Black Swan
Mitigation & Vaccination
I'll be back!

by Scott Juds
7 PM PST July 22, 2020
SumGrowth Strategies
Merlyn.AI Corporation
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- Investing in securities is speculative. You may lose some or all of the money that is invested.
- Past results of any particular trading system are not a guarantee of future performance.
- Always consult with a registered investment advisor or licensed stock broker before investing.
Black Swan - 2020
Mitigation and Vaccination

Today’s Topics:

• Some Summary Background Information
• The Three Different Types of Bear Markets
• The Continuing Evolution of StormGuard
• Black Swan Mitigation Response
• Black Swan Vaccination Response
• The SwanGuard Roll Out Plan
• Let’s Go Online and Try It
Brief Intro - Who We Are

2009 Launch
SumGrowth Strategies, LLC
SectorSurfer (Individuals - 2010)
AlphaDroid (Advisors – 2016)
The Book - 2017
Merlyn.AI - 2018

2019 Launch
Melyn.AI Corporation
MAI Indexes
Alpha Architect – White Label
SEC FINRA NYSE Etc.
SwanGuard- 2020
It's The Only Point

See how a Royal Society Fellow, a National Medal of Science winner, and a trio of Nobel Laureates laid the foundation that forever changed the art and science of momentum investing.

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

Conquering
The Seven Faces of Risk

By Scott Juds, Founder & CEO, SumGrowth Strategies

Everything in the next few basic review slides is detailed in the book. You can get a free PDF copy of the book here: Google: “Conquering the Seven Faces of Risk PDF”
Momentum in Market Data

Some quick background review slides.

Narasiman Jegadeesh
Emory University

Sheridan Titman
U. of Texas, Austin

Academic Paper:
“Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency”
(1993)
Formally Confirmed

Momentum in Market Data

Eugene Fama
Nobel Prize, 2013

Kenneth French
Dartmouth College

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

Academic Paper - 2008:
“Dissecting Anomalies”
Signal-to-Noise Ratio

Controls the Probability of Making the Right Decision

Claude Shannon
National Medal of Science, 1966

Proved

Seeing even a little bit of the road ahead changes everything.
Matched Filter Theory

Design for Optimum Signal-to-Noise Ratio

Think Outside of the Box

J. H. Van Vleck
Noble Prize, 1977
**Differential Signal Processing**

Removes Common Mode Noise

*(Relative Strength)*

Samuel H. Christie
Royal Society 1836

Wheatstone Bridge

5 Years Full Span
How to WIN: Sectors Provide Power Strokes
StormGuard-Armor
Detect the Onset of Bad Markets

Know When the Market is Safe: Risk-On vs Risk-Off
The candidate ETFs in their grey, 6-mo. SMA Strategy in painted path.

The following sequence of slides shows how each of the many pieces contribute, starting with using only 6mo (128d) SMA momentum.
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
It is a complex machine, like the engine in your car... all of the many parts are there for a reason.
AI: Genetic Algorithm

Remove Hindsight Selection Bias
Bull-Rider Bear-Fighter Index

Underlying Strategies

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<td>1. Bonds BRBF-a</td>
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<td>2. Bonds BRBF-b</td>
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<td>4. Factors BRBF</td>
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<td>8. Sectors BRBF-b</td>
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MAI Bull-Rider Bear-Fighter Index
Black Swan - 2020
Mitigation and Vaccination

Black Swan Events:
Rare, unpredictable, and beyond the realm of normal expectations.

Stocks notched their **fastest bear market on record** and then posted a near 20% rally last week.
- Morgan Stanley
Black Swan: When to Sell?

S&P500
Black Swan Events
January 1950 to April 2020

Except for Black Monday 1987 and the 2020 COVID-Crash, all other bear markets roll over slowly and recover off a V or W bottom.
Three Kinds of Bear Markets
With Different Characteristics

1. **Structural**: 2008 financial collapse with a long recovery.
2. **Event Shock**: China trade fears and reversible FED statements.
3. **Market Bubble**: Big bubbles take time to roll over. Minor bubble can be sharp.
StormGuard Evolution


Death Cross Whipsaw Loss Lessons

StormGuard Evolution

**StormGuard-Armor(+)**

Three Market Views Signal Danger Better

- Improved Exit Decisions
- Improved Re-Entry Decisions
- Exit to a Bear Market Strategy

More Information

StormGuard-Armor is Smarter – Not Faster

From SG-Armor Web Page
Black Swan Mitigation
(Required if Not Vaccinated)

Suddenly...
Before You Know It...
• A Back Swan Is Coming at You
• The Back Swan Bites Your Butt

Ouch!
Black Swan Mitigation
(Required if Not Vaccinated)

Suddenly...
Before You Know It...
• A Back Swan Is Coming at You
• The Back Swan Bites Your Butt
• And It’s Got You by Your Wallet
Black Swan Mitigation
(Required if Not Vaccinated)

Suddenly...
Before You Know It...
• A Back Swan Is Coming at You
• The Back Swan Bites Your Butt
• And It’s Got You by Your Wallet

Mitigation Means
Taking Action to Keep Your Wallet and Letting the Black Swan Just Fly Away.
Black Swan Mitigation
(Required if Not Vaccinated)

Suddenly...
Before You Know It...
• A Back Swan Is Coming at You
• The Back Swan Bites Your Butt
• And It’s Got You by Your Wallet

Mitigation Means
Taking Action to Keep Your Wallet and Letting the Black Swan Just Fly Away.
Mitigation Response #1
Don’t Lock In Whipsaw Losses

Stocks notched their *fastest bear market on record*
Morgan Stanley

SG-Delta MSI indicated *oversold before SG-Armor triggered.*
Mitigation Response #1
Don’t Lock In Whipsaw Losses

Translation
Don’t Trigger SG-Armor if Delta MSI indicates Oversold

SGS - Delta MSI replication:
15-day DEMA of the daily return of the dividend adjusted Russell 3000 index. (about 3x faster than SG-Armor).
Mitigation Response #2

Don’t Lock In **Technical** Whipsaw Losses

Translation

Oversold ... Mean Reversion ... Buy the Dips

Inverse Trend Order Best Predicts Next Month’s Return
Which Kind of Recovery? L-U-V? ..... It Depends

Not All Boats Rise Together

Bad Breadth is Good... for Momentum Strategies
Mitigation Response
Deployment Status

March 20, 2020
Deployment of Both Complete Throughout SectorSurfer, AlphaDroid and Merlyn.AI

Mitigation #1
Oversold SG-Armor Trigger Block

Mitigation #2
Select via Inverse Trend Following Oversold

StormGuard - Armor Indicator

Bear Market
Drop Rebound: SGA Trigger Blocked
Black Swans are Like an Earth Quake.

1. When VIX > 25, Move to Treasury
2. Otherwise do Momentum Stuff.
Vaccination Response
Real-Time BS Detection

Note that SwanGuard only triggers twice when StormGuard is not already handling the problem.
## Vaccination Response

### A Portion of the Original Modeling

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### Notes

- The Delta-9 indicates a good extinction in the falling
- Over-fitted, while not in an asymptotic benchmark.

### Data

- **Date**: Full dataset from 2019-10-10 to 2020-09-25
- **V-LT**: Vaccination rate
- **V-LT-SPM**: Vaccination rate with a 2-month delay

### References

Looks like it works there too.
Vaccination Deployment Status
Complete for SectorSurfer & AlphaDroid
Vaccination Deployment Status
Complete for SectorSurfer & AlphaDroid

After Vaccination
Vaccination Deployment Status
For Merlyn.AI Indexes

To Be Completed by July 31-2020

- Existing Index History Must Remain Fixed
- Existing Indexes Can Use it Going Forward
- New Indexes Can Employ it in Backtesting
Enabling SwanGuard

Let’s Go Online...
Any Questions?
The Tactical Growth and Income Index (30/70 Conservative Allocation)

The MAE Tactical Growth and Income Index begins with a 30/70 equities/bonds allocation typical of a classic conservative portfolio. Each of eight underlying momentum strategies selects one ETF (its momentum leader) for the portfolio to hold. During bull markets, the Index allocates 15% to sectors, 5% to countries, 5% to global regions, 5% to dividends, and 75% to bonds, treasuries, gold, and the like. The index automatically allocates 100% to defensive ETFs when bear market strategies are signaled. The Index additionally employs these methods to further improve performance:

- Advanced signal processing, that we call Temporal Portfolio Theory, to improve selection reliability;
- A Bull/ Bear Indicator, StormGuard-Armor, to determine the market’s bull vs. bear status;
- Adaptive Tuning that seeks to eliminate hindsight bias in the momentum algorithm;
- Fuzzy Logic to better assess the market’s Bull vs. Bear status; and
- Genetic Algorithms that evolve the strategies and seek to eliminate hindsight selection bias.

About Merlyn.AI

Merlyn.AI Corporation (MAY) is a Palo Alto-based exchange traded fund sponsor launched in January 2019 by two long-time friends, David Epstein and Scott Juds. MAY is exclusively licensed to create and market ETFs based on the Merlyn.AI technology developed by Seattle-based SumGrowth Strategies, LLC. Merlyn.AI is the result of more than three decades of research and development by MAY Co-founder and Chief Science Officer Scott Juds, who discovered trends in market data using advanced signal processing in early 1992.

David Epstein, Co-founder and CEO is also the CEO and Founder of Epstein Advisors. Mr. Epstein, a DCI Fellow at Stanford University, teaches finance and business ethics as an adjunct professor at the University of San Francisco. He has served as a General Partner at Crosspoint Capital, CEO of Sol Vibescy, Ravern Graphics, and VP of Engineering at NextGen Kardi’s Sq Research. Mr. Epstein received his MBA from Boston University and his MSIEE and BSEE from the University of Wisconsin-Madison.

Scott Juds, Co-founder and Chief Science Officer: The Stanford University and UW-Madison-educated electrical and computer engineer is the founder of Seattle-based SumGrowth Strategies, a decade-old company with two automated platforms - Alphapod for advisors and SectorSifter for individual investors. Mr. Juds is the named inventor on more than 40 US and foreign patents, creator of Temporal Portfolio Theory (modern momentum investing using signal processing, match filtering, and adaptive technologies), and the author of Composing the Seven Faces of Risk (PiTech Press 2015) and Photovoltaic Sensors and Controls (Harlan Dekker 1988).

Sue Gazman, COO, With an HD-Engineering Management degree from Stanford University and BSEE from UW-Madison, Mr. Guzman has three decades of successful corporate leadership experience in Blue Chip firms ( Hewlett Packard and National Instruments), as well as new companies, such as fiber optics startup Kxaera. These experiences led to her selection as CEO and General Manager (Int.) of Century Systems/Allstar Inc., a major supplier of broadband test and measurement products based in Cupertino, CA. Also like her duchess at MAY, she is President of CauseScenes for Independence (South Bay), a nonprofit that trains highly skilled assistance dogs for placement with children and adults with disabilities—for free.
MAI Indexes: Momentum Investing Strategies

Advanced signal processing and integrated market strategies have forever changed the art and science of momentum investing.

It’s About the Right Tools for the Job

The performance of firms and telecommunications has improved considerably since Modern Portfolio Theory (MPT) was developed in 1952. While the simplistic “sharpe ratio” formula remains in use, the modern portfolio theory (MPT) framework has evolved. The addition of new problems and solutions to the mix has led to the development of new strategies. To this end, MPT has evolved to incorporate a wide range of new tools and techniques. MPT is a powerful tool for identifying and managing risk, and it is used in a wide range of applications, from portfolio management to financial planning.

A Paradigm Shift

While the traditional approach to market investing focuses on a specific slice of the market, such as a particular sector, factor, or asset class, MAI Indexes is a comprehensive, self-contained portfolio management system that evaluates over 250 ETFs each month and selects a portfolio that seeks to provide the five things investors want most.

Conquering the Seven Faces of Risk

MAI Bull-Rider Bear-Fighter Index

The MAI Bull-Rider Bear-Fighter Index begins with an 80/20 allocation to an index of the 10 highest momentum strategies across all sectors (as measured by their performance in the prior month). The portfolio is rebalanced monthly. The MAI Bull-Rider Bear-Fighter Index has an average return of 10% per annum, and it is expected to outperform the market on average.

MAI Tactical Growth & Income Index

The MAI Tactical Growth & Income Index begins with a 33% allocation to a basket of high-quality growth stocks, a 33% allocation to a basket of high-quality income stocks, and a 33% allocation to a basket of high-quality dividend stocks. The portfolio is rebalanced monthly. The MAI Tactical Growth & Income Index has an average return of 10% per annum, and it is expected to outperform the market on average.

Merny.AI

Merny.AI is a fully automated trading platform that uses advanced signal processing and machine learning algorithms to identify and trade winning opportunities in the market. Merny.AI is designed to provide investors with a dynamic and profitable investment platform.