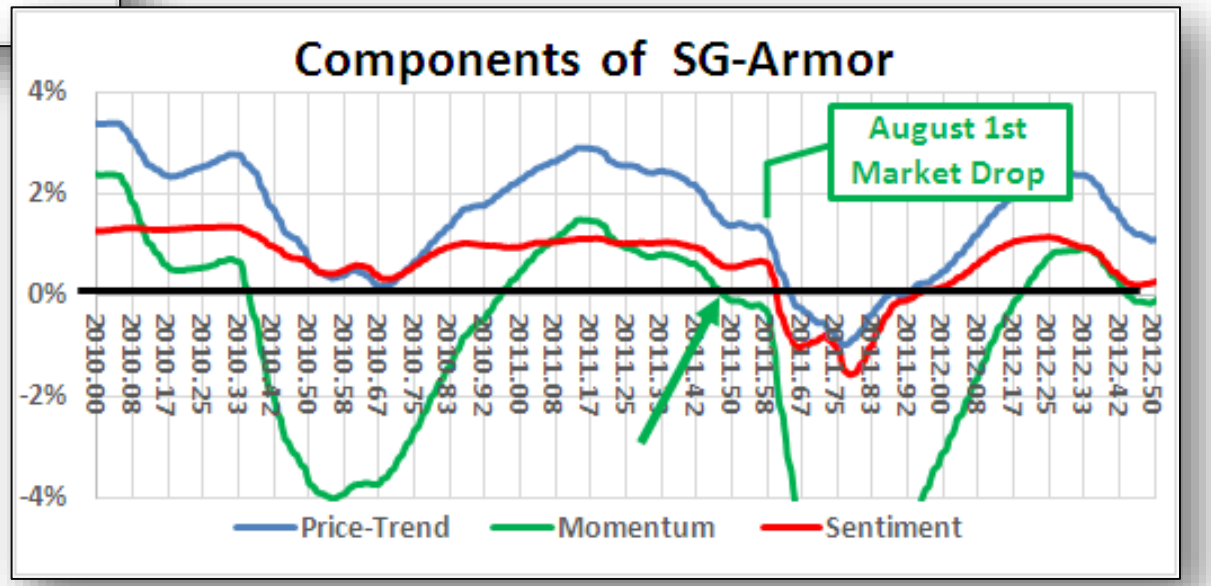


Why is StormGuard-Armor Better?



It Analyses Three Different Kinds of Market Behavior.

It Incorporates Event Detection, not Simply Timing Adjustments.



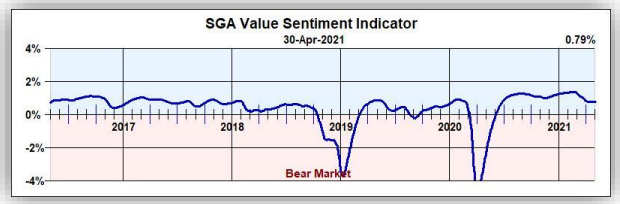
Risk Avoidance

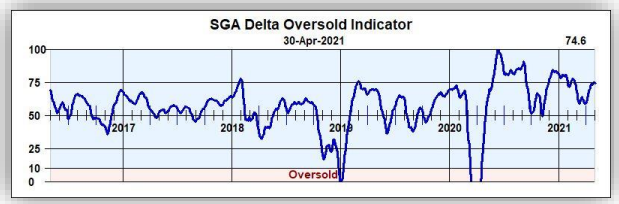
Is Superior to Risk Dilution (Diversification)

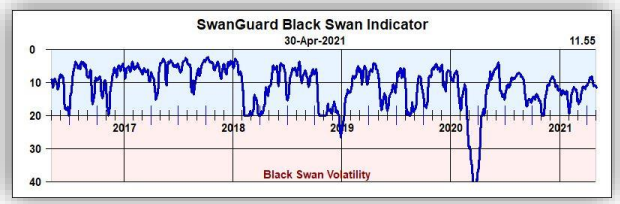
- 0-5 Years
- 5-10 Years
- 10-20 Years
- 20-30 Years

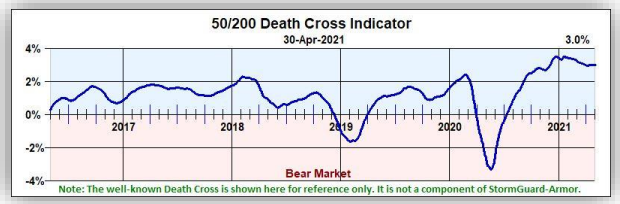
Explore

- A Quick Video Tour
- StormGuard-Armor
- Black Swan Vaccination
- Bear Market Strategies



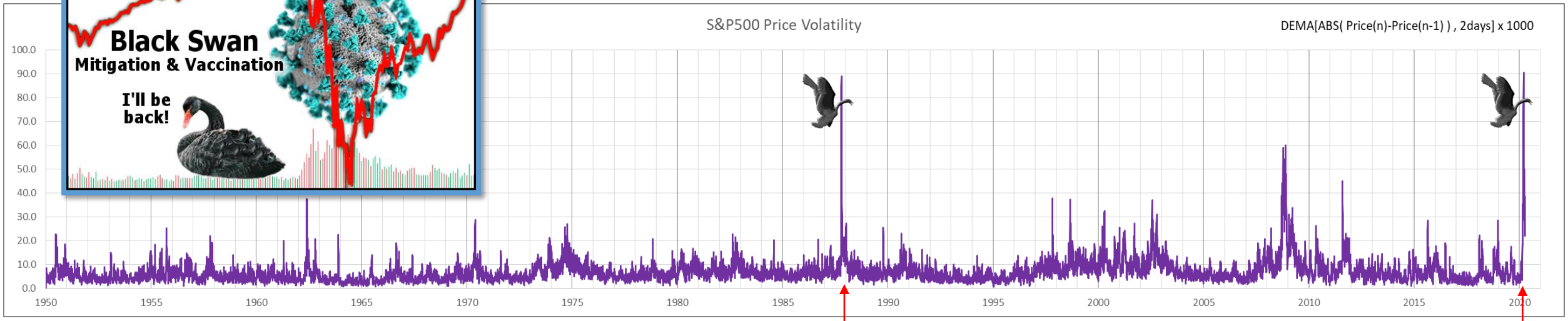


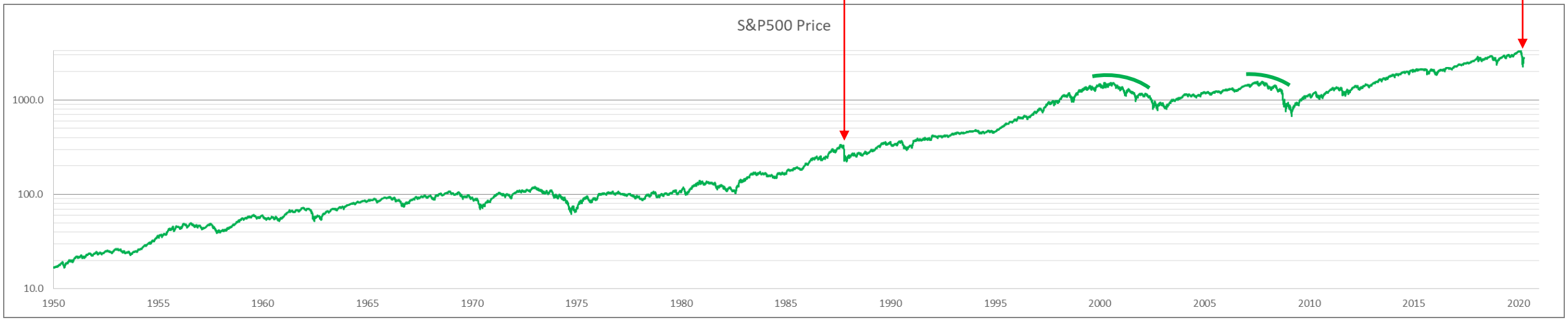




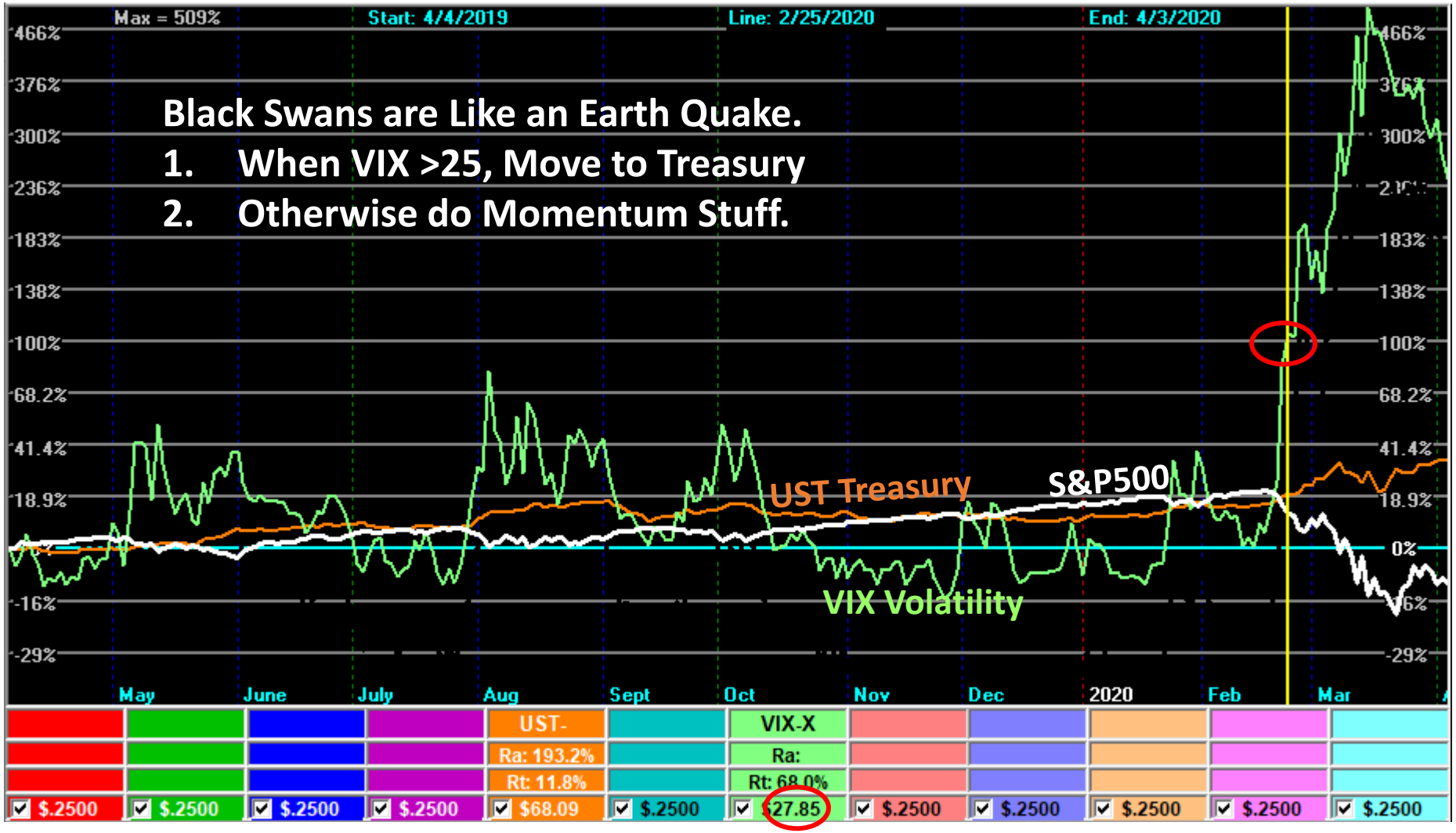
Black Swan Events

January 1950 to April 2020





Vaccination Response
Real-Time BS Detection



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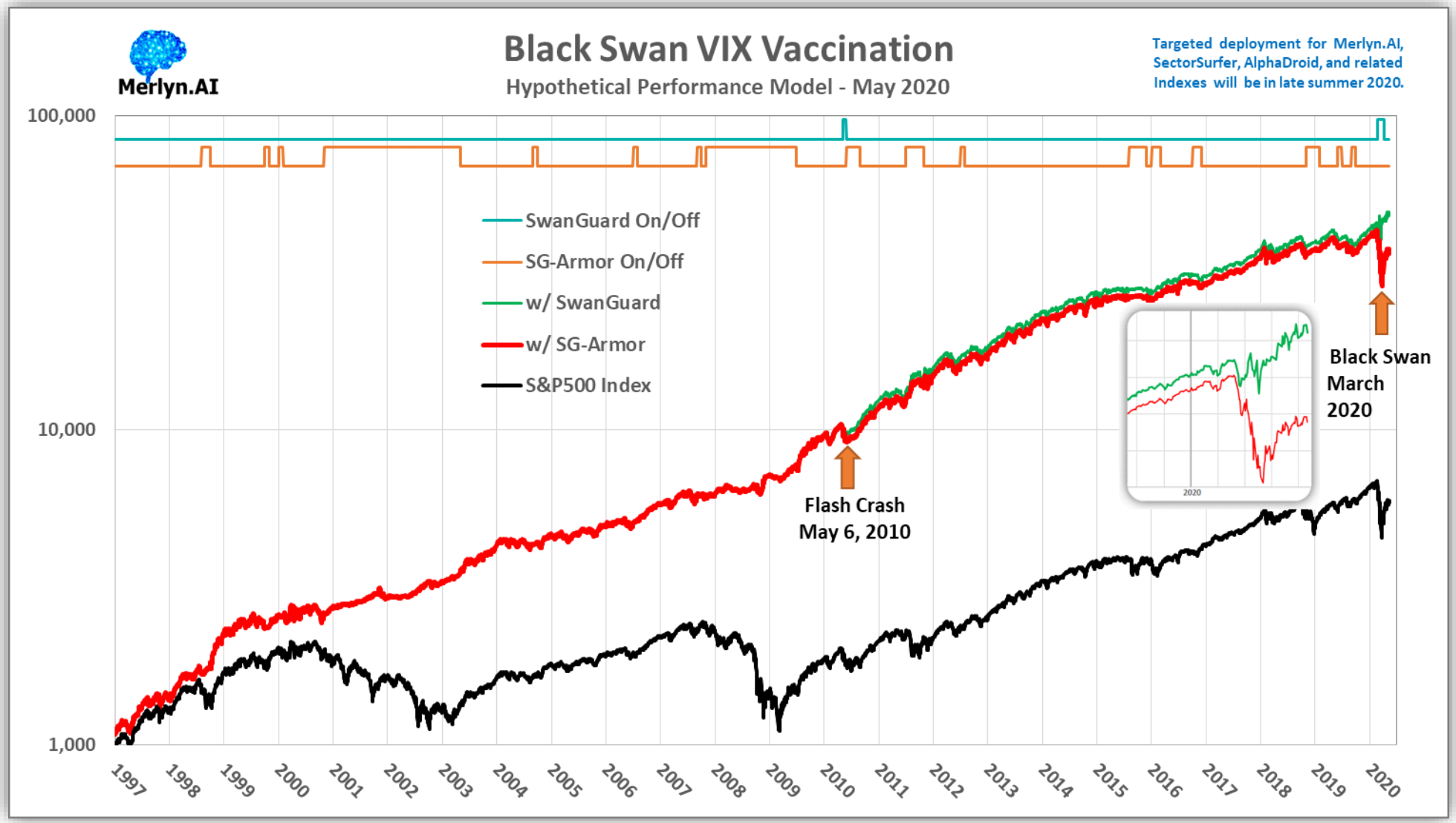
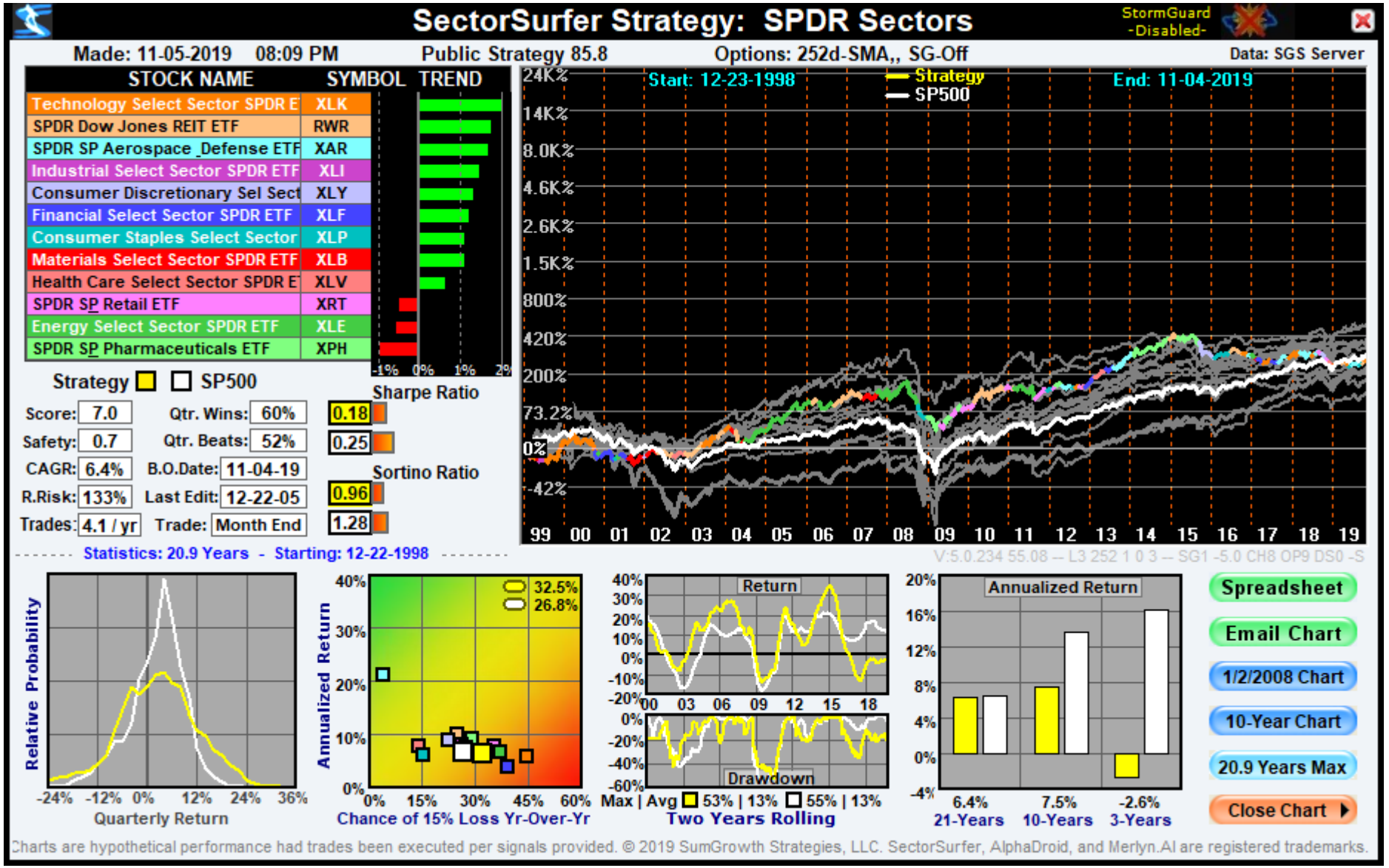
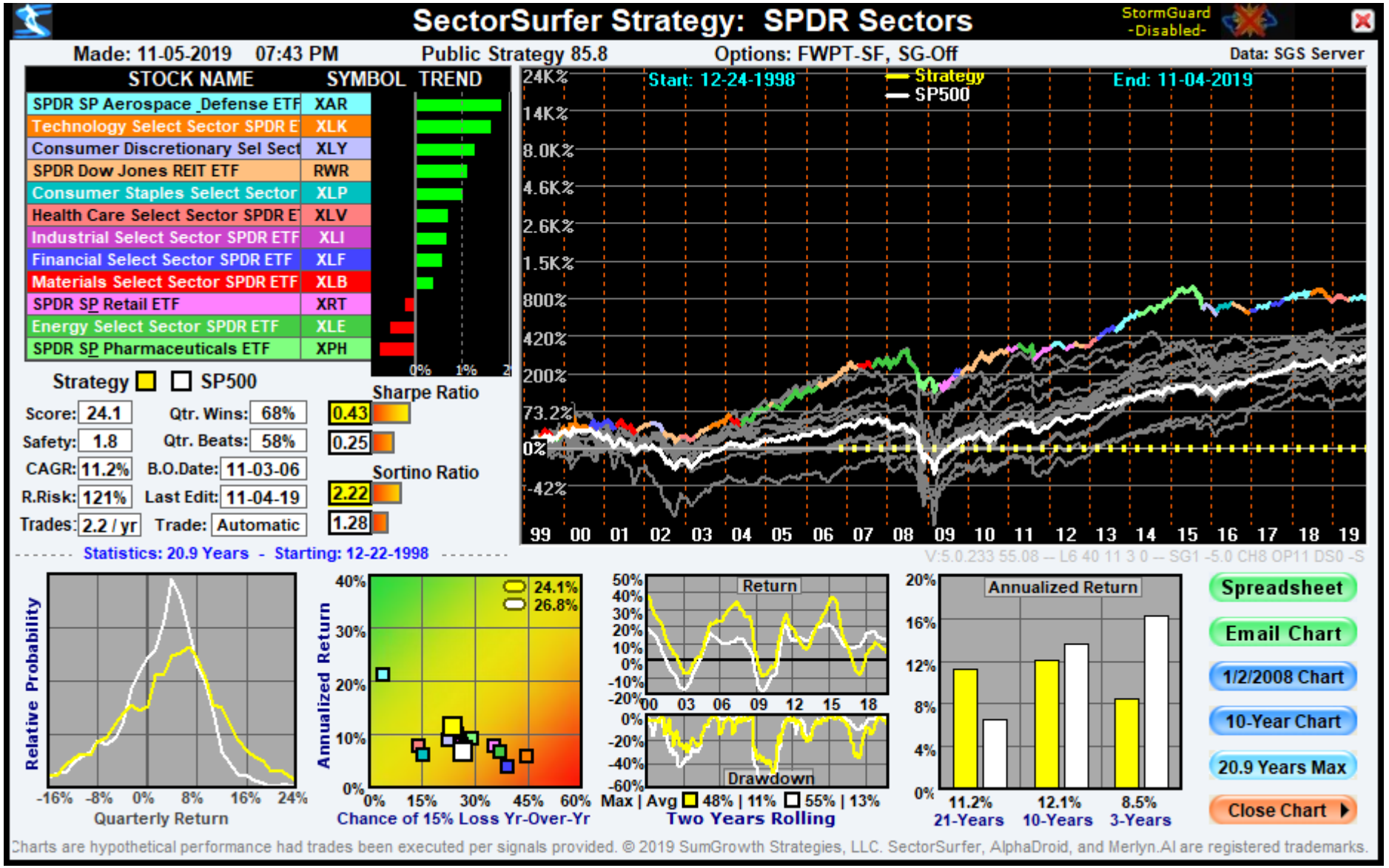


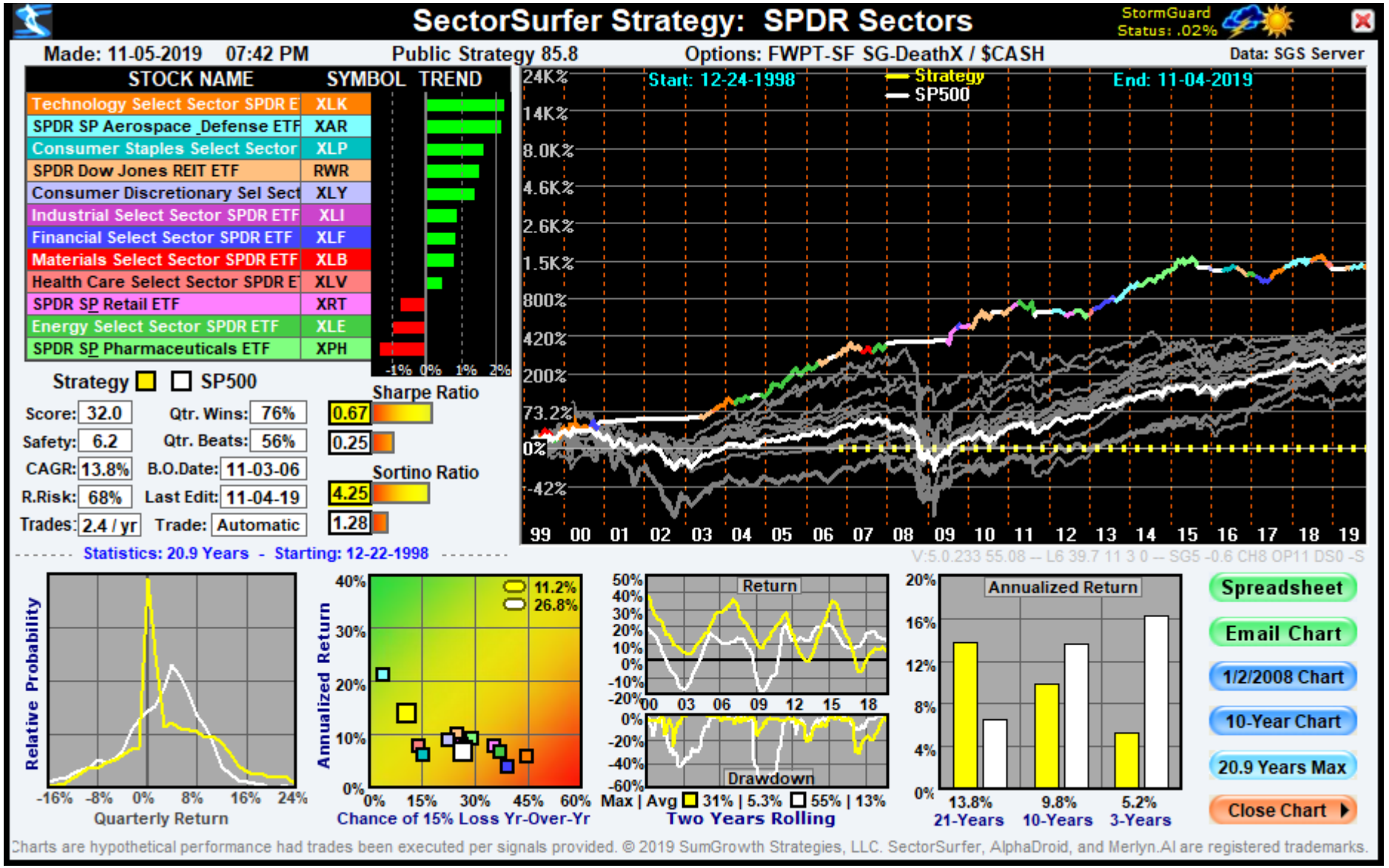
12-Month SMA Sector Strategy



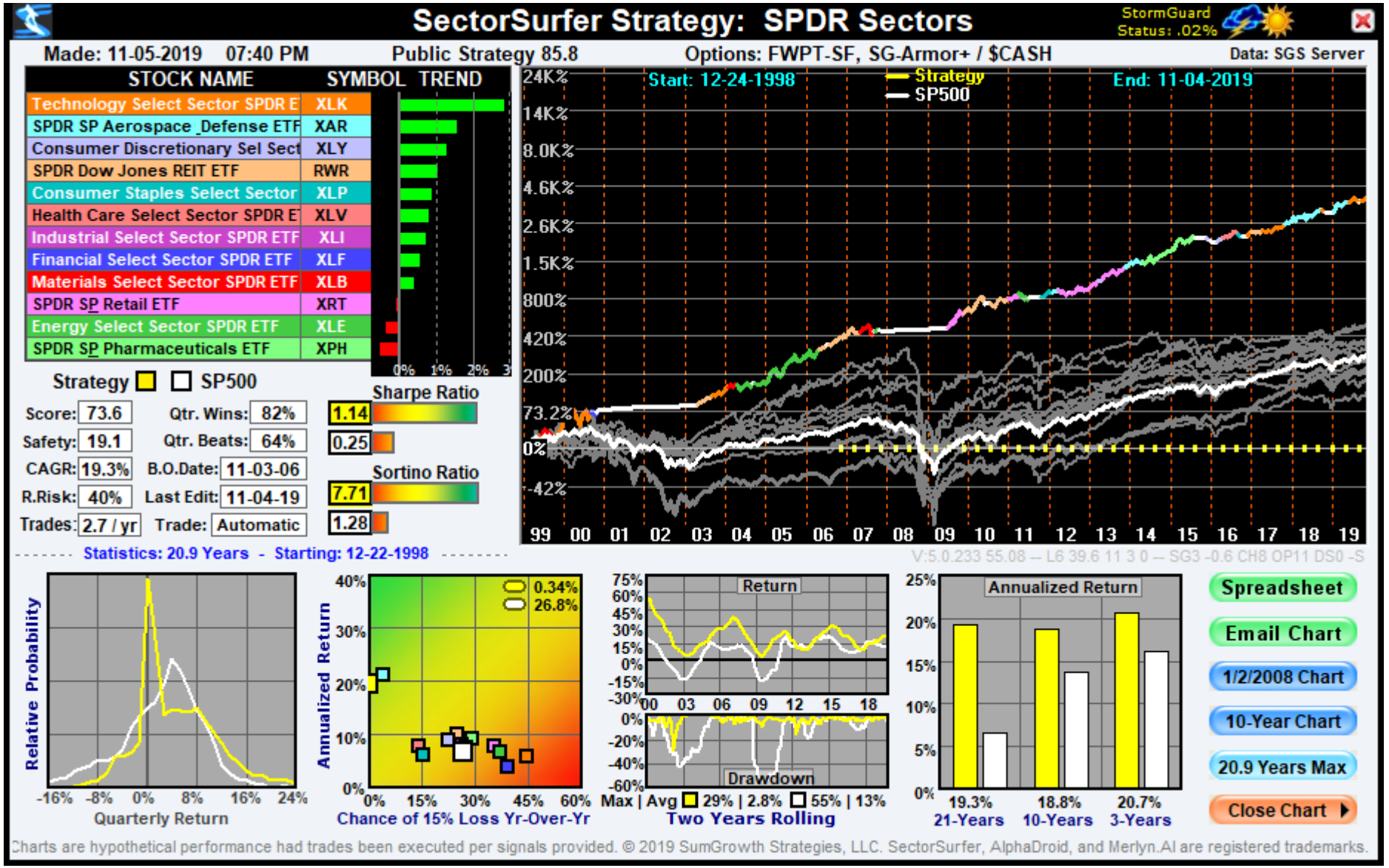
FWPT DEMA Strategy in painted path.



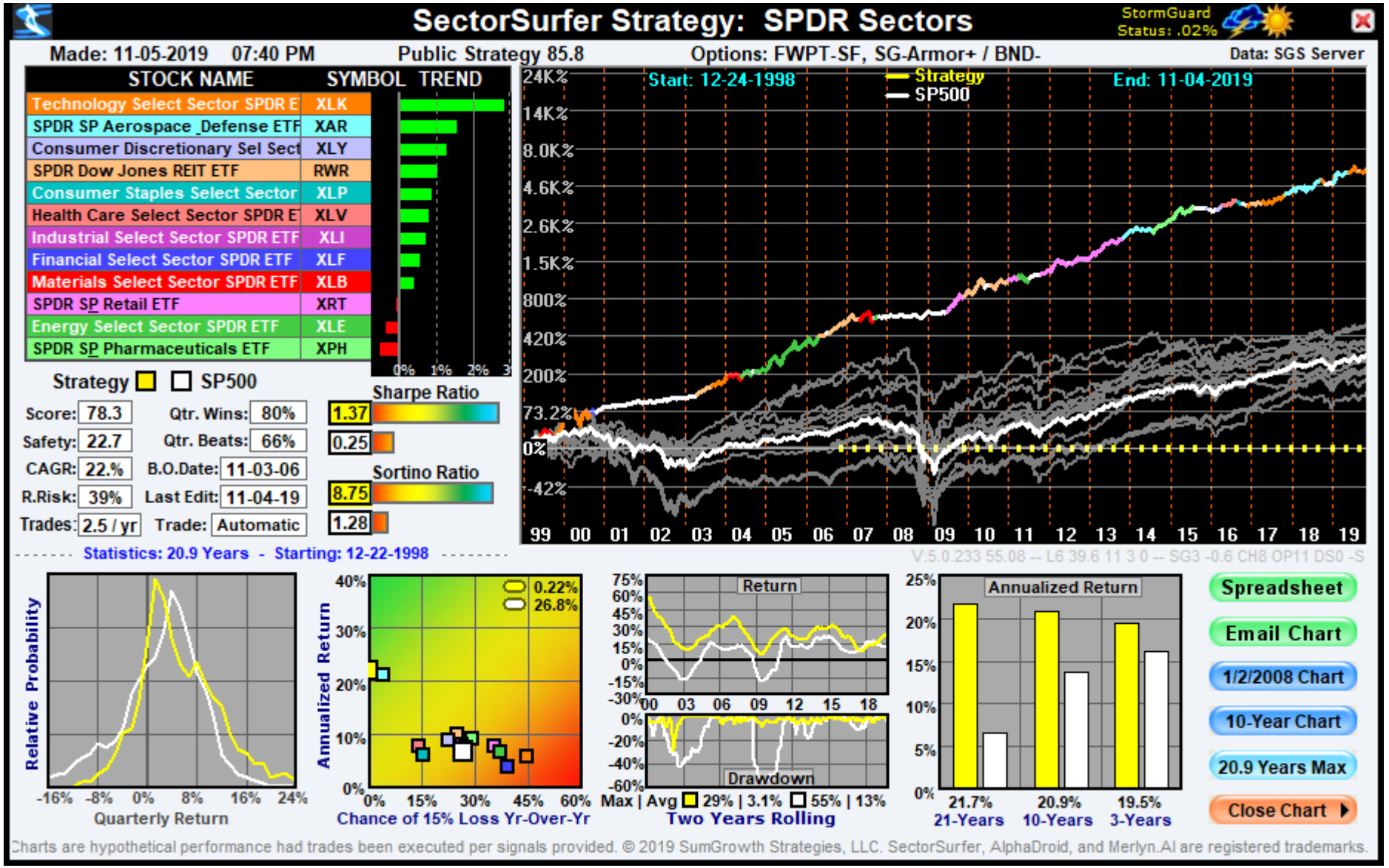
FWPT DEMA Strategy w/ Death Cross to Cash



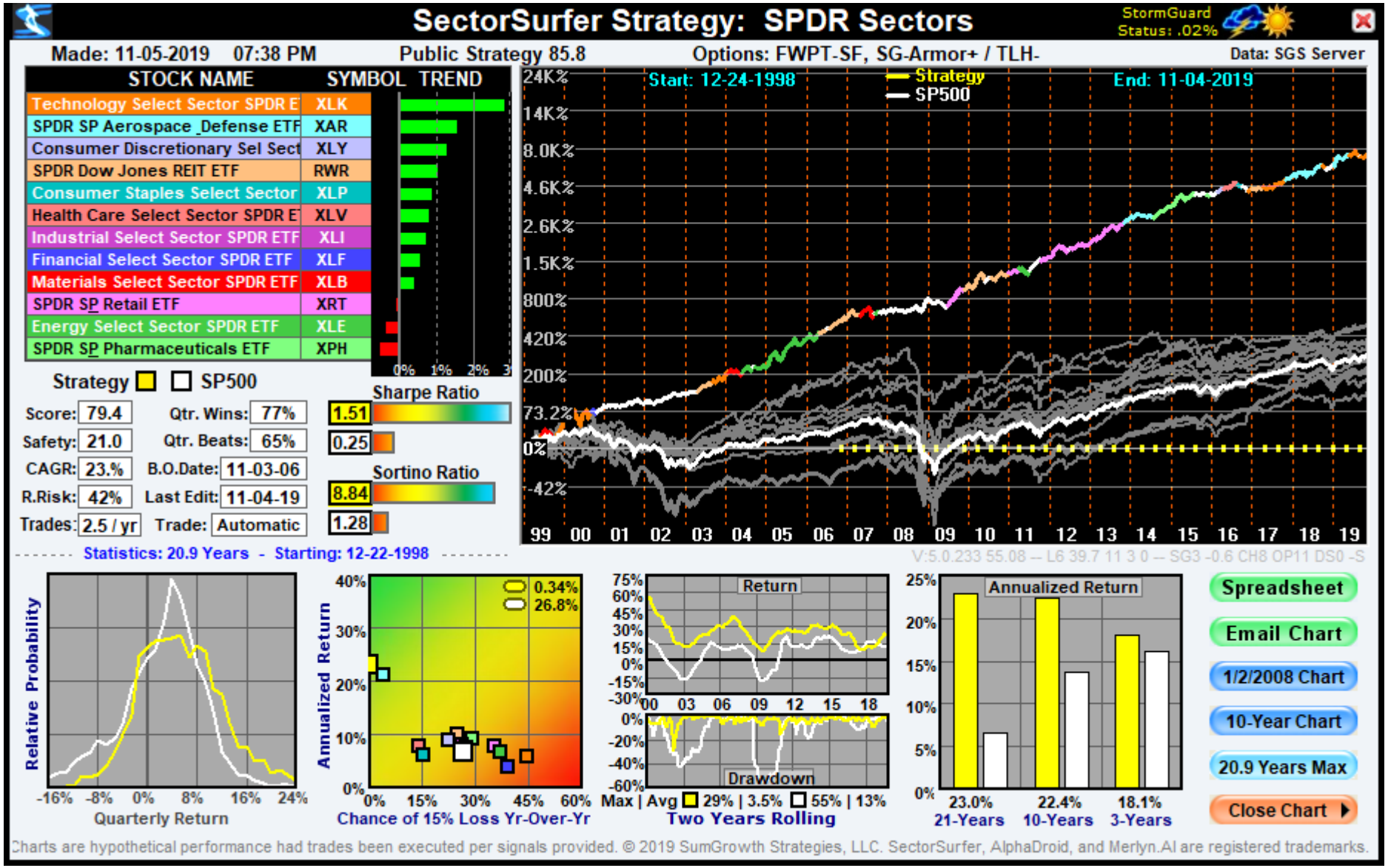
FWPT DEMA Strategy w/ AG-Armor to Cash



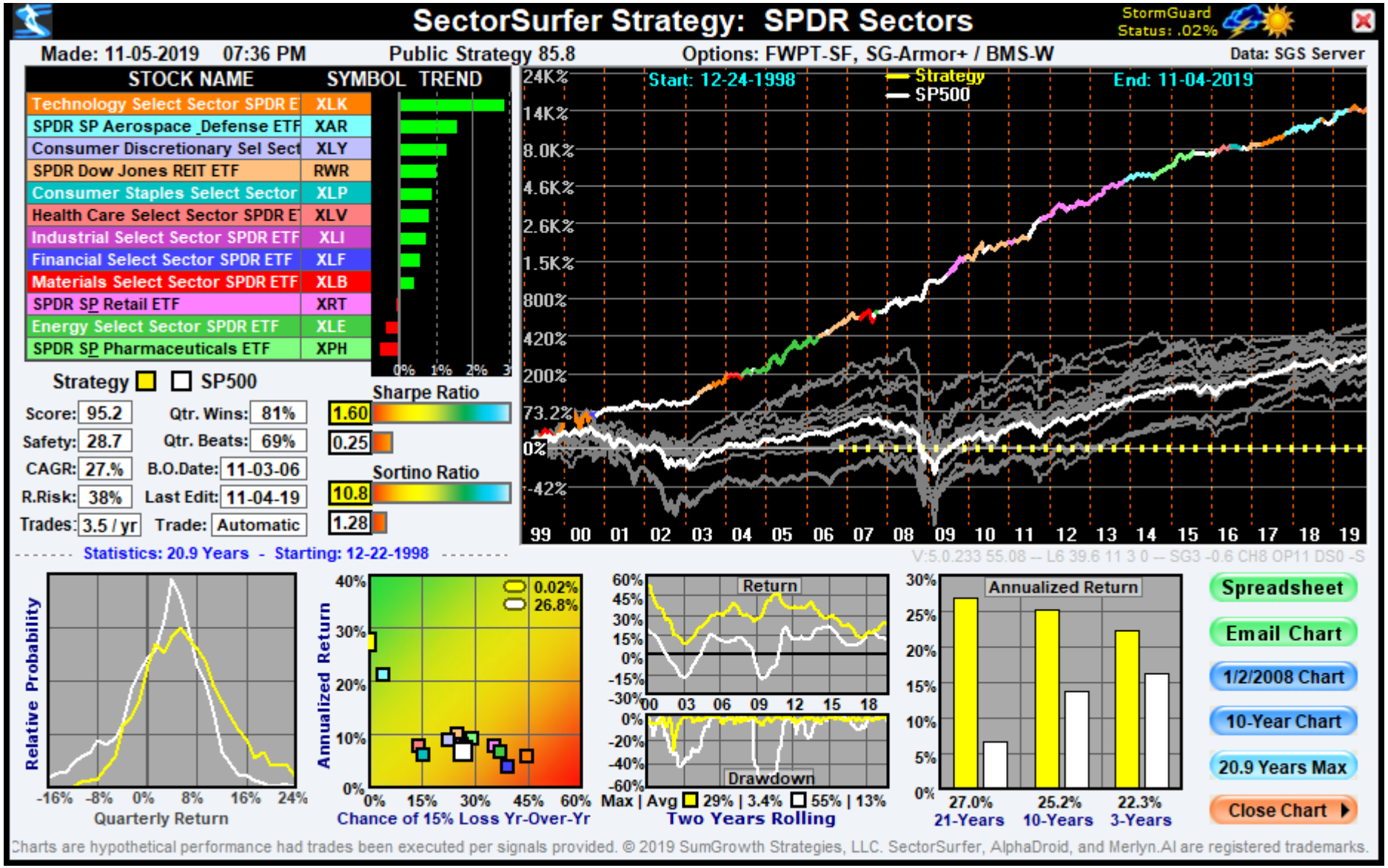
FWPT DEMA Strategy w/ AG-Armor to BND



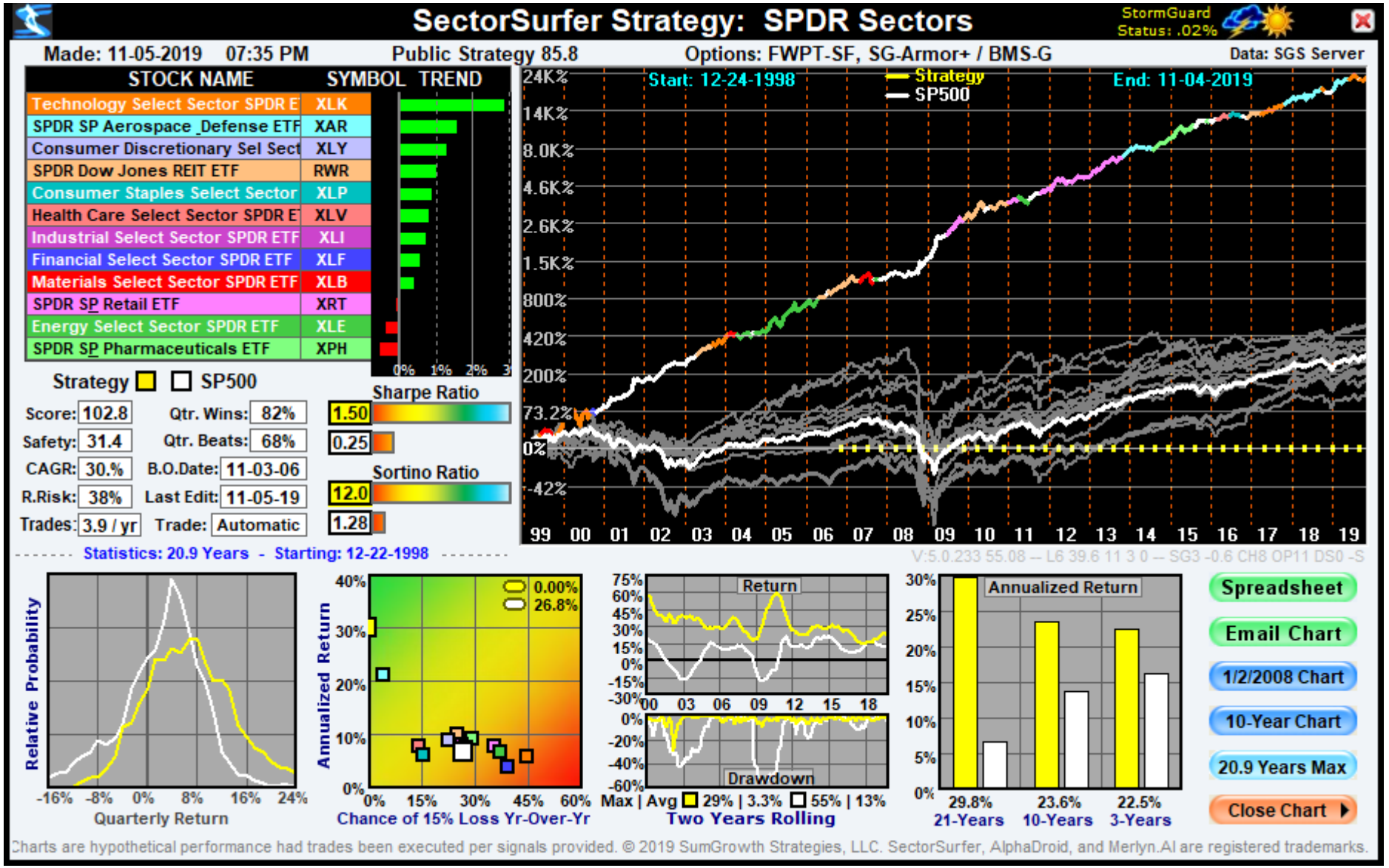
FWPT DEMA Strategy w/ AG-Armor to TLH



FWPT DEMA Strategy w/ AG-Armor to BMS-W



FWPT DEMA Strategy w/ AG-Armor to BMS-G



Eugene Fama
Nobel Prize, 2013

J. H. Van Vleck
Nobel Prize, 1977

Claude Shannon
National Medal
of Science, 1966

Samuel H. Christie
Royal Society 1836

Daniel Kahneman
Nobel Prize, 2002

Amos Tversky
Stanford University

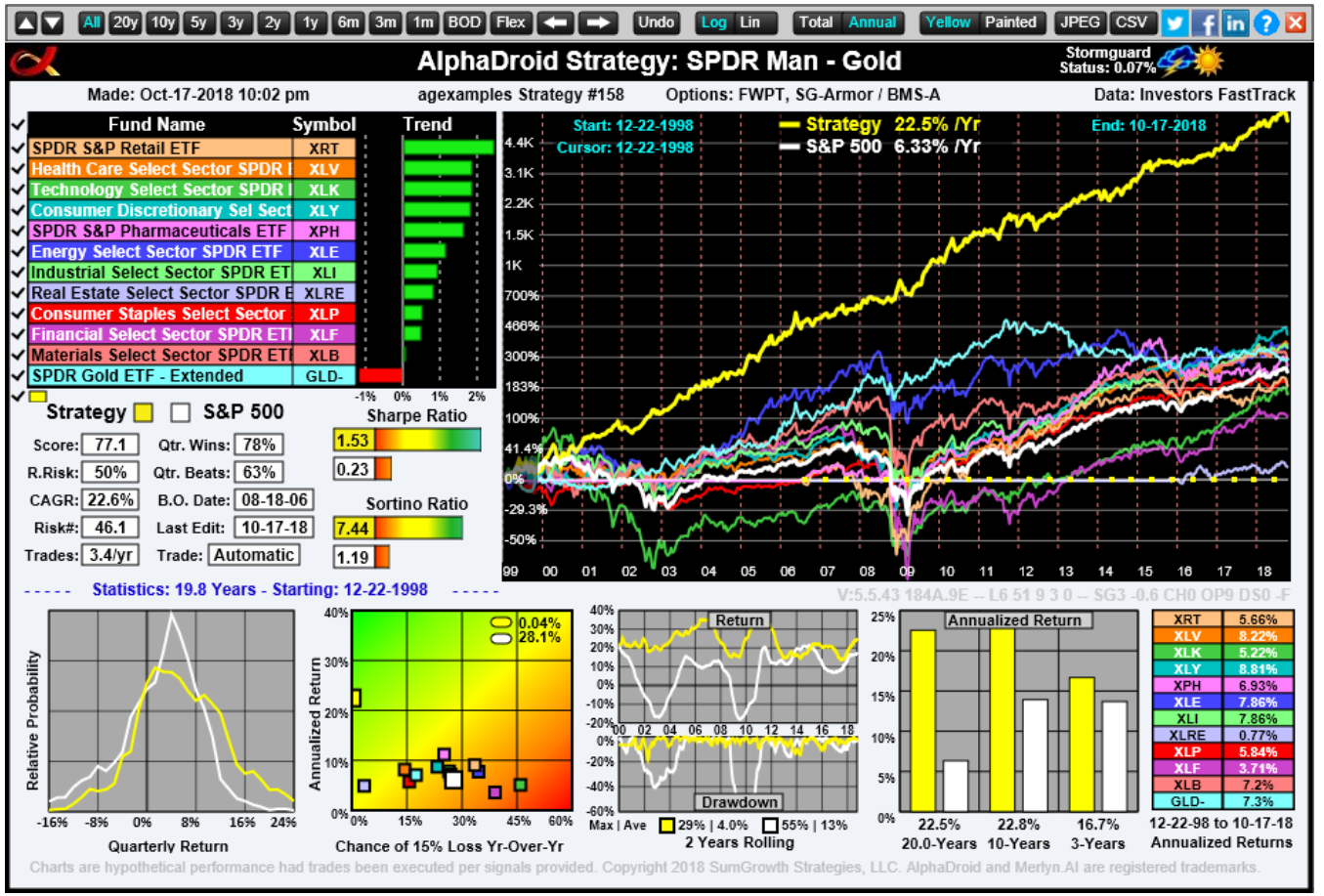
Narasimhan Jegadeesh
Emory University

Sheridan Titman
U. of Texas, Austin

These Guys

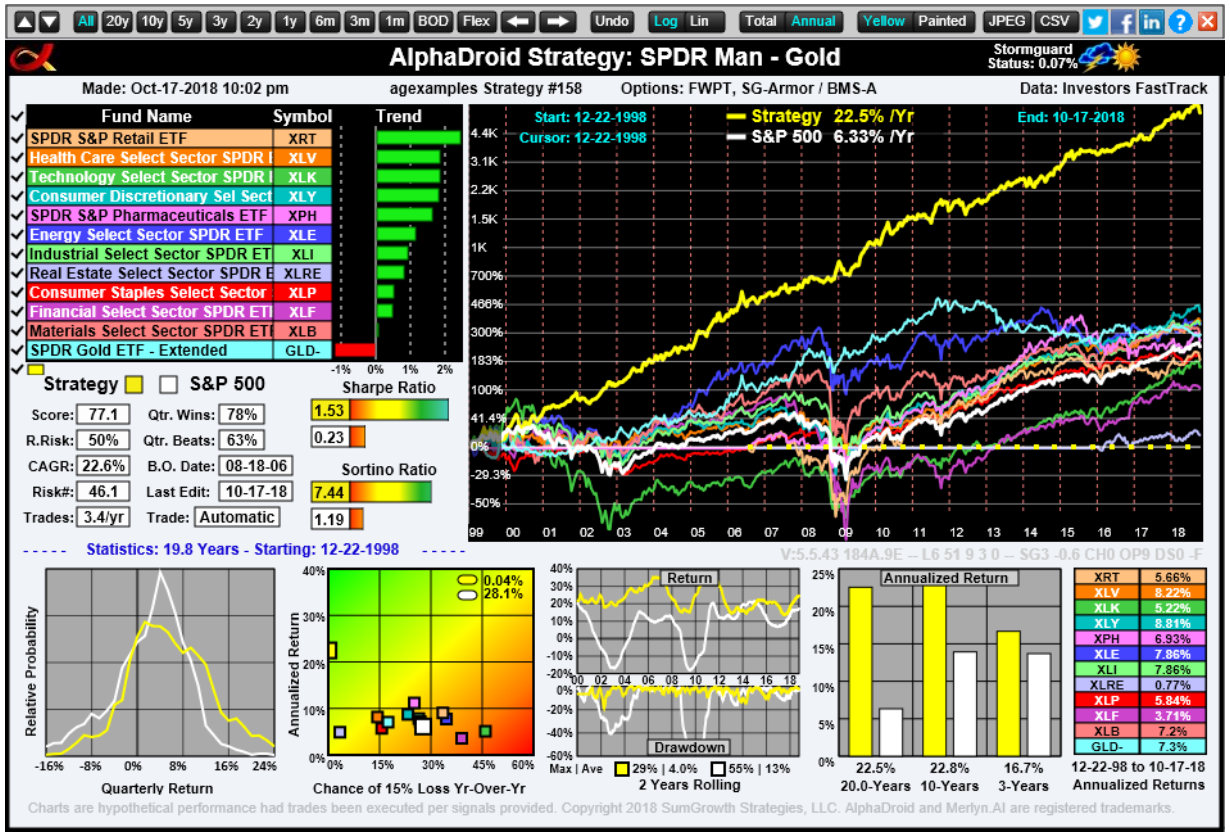
Got us Here

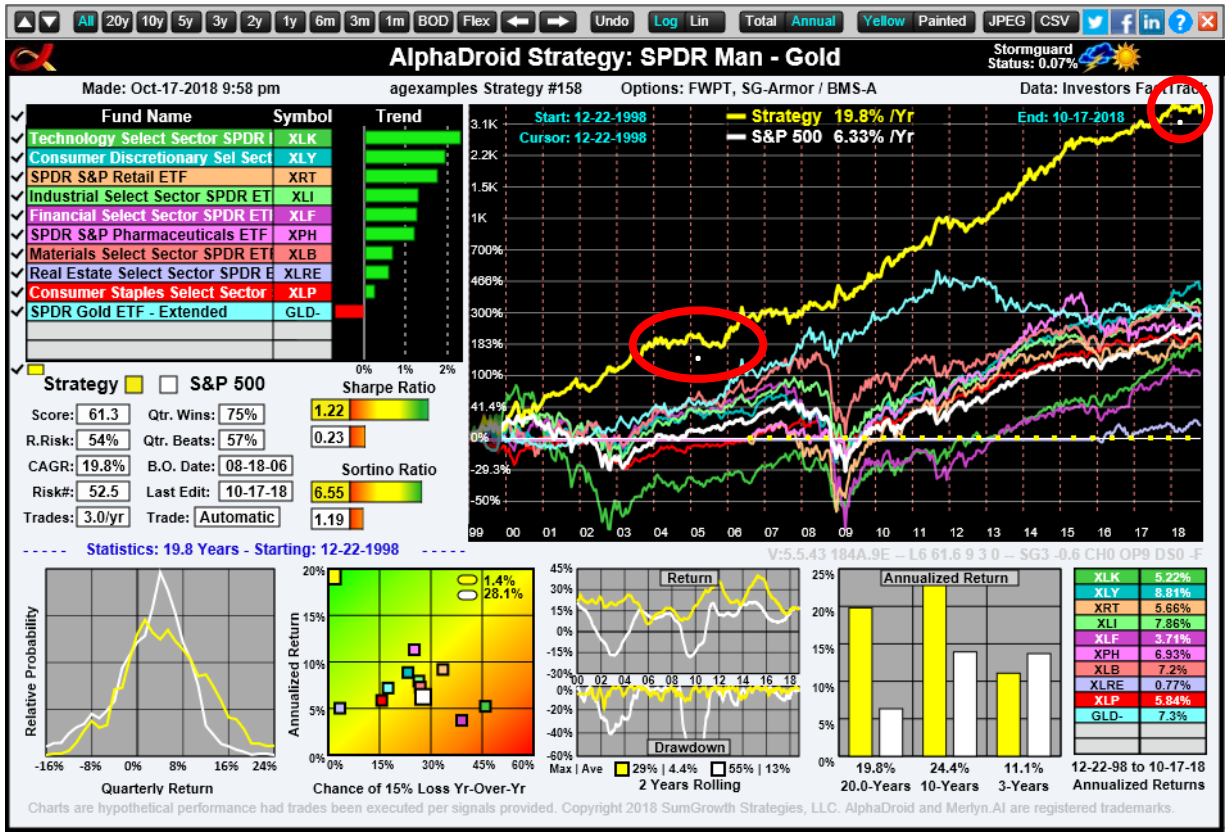
Is There More?



What About Selection Bias?

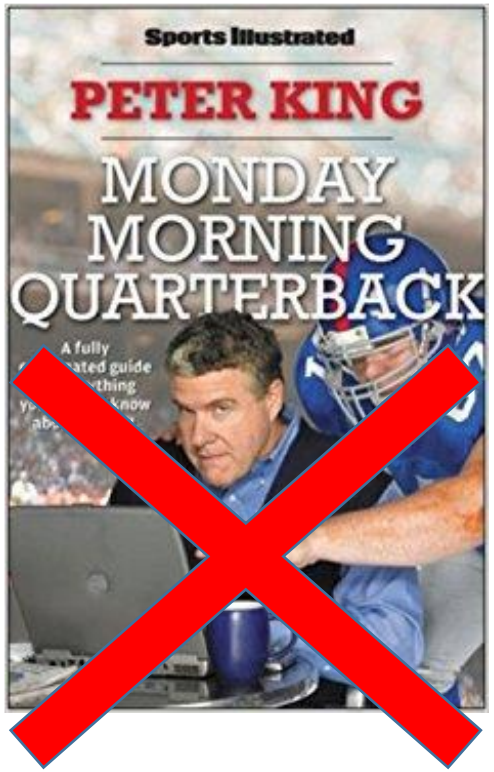
Who Needs
XLV-Healthcare and XLE-Energy?



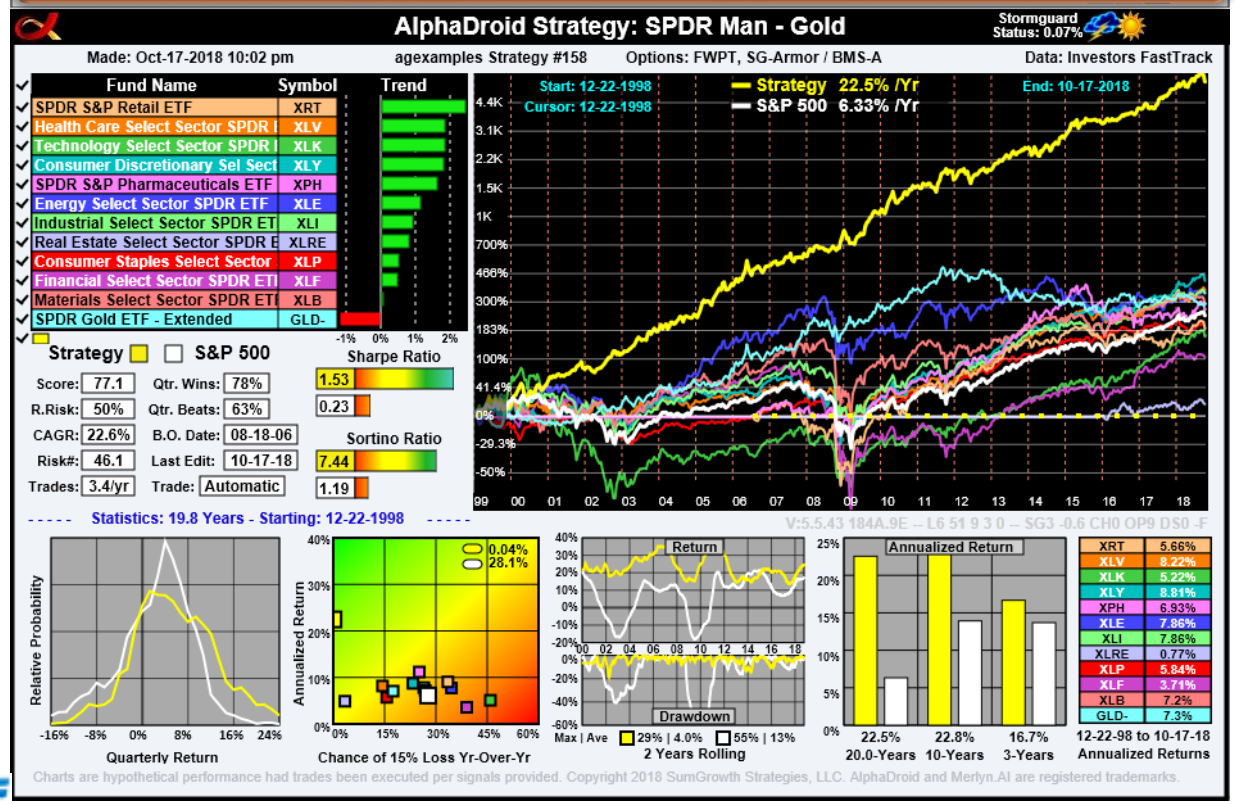


Merlyn.AI

Is a Genetic Algorithm
Layered on Top of a Strategy



Genetic Algorithm on Top



Why?

To Evolve its Set of Funds Each Month

Why?

To Remove Hindsight Selection Bias

Artificial Intelligence Algorithms

Types of machine learning algorithms[edit]
•Almeida–Pineda recurrent backpropagation
•ALOPEX
•Backpropagation
•Bootstrap aggregating
•CN2 algorithm
•Constructing skill trees
•Dehaene–Changeux model
•Diffusion map
•Dominance-based rough set approach
•Dynamic time warping
•Error-driven learning
•Evolutionary multimodal optimization
•Expectation–maximization algorithm
•FastICA
•Forward–backward algorithm
•GeneRec
•Genetic Algorithm for Rule Set Production
•Growing self-organizing map
•HEXQ
•Hyper basis function network
•IDistance
•K-nearest neighbors algorithm
•Kernel methods for vector output
•Kernel principal component analysis
•Leabra
•Linde–Buzo–Gray algorithm
•Local outlier factor
•Logic learning machine
•LogitBoost
•Manifold alignment
•Minimum redundancy feature selection
•Mixture of experts
•Multiple kernel learning
•Non-negative matrix factorization
•Online machine learning
•Out-of-bag error
•Prefrontal cortex basal ganglia working memory
•PVLV
•Q-learning
•Quadratic unconstrained binary optimization
•Query-level feature
•Quickprop
•Radial basis function network
•Randomized weighted majority algorithm
•Reinforcement learning
•Repeated incremental pruning to produce error reduction (RIPPER)
•Rprop
•Rule-based machine learning
•Skill chaining
•Sparse PCA
•State–action–reward–state–action
•Stochastic gradient descent
•Structured kNN
•T-distributed stochastic neighbor embedding
•Temporal difference learning
•Wake-sleep algorithm
•Weighted majority algorithm (machine l

Supervised learning
•AODE
•Artificial neural network
•Association rule learning algorithms
  • Apriori algorithm
  • Eclat algorithm
•Case-based reasoning
•Gaussian process regression
•Gene expression programming
•Group method of data handling (GMDH)
•Inductive logic programming
•Instance-based learning
•Lazy learning
•Learning Automata
•Learning Vector Quantization
•Logistic Model Tree
•Minimum message length (decision trees, decision graphs, etc.)
  • Nearest Neighbor Algorithm
  • Analogical modeling
•Probably approximately correct learning (PAC) learning
•Ripple down rules, a knowledge acquisition methodology
•Symbolic machine learning algorithms
•Support vector machines
•Random Forests
•Ensembles of classifiers
  • Bootstrap aggregating (bagging)
  • Boosting (meta-algorithm)
•Ordinal classification
•Information fuzzy networks (IFN)

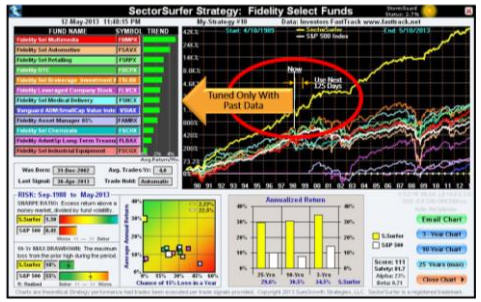
Bayesian[edit]
Bayesian statistics
•Bayesian knowledge base
•Naive Bayes
•Gaussian Naive Bayes
•Multinomial Naive Bayes
•Averaged One-Dependence Estimators (AODE)
•Bayesian Belief Network (BBN)
•Bayesian Network (BN)
Decision tree algorithms[edit]
Decision tree algorithm
•Decision tree
•Classification and regression tree (CART)
•Iterative Dichotomiser 3 (ID3)
•C4.5 algorithm
•C5.0 algorithm
•Chi-squared Automatic Interaction Detection (CHAID)
•Decision stump
•Conditional decision tree
•ID3 algorithm
•Random forest
•SLIQ
Linear classifier[edit]
Linear classifier
•Fisher's linear discriminant
•Linear regression
•Logistic regression
•Multinomial logistic regression
•Naive Bayes classifier
•Perceptron
•Support vector machine
Unsupervised learning[edit]
Unsupervised learning
•Expectation-maximization algorithm
•Vector Quantization
•Generative topographic map
•Information bottleneck method
Artificial neural networks[edit]
Artificial neural network
•Feedforward neural network Logic learning machine
•Self-organizing map
Association rule learning[edit]
Association rule learning
•Apriori algorithm
•Eclat algorithm

Semi-supervised learning[edit]
Semi-supervised learning
•Active learning – special case of semi-supervised learning
Generative models
•Low-density separation
•Graph-based methods
•Co-training
•Transduction
Deep learning[edit]
Deep learning
•Deep belief networks
•Deep Boltzmann machines
•Deep Convolutional neural networks
•Deep Recurrent neural networks
•Hierarchical temporal memory
•Generative Adversarial Networks
•Deep Boltzmann Machine (DBM)
•Stacked Auto-Encoders
Other machine learning methods and problems[edit]
•Anomaly detection
•Association rules
•Bias-variance dilemma
•Classification
  • Multi-label classification
•Clustering
•Data Pre-processing
•Empirical risk minimization
•Feature engineering
•Feature learning
•Learning to rank
•Occam learning
•Online machine learning
•PAC learning
•Regression
•Reinforcement Learning
•Semi-supervised learning
•Statistical learning
•Structured prediction
  • Graphical models
  • Bayesian network
  • Conditional random field (CRF)
  • Hidden Markov model (HMM)
•Unsupervised learning
•VC theory

How SumGrowth Will Use AI

To Perceive the environment and take action to maximize success.

FWPT: Forward Walk Progressive Tuning



Old

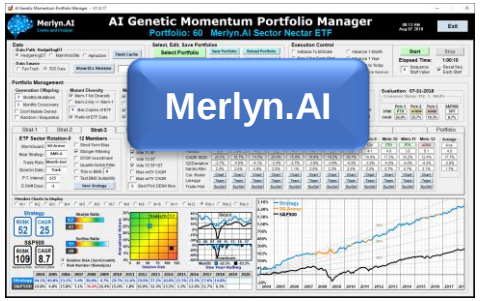
Adaptively changing the algorithm based on the past character of the data. Walks through out-of-sample data for its buy/sell decisions.

StormGuard - Armor

Old

Employs Fuzzy Logic to evaluate a composite of 12 measures of the market's character to determine current investment safety.

FWPP: Forward Walk Progressive Picking

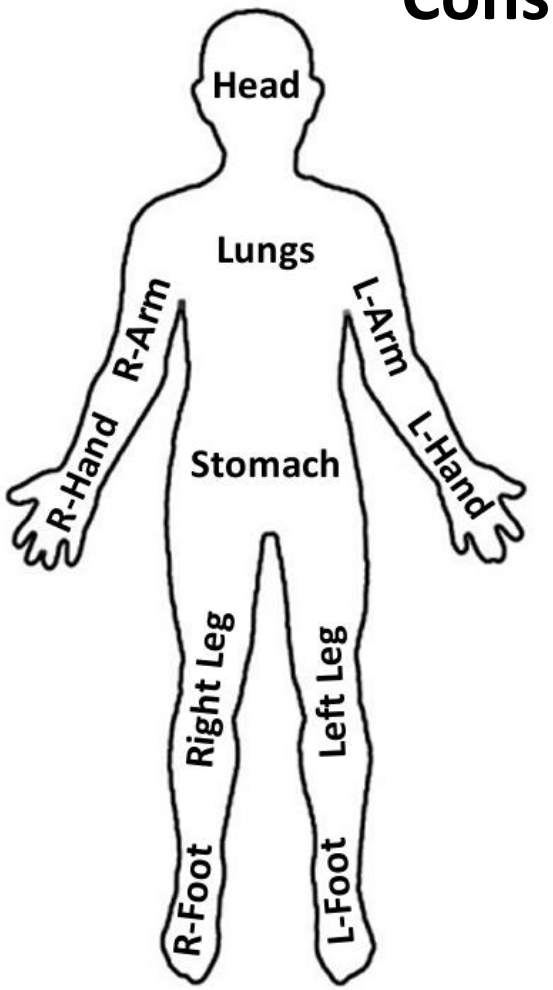


New

Uses a Genetic Algorithm to evolve the candidate funds in a population of momentum strategies to eradicate remnants of hindsight selection bias.

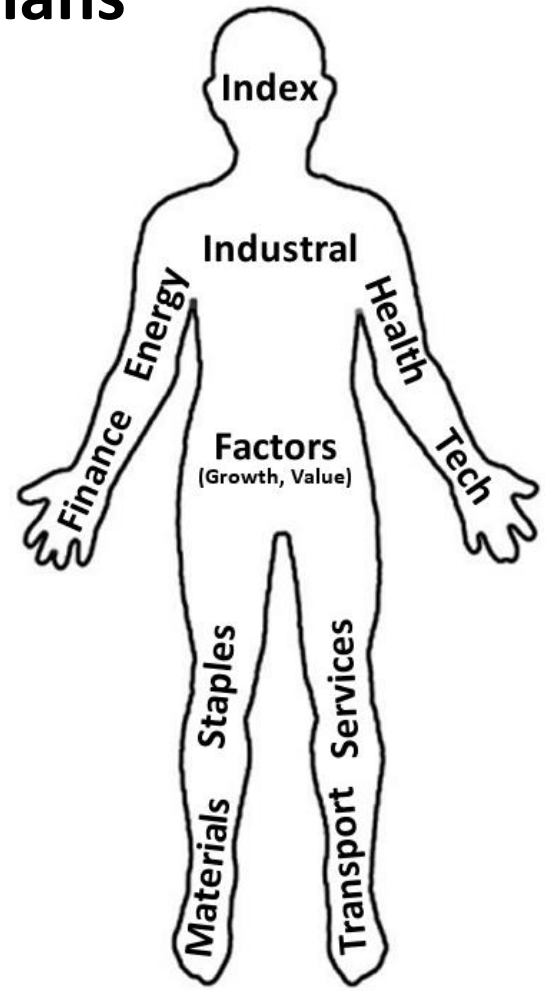
How Our Genetic Algorithm Works

Consider This Analogy to Humans



Human

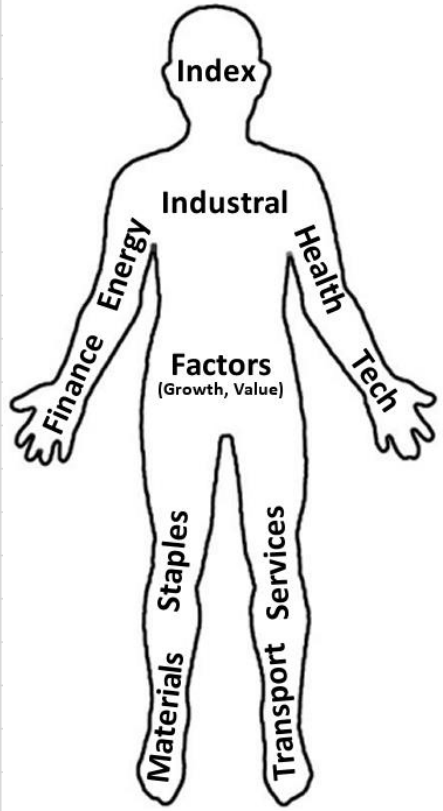
Genetic Evolution:
Mutation
Crossover



Strategy

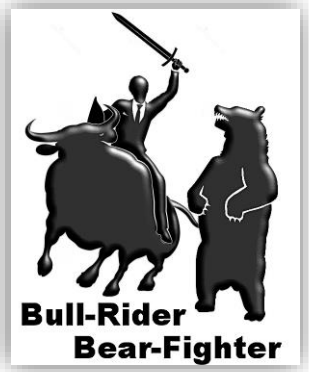
What are the Gene Mutations

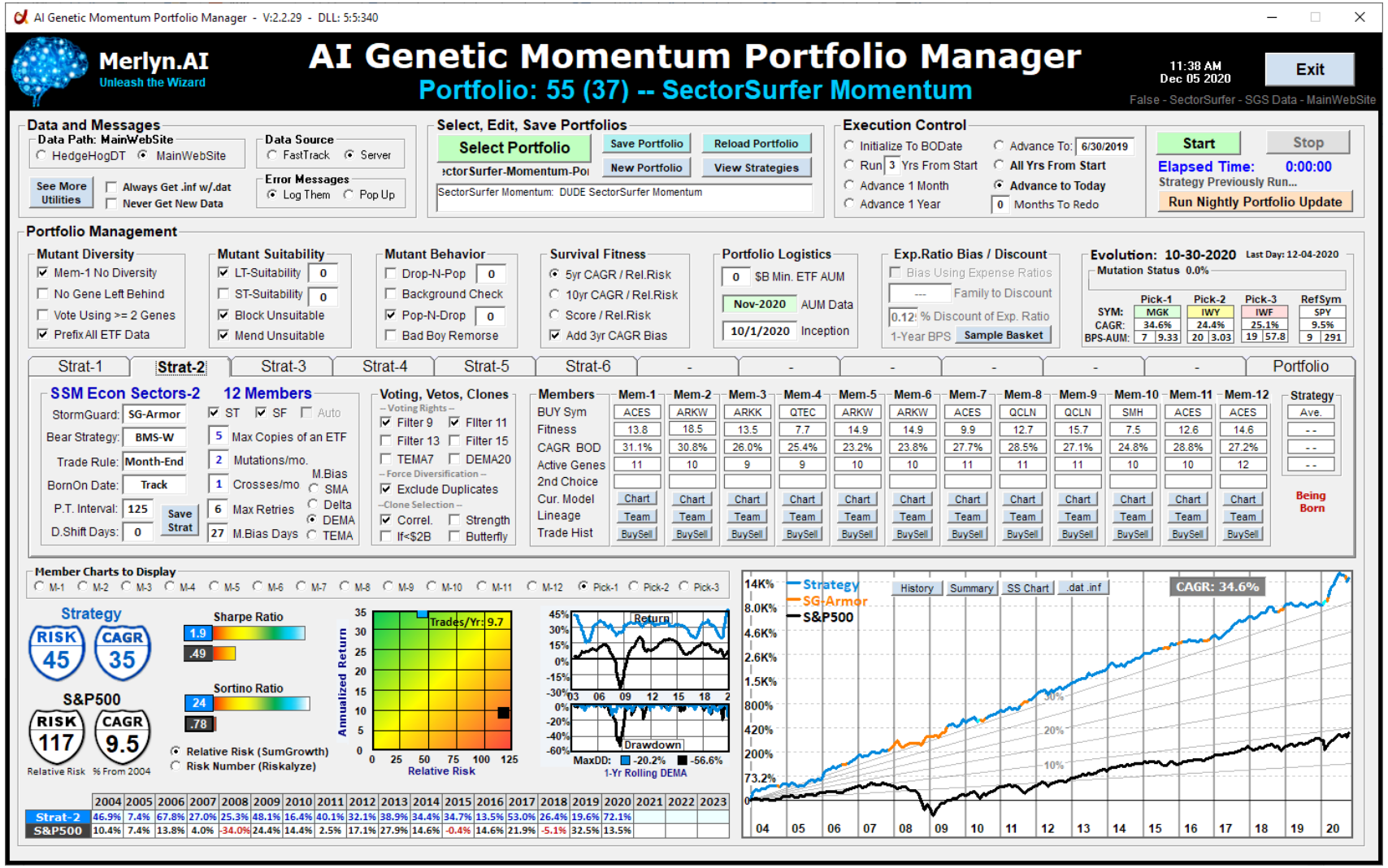
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Name	ETF Sector Rotation-I													
2	Description	SG-A, BMS-A, DSD-1, Mutation and Mating. Population of 10 Strategies. SOS weighted vote. Gene Categories: Cmd, Mat, Enr, Fin, Ind, Cns, Res, Hea, Tk1,													
3	Members	10													
4	StGuard	SG-Armor													
5	BMS	BMS-A													
6	Trade	Month-End													
7	BOD	Track													
8	PT-Int	125													
9	DSDays	-1													
10	S.Filt	0													
11	S.Trends	0													
12	BothFilt	0													
13	QtrNotch	0													
14	Materials	XLB,IYM,VAW,RTM,IGE													
15	Energy	XLE,IYE,VDE,FXN,FENY,RYE													
16	Financial	XLF,IYG,IYF,VFH,FNCL,KBWB,KBWR,FXO,KIE,KRE,KBE,RYF,IAT,IAK,IAI													
17	Industrial	XLI,DIA,IYT,IYJ,ITA,VIS,FXR,XAR,PPA,XTN,RGI													
18	Staples	XLP,VDC,IYK,RHS,FXG,FSTA,RCD,PBJ													
19	Retail/Discr	XLY,IYC,RTH,XRT,PMR,VCR,FDIS,FXD,IBUY,IPAY,FONE,GAMR													
20	Healthcare	XLV,IYH,VHT,IHI,FXH,RYH,IHF,XHE,PTH													
21	Bio-Pharma	PPH,BBH,PJP,IBB,XBI,FBT,IHE,XPH													
22	Technology	XLK,IYW,RYT,IGV,VGT,FXL,ROBO,ARKK,ARKW													
23	Semi-Tech	QQQ,IGM,IGN,XNTK,SMH,XSD,PSI,XT,XNTK,QTEC,FTEC,SNSR													
24	Factors	IVV,RSP,EQWS,GURU,EPS,EZM,CSD,MNA,DGRO,DGRW,FVD,FDL,HDV,PFM,NOBL,QDF,VIG,RDVY,SPYD,SDY,DTD,MMTM,MTUM,BEMO,FDMO,PDP													
25	Stylebox	SPY,MDY,SPYG,MDYG,SPYV,MDYV,IJH,IJJ,IJK,IVE,IVV,IVW,IJR,IJS,IJT,IWL,IWX,IWY,OEF,SPTM,RSP,RPG,FEX,FTA,FTC,FNK,FNX,FNY													
26															



All of our Published Indexes Employ

Merlyn.AI Genetic Algorithms





Model Hypothetical Performance

Bull-Rider Bear-Fighter Portfolio

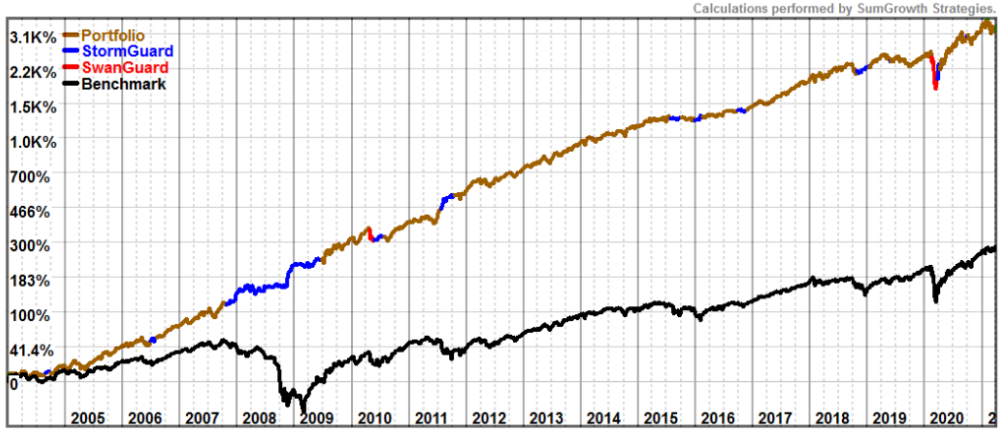
Hypothetical Portfolio Performance

- **Portfolio Inception Date: 09-01-2019** When the portfolio design was completed and available.
- **Forward Walk Starting: 01-02-2004** Backtesting ends. Walk through out-of-sample data begins.
- **Bear Market Strategy: BMS-I,W** Invoked by StormGuard-Armor. Selects only safe harbor funds.
- **Benchmark Index: B8020** Based on suitable Fidelity Asset Manager target allocation mutual funds.

	RISK	CAGR	SHARPE
Portfolio	31.9	22.7%	1.75
Benchmark	71.1	7.9%	0.36

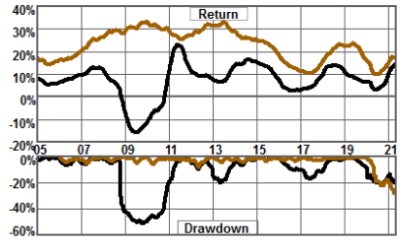
Note: Above statistics are measured from 6/1/2004. Calculations performed by SumGrowth Strategies.

RISK 32 Riskalyze | Merlyn.AI Apr 14, 2021 | CAGR 23 Percent



Underlying Strategies	Weight
1. Bonds BRBF-a	10%
2. Bonds BRBF-b	10%
3. StyleMix BRBF	10%
4. Factors BRBF	10%
5. Regions BRBF	10%
6. Countries BRBF	15%
7. Sectors BRBF-a	20%
8. Sectors BRBF-b	15%

Two Years Rolling



Annualized

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bull-Rider Bear-Fighter	27.9%	19.1%	35.1%	23.7%	32.7%	17.1%	7.5%	12.3%	28.6%	16.5%	11.2%	29.9%
B8020 Benchmark for 80:20	37.7%	16.3%	-5.3%	15.3%	23.5%	5.8%	-0.6%	7.3%	21.1%	-8.7%	25.1%	18.7%

YTD	1-Yr	3-Yr	5-Yr	10-Yr	17.3-Yr
4.0%	47.2%	17.8%	19.2%	21.2%	22.7%
7.0%	44.8%	12.9%	13.3%	9.8%	7.9%

Hypothetical portfolio model performance assumes trade signals provided are executed at the close of the subsequent market day. Past performance does not guarantee future performance. Copyright 2021 SumGrowth Strategies, LLC all rights reserved.

WIZ Index
Bull-Rider Bear-Fighter Index

https://maiindexes.com/wiz-index

SectorSurfer Momentum Portfolio

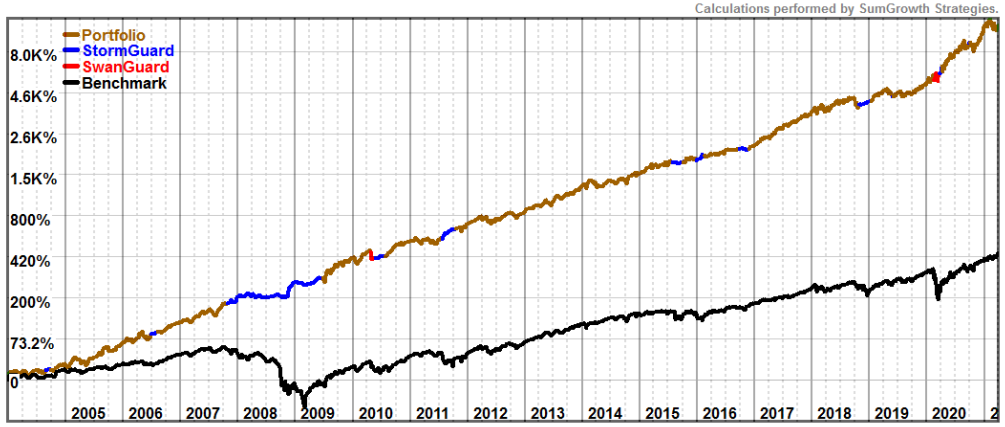
Hypothetical Portfolio Performance

- **Portfolio Inception Date: 11-01-2020** When the portfolio design was completed and available.
- **Forward Walk Starting: 01-02-2004** Backtesting ends. Walk through out-of-sample data begins.
- **Bear Market Strategy: BMS-W,Y** Invoked by StormGuard-Armor. Selects only safe harbor funds.
- **Benchmark: S&P500 Index** Market-cap-weighted index of 500 largest US publicly traded companies.

	RISK	CAGR	SHARPE
Portfolio	25.8	31.7%	1.65
Benchmark	75.6	10.1%	0.50

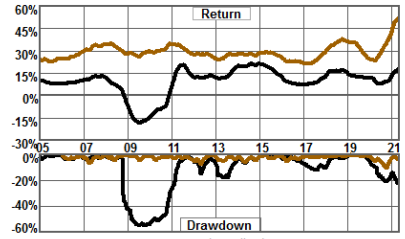
Note: Above statistics are measured from 6/1/2004. Calculations performed by SumGrowth Strategies.

RISK 26 Riskalyze | Merlyn.AI Apr 14, 2021 | CAGR 32 Percent



Underlying Strategies	Weight
1. SSM Econ Sectors-1	20%
2. SSM Econ Sectors-2	20%
3. SSM Econ Sectors-3	15%
4. SSM Econ Sectors-4	15%
5. SSM GeoPolySect-1	15%
6. SSM GeoPolySect-2	15%

Two Years Rolling



Annualized

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SectorSurfer Momentum	36.2%	25.1%	25.7%	16.4%	44.4%	17.7%	22.6%	17.2%	54.0%	19.3%	25.9%	101.7%
S&P500 Index	26.5%	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	21.8%	-4.4%	31.5%	18.4%

YTD	1-Yr	3-Yr	5-Yr	10-Yr	17.3-Yr
9.9%	75.4%	45.7%	41.2%	33.4%	31.6%
10.3%	47.6%	18.0%	16.9%	14.4%	10.1%

Hypothetical portfolio model performance assumes trade signals provided are executed at the close of the subsequent market day. Past performance does not guarantee future performance. Copyright 2021 SumGrowth Strategies, LLC all rights reserved.

DUDE Index
SectorSurfer Momentum Index

https://maiindexes.com/dude-index

Essential Videos and Details

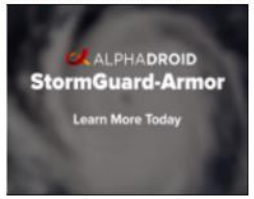
Need-to-Know Basics and Deep-Dive Topics for the Curious

https://www.alphadailybrief.com/Pages/EssentialVideos.aspx

Some Worthy Informational Videos

Technology Introduction - 7 min.

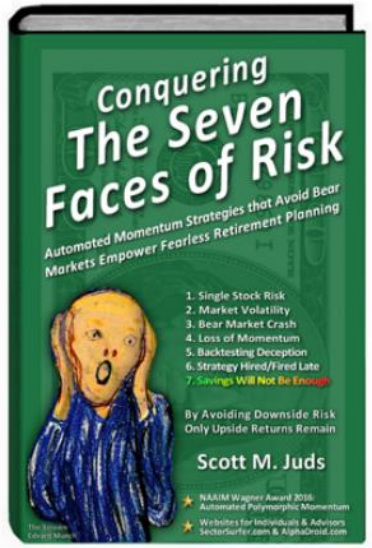
Market Crash Protection - 1 min.



Merlyn.AI Overview - 2 min.

Technology Details - 31 min.

Merlyn.AI Details - 100 min.



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- https://www.alphadailybrief.com/Pages/BearStrategies.aspx
- https://www.merlyn.ai/

Sector Rotation and Risk Management

Houston AAII Chapter Sat. Nov. 19, 2022