Logical Invest @ AAll Silicon Valley

Intelligent, rule-based Portfolio Strategies

April 11, 2015
Alexander Horn
Agenda

1. Who we are & What we stand for

2. Constructing your ‘all weather’ self-managed portfolio

3. Building a well-balanced crash protection

4. Harvesting the ‘Fear Premium’ and 'Rebalancing losses'

5. Markowitz Meets Logical Invest
1. Who we are & What we stand for

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5. Markowitz Meets Logical Invest
Who we are

**Frank Grossmann, Zurich**, studied Microtechnics at the Federal Institute of Technology in Lausanne and Business Administration at the Federal Institute of Technology in Zurich. After the Studies in 1989 he founded Labocontrol AG which he sold in 2000. Since then he is a full-time investor and founded Logical Invest in 2013.

**Scott Walker, NYC** has an MBA & post graduate work in econometrics & finance. He has been developing advanced analytical and forecasting models for decades, applying these tools in successfully for US financial firms, advisory groups, hedge funds, personal clients and his portfolio.

**Vangelis Maderakis, Athens** holds a B.A. in Economics & Theater Arts from Cornell University and an M.F.A. in Motion Picture Producing from the Peter Stark Program at the University of Southern California. He has been involved in quantitative research since 2007 and is well known under his blog pseudonym “SanzProphet.”

**Alexander Horn, Mexico City** holds an MBA from the IPADE Business School and an M.A. in International Business from the University of Paderborn. He has been the CFO in Japan for a major global chemical player. Before he served in executive roles in North America, Europe and Asia within the automotive sector.
What we are

- General Partnership founded 2014, registration in Switzerland in process
- Offices in Zurich, New York, Athens and Mexico City
- We develop intelligent, rule-based portfolio strategies for private and institutional clients. Our strategies are for DIY investors. We share and educate, but do not handle any funds.
- No registered Investment Advisor in the US, and no intention to become one in the near future
- In process of opening an investment fund in cooperation with a major US money manager. In the near future plans to open ETF and EU certificate to give private investors more options to invest in our strategies.
What we do

- We use **quantitative based strategies** to manage our own successful investments. What we publish is what we **use ourselves to manage our families’ money**. We enjoy researching new methods and adapting them to an ever changing investment market.

- Researching and studying the markets makes us tick and **we enjoy sharing what we have learned**. We want to help others feel safer, reduce their investment expenses and improve their investment returns. We know how hard it is to **build the confidence** to get started and even harder to separate soundly engineered and researched investment strategies from the “miracle-promising, get-rich-now” noise.

- We deploy quantitative strategies that we have **thoroughly researched, traded and stress tested** in different conditions. They all offer superior performance and mechanisms to **protect you during market crashes**. All strategies are based on sound mathematical rules and avoid any emotional decisions in the investment process.
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5. Markowitz Meets Logical Invest
The Basics – Fishbowl theory (1/4)

- **The Bowl**: Portfolio Purpose, Size & Duration
  - Retirement, Savings, Real Estate, Tuition
  - Realistic Risk/Return expectation,
  - The Trap: Complexity, Cost, Discipline

- **The Fish**: Asset Selection
  - Cross-Asset diversification, crash-protection, hedge
  - Passive approach: ETF vs Mutual Funds
  - Trap: Selection bias, liquidity, spreads, costs,

- **The Water**: Tactical Approach vs Buy&Hold
  - Volatility is good for momentum, need funds to ‘flow’ naturally
  - Risk-on/off and choppy markets are bad – uncontrolled waves
  - Trap: Curve fitting & not ‘adaptive’ to changes in market environment
The Basics – Fishbowl theory (2/4)

- **The Bowl: Portfolio Purpose, Size & Duration**
  - Retirement, Savings, Real Estate, Tuition
    - Long term approach must fit own ‘style’
    - Discipline, Habits, Plan for unexpected
    - $50k when just starting first job?
    - $500k mid-career for retirement?
    - $1,500k in retirement for income?
  - Realistic Risk/Return expectation
    - 5-6% Risk-free? Not anymore, never, ever!
    - Volatility will definitely increase
    - All equity markets are correlated, well other assets also
    - 70% of income in retirement, increasing health cost

- The Trap: Complexity, Cost, Discipline
  - Invest in what you understand, no experiments, no faith: **Study, Challenge, Study**!
  - Paying just 1-2% to banks, mutual funds, commission eats into retirement. DIY
  - Long-term investing requires a hell of discipline, good anti-stress & sleeping habits
The Basics – Fishbowl theory (3/4)

**The Fish: Asset Selection**

- Cross-Asset diversification, crash-protection, hedge
  - AAPL + TSLA only looks good in backtests
  - ‘Blocks’ of assets: Bonds, Equities, Sectors
  - ‘Blocks’ include low-correlated diversifier
  - Hedge only passively though asset classes
  - Stay out of options, futures, CFD’s if you are no expert

- Passive approach: ETF vs Mutual Funds
  - >1500 ETF in US, most 401k and IRA support
  - 0.5% less fee in ETF adds up over 20 years
  - Immediate liquidity, no lockup times, often no commissions

- Trap: Selection bias, liquidity, spreads, costs:
  - Your investment strategy must perform across asset classes or asset lists
  - Choose ETF with daily volume >60k, pick best (=cheapest) broker and exchange
  - Trade yourself! Monthly execution is about 15 minutes. Be greedy, but on costs!
The Basics – Fishbowl theory (4/4)

**The Water: Tactical Approach vs Buy & Hold**

- Communism & Elvis may still be alive!
  - Buy & Hold is dead!
  - Volatility + sudden corrections from 80% HFT
  - High correlation among assets kills MPT

- Some Volatility is good and needed, funds need to ‘flow’ and ‘swap’ naturally around
  - Momentum has the strongest effect during ‘average to medium’ volatility, when correlation can play out. Corrections might be hard to take for humans, but not for well designed algorithms

- Risk-on/off and choppy markets are bad
  - Have realistic expectations when market is choppy, don’t drop the ‘spoon to soon’. Have several strategies in the race, change allocations adaptively between them

- Trap: Curve fitting & not ‘adaptive’ to changes in market environment
  - Challenge you strategy across asset classes and parameter ranges
  - Backtests starting the ‘29 Great Depression only tell you one thing: What happened 90 years ago. Markets change, and changed a lot since ‘08.
Building Blocks for ‘all weather’ Portfolio

Dynamic Meta-Strategy

Example Maximum Sharpe Optimization using Bond Rotation ‘Sleep Well’, Maximum Yield Rotation, Universal Investment Strategy

Tactical Approach

Max Sharpe  |  Momentum  |  Vola Control  |  Leverage  |  Mean Rever

Fixed weight Portfolio

Example 30% Bond Rotation ‘Sleep Well’, 30% Maximum Yield Rotation, 40% Universal Investment Strategy, 30% The BUG

Strategies

Bond Rotation ‘Sleep Well’  |  Global Market Rotation  |  Global Sector Rotation  |  Maximum Yield Rotation  |  Universal Investment Strategy  |  Permanent Portfolio ‘The Bug’

Tactical Approach

Max Sharpe  |  Momentum  |  Vola Control  |  Leverage  |  Mean Rever

Crash Protection and Hedge

Treasuries  |  Volatility  |  Currencies

Base Blocks

Bonds  |  EM Equities  |  US Equities  |  Intl Equities  |  Sectors  |  Commodities
Building Blocks for ‘all weather’ Portfolio – Fixed Weight

Dynamic Meta-Strategy

Tactical Approach
- Max Sharpe
- Momentum
- Vola Control
- Leverage
- Mean Reversal

Fixed weight Portfolio

Strategies
- Bond Rotation ‘Sleep Well’
- Global Market Rotation
- Global Sector Rotation
- Maximum Yield Rotation
- Universal Investment Strategy
- Permanent Portfolio ‘The Bug’

Tactical Approach
- Max Sharpe
- Momentum
- Vola Control
- Leverage
- Mean Reversal

Crash Protection and Hedge
- Treasuries
- Volatility
- Currencies

Base Blocks
- Bonds
- EM Equities
- US Equities
- Intl Equities
- Sectors
- Commodities

Example Maximum Sharpe Optimization using Bond Rotation ‘Sleep Well’, Maximum Yield Rotation, Universal Investment Strategy

Example 30% Bond Rotation ‘Sleep Well’, 20% Maximum Yield Rotation, 20% Universal Investment Strategy, 30% The BUG
Intelligent Portfolio Strategies

Building Blocks for ‘all weather’ Portfolio – Meta-Strategy

Dynamic Meta-Strategy

Tactical Approach
- Max Sharpe
- Momentum
- Vola Control
- Leverage
- Mean Revar

Fixed weight Portfolio

Strategies
- Bond Rotation ‘Sleep Well’
- Global Market Rotation
- Global Sector Rotation
- Maximum Yield Rotation
- Universal Investment Strategy
- Permanent Portfolio ‘The Bug’

Tactical Approach
- Max Sharpe
- Momentum
- Vola Control
- Leverage
- Mean Revar

Crash Protection and Hedge
- Treasuries
- Volatility
- Currencies

Base Blocks
- Bonds
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- US Equities
- Intl Equities
- Sectors
- Commodities

Example Maximum Sharpe Optimization using Bond Rotation ‘Sleep Well’, Maximum Yield Rotation, Universal Investment Strategy

Example 30% Bond Rotation ‘Sleep Well’, 30% Maximum Yield Rotation, 40% Universal Investment Strategy, 30% The BUG
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Building a well-balanced crash protection

- In the majority of our Strategies, Treasuries play the role of automatic “crash guard”:
  - Think of the 5 global markets be a truck speeding down the highway. You are close behind in your car, which has one of these new brake systems which brake automatically to avoid a crash. These braking systems measure the distance to the car in front of you. Such a control system has a gain setting which has to be fine-tuned very well. If the gain is too low, the car will not brake enough. If the gain is too high the car will begin to brake hard and accelerate which will cause oscillation.

- You can tune the ‘gain’ of the treasuries by selecting the duration of the treasuries:
  - Duration acts like a leverage. If you choose a short duration treasury it will take too long to switch and you will suffer losses at a sudden market correction.
  - If the duration or also leverage is too high you will switch too early which results in buy high sell low.

<table>
<thead>
<tr>
<th>Name</th>
<th>Effective Duration (Years)</th>
<th>Effective Coupon (%)</th>
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<tbody>
<tr>
<td>SHY</td>
<td>iShares 1-3 Year Treasury Bond</td>
<td>1.94</td>
</tr>
<tr>
<td>IEI</td>
<td>iShares 3-7 Year Treasury Bond</td>
<td>4.56</td>
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<tr>
<td>TLH</td>
<td>iShares 10-20 Year Treasury Bond</td>
<td>9.68</td>
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<tr>
<td>TLT</td>
<td>iShares 20+ Year Treasury Bond</td>
<td>17.05</td>
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<tr>
<td>EDV</td>
<td>Vanguard Extended Duration Treasury</td>
<td>24.92</td>
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</table>
Building a well-balanced crash protection

2008 / 2009 Financial Crisis:

- Open: 905.98
- Close: 865.29
- Low: 877.44
- High: 911.02
- Vol: 5.7B
- % Chg: -31.10%

- ^GSPC 865.29
- TLH 123.35
- IEI 116.82
- EDV 152.87
- SHY 84.67
- TLT 122.13

Oct 1, 2008 to Apr 1, 2009
Building a well-balanced crash protection

2011 / 2012 European Sovereign Depth Crisis:
Building a well-balanced crash protection

2008 / 2009 Financial Crisis:
- EDV has the most robust properties to act as “crash protection”
- TLT has the advantage of higher liquidity, but requires an about 1.5 ‘leverage’

2011 / 2012 European Sovereign Depth Crisis:
Using ‘crash protection’ can also fire back, especially in the recent risk-on/off years with stock and bond markets being driven by Central Bank statements and macro events.
Building a well-balanced crash protection

A word on correlation:

- 60 days (main lookback period) correlation of all major treasury ETF to the S&P500 is normally negative, with exception of the bond ‘flash-crash’ following the Bernake statement in May 2013.
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Harvesting Rebalancing Losses by shorting 3x leveraged inverse ETF

- How do leveraged ETF work? Teaser: Highly geeky stuff ahead!
  - Leverage **daily** returns using borrowed funds to rebalance their assets daily.
  - Bull leveraged ETF incur in rebalancing losses in declining markets, bear leveraged ETF in upwards markets.

- Example from [Investopedia.com](https://www.investopedia.com) (ignoring borrowing cost and management fees):
  - Consider a week in which the index loses 1% every day for four days in a row, and then gains +4.1% on the fifth day, which allows it to recover all of its losses.

<table>
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<tr>
<th>Day</th>
<th>Index Open</th>
<th>Index Close</th>
<th>Index Return</th>
<th>ETFOpen</th>
<th>ETF Close</th>
<th>ETF Return</th>
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<tr>
<td>Monday</td>
<td>100.00</td>
<td>99.00</td>
<td>-1.00%</td>
<td>100.00</td>
<td>98.00</td>
<td>-2.00%</td>
</tr>
<tr>
<td>Tuesday</td>
<td>99.00</td>
<td>98.01</td>
<td>-1.00%</td>
<td>98.00</td>
<td>96.04</td>
<td>-2.00%</td>
</tr>
<tr>
<td>Wednesday</td>
<td>98.01</td>
<td>97.03</td>
<td>-1.00%</td>
<td>96.04</td>
<td>94.12</td>
<td>-2.00%</td>
</tr>
<tr>
<td>Thursday</td>
<td>97.03</td>
<td>96.06</td>
<td>-1.00%</td>
<td>94.12</td>
<td>92.24</td>
<td>-2.00%</td>
</tr>
<tr>
<td>Friday</td>
<td>96.06</td>
<td><strong>100.00</strong></td>
<td><strong>4.10%</strong></td>
<td>92.24</td>
<td><strong>99.80</strong></td>
<td><strong>8.20%</strong></td>
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</table>

- Index back at 100, but 2x leveraged ETF loses 0.2
Harvesting Rebalancing Losses by shorting 3x leveraged inverse ETF

- **The trick**: Shorting ‘inverse/bear’ 3 times leveraged ETF to improve our hedge with ‘money for nothing’ (Dire Straits 1985)
  - Inverse 3x leveraged version of TLT: TMV (Direxion Daily 20+ Yr Trsy Bear 3X)
  - Lost 90% of its value since inception in 2009.
Harvesting Rebalancing Losses by shorting 3x leveraged inverse ETF

**Very Hypothetical Simulation with constant 2.75% borrowing cost (IB as of 4/5/15)**

- Short 3x bear shows 23% gain over 3x bull ETF (4.4% CAGR)
- Why hypothetical? Borrowing cost and availability change over time, not always feasible, then TMF
- Frees up capital bound as short selling (‘money for nothing’) and/or using 3x leverage
- Just an additional idea to improve overall performance. Needs Study and some practice before doing!
Harvesting Rebalancing Losses by shorting 3x leveraged inverse ETF

- How to benefit in your own portfolio:
  - We employ this as alternative execution scenario in all our strategies when moving adaptively into EDV or TLT. Example:
    - Bond Rotation ‘Sleep Well’
    - Maximum Yield Rotation Strategy
    - Global Market Rotation Strategy
    - Enhanced Permanent Portfolio – The Bug

- Further reading:
  - What is a hedge and why does it makes sense to do it?
  - Risk Management using Timed Hedging
  - TMV hedging and timing
  - Comparison of TMV, TMF or EDV as hedge
Harvesting the ‘Fear Premium’ by investing in inverse Volatility

- Inverse Volatility, Contango & Backwardation - Teaser: More geeky stuff ahead!

- To memorize quickly, imagine your partners mood (future term curve):
  - Going up? Con - ‘Tango’
  - Going down? ‘Backward(s)’ - ation

Courtesy vixcentral.com
Harvesting the ‘Fear Premium’ by investing in inverse Volatility

- Determining Contango / Backwardation:
  - ZIV - Inverse mid-term volatility (4-7) - VelocityShares Daily Inverse VIX MT ETN
  - XIV - Inverse front month volatility - VelocityShares Daily Inverse VIX ST ETN

<table>
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<tr>
<th>Month 1-0 Contango:</th>
<th>Month 4-7 Contango:</th>
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</thead>
<tbody>
<tr>
<td>17.83 / 16.10-1</td>
<td>19.6 / 18.89-1</td>
</tr>
<tr>
<td>= 10.75%</td>
<td>= 3.75%</td>
</tr>
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</table>

(very ‘flat’ currently)
Harvesting the ‘Fear Premium’ by investing in inverse Volatility

- Contango over time:
  - Expresses ‘fear premium’ investors are willing to pay to cover their expectation of long term volatility, e.g. in 4 – 7 months in the future
  - Higher in moments of crisis or corrections, lower in ‘calm waters’
Harvesting the ‘Fear Premium’ by investing in inverse Volatility

- Inverse Volatility ETF allow us to ‘harvest the fear premium’
  - What is a cost for other people when buying VIX futures or ETF
  - Becomes a profit for us when buying inverse volatility ETF (XIV, ZIV, etc)
  - We prefer ZIV due to the more predictable movements, but still caution:
  - This is trading volatility of volatility = Needs daily or weekly attention!
Harvesting the ‘Fear Premium’ by investing in inverse Volatility

How to benefit in your own portfolio:

- We employ this in our:
  - Global Market Rotation Strategy - Enhanced
  - Maximum Yield Rotation Strategy
  - .. and sometimes opportunistically in our own accounts

Further reading:

- How To Build An ETF Rotation Strategy With More Than 50% Annualized Returns
- Comparison of VIX volatility and ZIV return
- Why we invest in ZIV (inverse mid-term volatility) and not in XIV (inverse front month volatility)
- Strategies For Trading Inverse Volatility
- A short analysis of the actual ZIV performance after the July 2014 stock market selloff
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Our development cycle

Custom Portfolio Solutions 2015

Dynamic & Smart Portfolio Solutions 2015

Integrated Portfolio Solutions 2014

Create Alpha versus Buy & Hold 2013

Custom Solutions

Dynamic Portfolio Solutions

Targeted Portfolio Solutions

Single Strategies for existing portfolios
What the market offers

Average annual return and volatility for common Market proxies and possible buy & hold portfolio combinations from Jan 2008 – Mar 2015.
What we offer - Single Strategies

What we offer - Portfolio Solutions

Target Portfolio Solutions using fixed weight combinations from Logical Invest strategies from Jan 2008 – Mar 2015.
What we offer – Dynamic Portfolio Solutions

AAII Silicon Valley Exclusive Preview: Introducing the ‘Meta-Strategy’ Approach ‘Breaking frontiers’
Meta-Strategy or dynamic “Portfolio of Strategies”

- Dynamically changing allocation weights to individual Strategies
  - Changing market environment  → Benefit either Bonds, Equity, Sectors
  - Changing Market regime  → Momentum, Reversion to Mean, Sideward market
  - Strategies just ‘stop working’  → Underlying mechanism or assumptions

- All previously introduced ‘knobs’ now available at Portfolio Level
  - Portfolio style: Momentum, Sharpe optimization, Mean Reversion
  - Rebalancing frequency: Quarterly, Monthly, Bi-Weekly, Weekly
  - Automatic hedging through different vehicles: Bonds, Volatility, Commodities
  - Volatility scaling (1/n): Decreases exposure gradually to match volatility limit
  - Volatility attenuator: Sensitivity to changes in volatility, minimum volatility optimization
  - Min / Max Allocation % to Strategies or Instruments

The goal: Increased robustness through adaptive allocation
The Strategies:
- Bond Rotation (BRS)
- Universal Investment (UIS)
- Maximum Yield (MYRS)
- Benchmark S&P 500

The Logic:
- Adaptive Maximum Sharpe

The Crash-Protection:
- 10% Volatility Limit – Scale Down (Exposure 50% in 2008)
- Hedge Bonds (BRS) and inverse Volatility (MYRS)

The Tactical Elements:
- Monthly Rebalancing
- Selection Top2 (from 3)
- Min/Max Allocation 20-60%

License available for Institutional Advisors, Fund Managers and Family Offices
Exclusive AAII SV Preview – Meta Strategy Concept - Examples

3 Strategies, 10% Volatility limit, exposure scaling
22% CAGR, Sharpe 2.1, 15% Drawdown
Exclusive AAII SV Preview – Meta Strategy Concept - Examples

2 Strategies, 15% Volatility limit, exposure scaling
32% CAGR, Sharpe 2.1, 13% Drawdown
Exclusive AAII SV Preview – Meta Strategy Concept - Examples

3 Strategies, Max CAGR, no scaling
54% CAGR, Sharpe 2.2, 27% Drawdown
Institutional grade investment strategy, about 40 ETF / futures
21% CAGR, Sharpe 1.8, 19% Drawdown
Integrated Portfolio Solution

How to benefit in your own portfolio:

- Review our strategies, design your Portfolio, get signals
  - Educational Articles + Research Whitepapers
  - Portfolio Builder
  - Consolidated Signals (Free preview)

Sounds complicated and time consuming? 3 Steps, 15 minutes a month

1) Portfolio (One-time)
2) Signals (5 min)
3) Execution (10 min)

+ most other brokers
Logical Invest
@ AAII Silicon Valley

Q&A:
Now is your turn
to speak up..

Alexander Horn
Alexander.Horn@logical-invest.com
Skype: AlexanderHorn672
www.logical-invest.com
Bond Rotation “Sleep Well”

Annual Return: 14% (new 17%)
Sharpe: 1.4

- Long Term Tsy, High Yield, EM Bonds, Convertibles
- Single digit drawdown, steady performer
- New adaptive version introduced Jan 2015
Bond Rotation Strategy ‘Sleep Well’

Performance:

- Risk Score: 7
- Performance:
  - 3 Months: 2.8%
  - 12 Months: 9.3%
  - Since Inception: 152.0%
- Strategy Benchmark: AGG - iShares Barclays Aggregate ETF

Annual Performance vs. AGG - iShares Barclays Aggregate ETF:
- 2008: 10.04%
- 2009: 11.54%
- 2010: 16.21%
- 2011: 9.74%
- 2012: 11.9%
- 2013: 10.02%
- 2014: 6.34%

Strategy Performance vs. Benchmark Performance:

From: 01-02-2008 to: 05-01-2015

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<thead>
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<td>40</td>
<td>0.93</td>
<td>-0.69</td>
<td>154.02</td>
<td>2.35</td>
<td>6</td>
<td>39.26</td>
<td>1.52</td>
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<tr>
<td>3/31/2015</td>
<td>4/4/2015</td>
<td>JNK</td>
<td>60</td>
<td>-0.18</td>
<td>-0.69</td>
<td>154.02</td>
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<td>2/27/2015</td>
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<td>50</td>
<td>1.06</td>
<td>0.51</td>
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<td>0.38</td>
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<td>-0.96</td>
<td>0.51</td>
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<td>1/31/2016</td>
<td>2/27/2016</td>
<td>CGB</td>
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<td>12/31/2014</td>
<td>1/31/2015</td>
<td>TLT</td>
<td>60</td>
<td>0.82</td>
<td>5.32</td>
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<td>40.02</td>
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<td>12/31/2014</td>
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<td>11/26/2014</td>
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</table>
The BUG – Enhanced Permanent Portfolio

Annual Return: 10% (lev. 14%)
Sharpe: 1.0 (1.3)

- Equity, Bonds, Gold + Tips, Intl. bonds, convertibles
- A conservative strategy with a bond-like risk/return profile meant to reduce risk in all environments, even inflationary. Volatility, trend filtering, momentum and mean reversion criteria result in progressive overweigh-underweight of assets.
Enhanced Permanent Portfolio
‘The BUG’

Performance:

Risk Score: 7

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<th>3 Months</th>
<th>12 Months</th>
<th>Since Inception</th>
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<td>Sharpe (3%)</td>
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Annual Performance vs. AGG - iShares Barclays Aggregate ETF

Strategy Benchmark: AGG - iShares Barclays Aggregate ETF

Start of live performance

From: 01/01/2007 to: 05/01/2015
Zoom: 1 month, 3 months, 6 months, 1 year, YTD, MAX
Enhanced Permanent Portfolio
‘The BUG’ - leveraged

Performance:

Risk Score: 7

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<th>Since Inception</th>
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Annual Performance vs. AGG - iShares Barclays Aggregate ETF

Strategy Benchmark: AGG - iShares Barclays Aggregate ETF

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Start of the performance from 02.05.2007 to 06.01.2015.
Global Sector Rotation

Annual Return: 25% (aggressive 26%)
Sharpe: 1.4 (0.8)

- 27 global sector ETF + Treasuries
- Performs even when general market down
- Excellent diversifier in portfolio, low correlated to market and strategies
Global Sector Rotation Strategy - Low Volatility

Performance:

Risk Score: 7

Return: 3 Months 12 Months Since Inception
CAGR: 2.8% 9.3% 152.0%
Volatility (ann.): 8.7% 6.1% 7.5%
Drawdown: -6.0% -6.0% -9.7%
Sharpe (3%): 0.92 1.04 1.42

Annual Performance vs. AGG - iShares Barclays Aggregate ETF

Strategy Benchmark: AGG - iShares Barclays Aggregate ETF

[Graph showing performance over time and comparison with benchmark]

From: 01/01/2008 to 05/01/2015

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Global Sector Rotation Strategy - Aggressive

Performance:

Risk Score: 7

Performance:

- 3 Months
  - Return: -0.0%
  - CAGR: -0.0%
  - Volatility (ann.): 9.9%
  - Drawdown: -7.7%
  - Sharpe (3%): -0.31

- 12 Months
  - Return: 1.0%
  - CAGR: 1.0%
  - Volatility (ann.): 11.3%
  - Drawdown: -13.2%
  - Sharpe (3%): -0.09

- Since Inception
  - Return: 418.7%
  - CAGR: 25.3%
  - Volatility (ann.): 27.0%
  - Drawdown: -30.7%
  - Sharpe (3%): 0.81

Annual Performance vs. VHGEX - Vanguard Global Equity Inv

Strategy Benchmark: VHGEX - Vanguard Global Equity Inv

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Universal Investment Strategy

Annual Return: 14% (3x 44%)
Sharpe: 1.1 (1.2)

- S&P 500, long term treasuries
- Simple concept, complex algorithm
- Base strategy for any account
Universal Investment Strategy

Performance:

Risk Score: 7

- Return: 4.1%
- CAGR: 16.6%
- Volatility (ann.): 8.4%
- Drawdown: 3.6%
- Sharpe (3%): 1.63

Annual Performance vs. SPY - SPDR S&P 500 ETF

Strategy Benchmark: SPY - SPDR S&P 500 ETF

Strategy Performance vs. Benchmark Performance

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3x leveraged Universal Investment Strategy

Performance:

- **Risk Score:** 7
- **Performance:**
  - **Return:** 10.1% (3 Months), 64.7% (12 Months), 966.1% (Since Inception)
  - **CAQR:** 64.7%
  - **Volatility (ann.):** 25.7%
  - **Drawdown:** -12.7%
  - **Sharpe (3%):** 1.61

**Annual Performance vs. SPY - SPDR S&P 500 ETF**

- **Strategy Benchmark:** SPY - SPDR S&P 500 ETF

**Strategy Performance** vs. **Benchmark Performance**

**Historical Performance Recap**:

- **From:** 11/18/2002 to: 05/31/2015

**Summary**:

- **Entry Date:**
  - 3/31/2015
  - 4/4/2015
  - 2/21/2015
  - 3/31/2015
  - 3/31/2015
  - 3/31/2015
  - 2/21/2015
  - 2/21/2015
  - 3/31/2015
  - 3/31/2015
  - 2/21/2015
  - 5/31/2015
  - 3/31/2015
  - 3/31/2015
  - 4/4/2015
  - 4/4/2015
  - 4/4/2015
  - 4/4/2015

- **Exit Symbol:**
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  - TEF
  - SPX
  - SPX
  - SPX
  - SPX
  - TEF
  - SPX
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  - SPX
  - SPX

- **Symbol Ret:**
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  - 0.71
  - -4.92
  - 9.92
  - 6.07
  - -15.06
  - 4.84
  - 4.84
  - 12.54
  - 25.37

- **Strategy Ret:**
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  - 2.5
  - -4.5
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  - 12.54

- **Accum Strategy Ret:**
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  - 9591.6
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  - 9335.38
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- **Ann Strategy Ret:**
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  - 15.22
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  - 12.41
  - 12.41
  - 17.71
  - 17.71
  - 12.54
  - 12.54

- **Benchmark Ret:**
  - 0
  - 0
  - -1.47
  - -1.47
  - 2.11
  - 2.11
  - 1.88
  - 1.88
  - -2.04
  - -2.04

- **Accum Benchmark Ret:**
  - 0
  - 0
  - 109.81
  - 109.81
  - 154.15
  - 154.15
  - 188.08
  - 188.08
  - 182.76
  - 182.76

- **Ann Benchmark Ret:**
  - 0.41
  - 0.41
  - 109.81
  - 109.81
  - 194.15
  - 194.15
  - 188.08
  - 188.08
  - 182.76
  - 182.76

- **MAX:**
  - 1.91
  - 1.91
  - 1.91
  - 1.91
  - 1.91
  - 1.91
  - 1.91
  - 1.91
  - 1.91
  - 1.91
Global Market Rotation

Annual Return: 36% (Enhanced 40%)
Sharpe: 1.4 (1.4)

- Equities US, Europe, EM, LA, AP + Treasuries
- Core strategy for balanced portfolios
- Enhanced version adds Inverse Volatility
Global Market Rotation Strategy

Performance:

- Risk Score: 7
- Return: 8.2% in 3 Months, 11.2% in 12 Months, 428.1% since inception
- CAGR: 30.2% in 12 Months
- Volatility ( annualized): 10.5% in 3 Months
- Drawdown: 9.6% in 3 Months
- Sharpe Ratio: 3.08 in 3 Months, 0.65 in 12 Months, 1.36 since inception

Annual Performance vs. VIGEX - Vanguard Global Equity Inv

Strategy Benchmark: VIGEX - Vanguard Global Equity Inv

Performance Chart

- Strategy Performance
- Benchmark Performance

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Global Market Rotation Strategy - Enhanced

Performance:

- Risk Score: 7
- 3 Months Return: 0.4%
- 12 Months CAGR: 17.7%
- Volatility (ann.): 10.8%
- Drawdown: -8.1%
- Sharpe (3%): 2.27

Annual Performance vs. VHGEX - Vanguard Global Equity Inv

Strategy Benchmark: VHGEX - Vanguard Global Equity Inv

From: 01.04.2003 to: 05.01.2015

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Maximum Yield Rotation

Annual Return: 53%
Sharpe: 2.0

- Inverse Volatility + Treasuries
- One of our most aggressive strategies with a ‘dream’ Sharpe Ratio
- Blends excellent with Universal + Bond Rotation
Maximum Yield Strategy

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Strategy Benchmark: SPY - SPDR S&P 500 ETF

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