



## Highlights of Uncommon Knowledge 2017 Coming to San Diego April 30-May 3, 2017

*“Of all the conferences, in all the cities, in all the world, why would you walk into NAAIM’s Uncommon Knowledge?”*

*With apologies to Rick Blaine, played by Humphrey Bogart in the movie Casablanca*

**T**HERE’S MORE THAN JUST UNCOMMON KNOWLEDGE directed specifically at the active investment manager at a NAAIM conference. There is also unparalleled networking among people who speak a common language, the language of investing on the trend.

At NAAIM, investing is more than building a balanced portfolio and relying on the past to repeat. NAAIM members believe in risk management, in seeking opportunities to profit in both up and down markets, in following the trend and looking at quantitative data as the basis of investment decisions. At Uncommon Knowledge, we come together to learn from speakers, but equally important, to learn from one another.

When it comes to active investment management – NAAIM members are the experts. The managers who push the envelope, who look for better ways to invest and to create wealth for our clients. NAAIM is an opportunity to share ideas on better investment approaches and ways to make our businesses more efficient, more profitable and more enjoyable.

*continued on page 2*



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## President’s Letter



Ken Graves

### *They Went That’a Way*

**T**HEY WENT THAT’A WAY and it’s about time! What I am referring to is correlations! Correlations across U.S. equity asset classes have been quite high for a rather lengthy period of time but it seems that this changing.

In 2016, we saw some beginnings of correlation departures in the Russell away from the S&P, DJIA and the NASDAQ. It really started almost exactly a year ago. True, it was intermittent in its occurrence moving in fits and starts but now it seems that the seeds of change are beginning to creep into the other broad US asset classes as well.

What we need to remember in this is that correlation does not mean that the securities reviewed move in the same increments when they move but only that the securities do indeed move in sync or move at the similar or same times and in the same direction. One may move +3% up and the other might only move +.3% up but if this movement together stays in tack over a measured period of time, then the correlation is at or near +1.

Having the movements of the various indices not coincide with one another means our correlations begin to move toward 0 and this is where real diversification begins to move

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The views and opinions of the authors are not necessarily those of NAAIM, its officers or Board of Directors.

# Meet Uncommon Knowledge's Featured Speakers

**MONDAY, May 1, 2017**

**Keynote Speaker: Doug Ramsey, CFA, CMT** - Chief Investment Officer of The Leuthold Group, LLC



*The underlying health of the markets, both domestically and globally, is a critical element of investment performance. The Leuthold Group's proprietary Major Trend Index is a multi-factor model which evaluates the market's health.*

Doug Ramsey is the Chief Investment Officer of The Leuthold Group, LLC, and Co-Portfolio Manager of the Leuthold Core Investment Fund and the Leuthold Global Fund. In addition to his CIO and Portfolio Management responsibilities heading both the asset allocation and investment strategy committees, Doug maintains the firm's proprietary Major Trend Index, a multi-factor model which evaluates the underlying health of the markets, both domestically and globally. He is also the lead writer for The Leuthold Group's highly regarded institutional research publications.

Before joining the Leuthold team, Doug was Chief Investment Officer of Treis Capital in Des Moines, Iowa, where he managed equity portfolios and published a quantitative equity research product. Prior to that, he worked at Principal Global Investors. Doug is a Phi Beta Kappa graduate of Coe College in Cedar Rapids, IA, where he earned a Bachelor's degree in Economics and Business Administration. Doug received an MA degree in Economics from Ohio State University in 1990; earned his CFA designation in 1996 and became a Chartered Market Technician in 2003.

**Tactical and Fundamental: How they can work together -**  
Joe Maas, Synergy Financial Management



*"Good performance results from a blend of fundamental and technical disciplines. Fundamental analysis helps you build good portfolios. Technical analysis keeps you in the right investments at the right time."*

*Joe Maas, Principal, Founder, Chief Investment Officer,  
Synergy Financial Management LLC*

Joe Maas is an active manager with a difference. He believes the weakness of most active management investment approaches is their dependence on index-based funds as their investment vehicles. "With index funds, you are investing in a portfolio driven by 4 to 5 companies. The majority of the portfolio is either underperforming or declining in value," Joe explains. To provide the quality of returns investors need to achieve and maintain financial security, the portfolio has to be

more efficient. For Joe, that means building custom portfolios utilizing quantitative methods and fundamental analysis and managing risk through technical analysis. At Uncommon Knowledge 2017, Joe explains his methodology and results.

Joe has always been a man in search of answers. He holds a variety of respected professional designations that reflect his interest in blending financial disciplines to build a 360-degree financial services boutique, providing a variety of solutions under one roof. His firm, Synergy Financial Management, LLC (SFM) is an SEC Registered Investment Advisory firm headquartered in Seattle, Washington. The firm's unique specialty is providing comprehensive and integrated precision investment management services for private investors. Prior to creating SFM, Joe owned and supervised an independent securities broker/dealer branch; previous to this, he was a distinguished sales manager for John Hancock.

**Compliance Insights** – Thomas Giachetti, Stark & Stark with Mary Collins, Spectrum Financial, Inc.



*"Former prosecutors prosecute, and too often small firms were the victims of bullying from the SEC, intimidating them to comply when it was not necessary nor, in my opinion, appropriate."*

*Thomas D. Giachetti, Investment Advisor,  
December 22, 2016*

What will the SEC be like with Chairwoman Mary Jo White out and Wall Street lawyer Jay Clayton as SEC Chairman? Attorney Tom Giachetti of Stark & Stark promises insights into the new SEC at NAAIM's 2017 Uncommon Knowledge.

Tom Giachetti doesn't mince words. His blunt messages to investment managers on compliance issues may well be credited with keeping a number of NAAIM advisors out of legal trouble over the past decade. He has also not minced words when addressing regulatory overreach by the SEC under Chairwoman Mary Jo White. What is his take on the new SEC Chairman? How will compliance change given the priorities of the Trump Administration? There's no better place to find out than by attending NAAIM's 2017 Uncommon Knowledge Conference, April 30 through May 3, 2017 at the Hilton San Diego Resort and Spa.

- What are the enforcement priorities of the Trump SEC?
- Where is the DOI's proposed fiduciary standard going?
- How has compliance changed at the state level?
- Has dissent within the SEC subsided?

Mr. Giachetti, a Shareholder and Chair of Stark & Stark's Securities Practice Group, has insights to offer on these and other topics critical to the active investment manager. A former investment banker and NASD registered representative, Mr. Giachetti's legal practice is devoted to

## Tuesday, May 2, 2017

investment-related matters, including the representation of investment advisers, financial planners, broker-dealers, public and private investment companies (e.g., mutual funds, hedge funds, etc.), CPA firms and registered representatives throughout the United States.

**Escaping the Growth Plateau** - Erin Tamberella, Executive Transformations, Inc.



*“Often financial advisors who have been in the business for years hit a perennial plateau that they are either unwilling or unable to break through. They may be making a comfortable living, but the business isn’t growing and the loss of a major client could mean disaster.”*

*Erin Tamberella, Executive Transformations*

Every financial advisor recognizes that the key to a thriving, quality and growing book is referrals. Yet, a large majority of financial advisors resign themselves to simply take what comes and hope for the best. In fact, only about 2-3% of financial advisors actually have any kind of systematic approach for generating referral business.

The goal of this presentation is to walk advisors step-by-step through building a structured “proven-in-the-trenches” referral system that actually works. Advisors who have implemented this process are consistently generating 2-4 quality introductions each and every month. In the presentation, Erin Tamberella will discuss:

The primary reason advisors don’t get the quantity or quality of referrals they want and need to grow their business—and it’s not because they don’t ask

- Why the traditional asking-for-referral method is an inherently flawed process
- The biggest urban myth that exists in the business surrounding referrals
- The 4 critical components you must have in place to make your referral system a success
- The Referral Success Action Plan

Erin Tamberella experienced the daily challenges of a financial advisor firsthand—spending 17 years as a financial advisor and three years as a producing branch manager, including 11 years with Morgan Stanley. Her very first month in production at the age of 28, she was diagnosed with cancer. Determined to succeed, she spent the next three years in production balancing the challenges of being a rookie with bone marrow biopsies, chemotherapy and radiation.

Erin’s specialty is plateau busting: getting advisors out of the rut of slow and minimal growth and back into growing and building assets under management, client base and company revenues. She brings to Uncommon Knowledge a track record of coaching success and lessons learned from motivating advisors to change their firms from stagnation to growth. Erin is also the author of a successful book, featuring many of the strategies she uses to help advisors succeed - Plateau to Pinnacle: 9 Secrets of a Million Dollar Financial Advisor.

**Investing During the Trump Administration: Finding Opportunity and Avoiding Danger in Global Markets** – John Kosar, Asbury Research

At the 2015 Uncommon Knowledge Conference, John Kosar’s market expectations were spot on target. Can he repeat the feat in 2017?



*“Most of our key near-term metrics collectively warn of the US stock market’s vulnerability to a correction second quarter 2015. Bigger picture, however, we would view a summer correction, amid the right conditions, as a potential longer term buying opportunity.”*

*John Kosar, Asbury Research, at the NAAIM 2015 Conference*

The S&P 500 peaked two weeks later, collapsing 13% between July 20th and August 25th and presenting the anticipated buying opportunity. But that wasn’t the only forecast that came true from John Kosar’s 2015 Uncommon Knowledge presentation. Now John returns to the podium at Uncommon Knowledge 2017 to present an updated outlook for the financial markets. His goal – provide actionable information that NAAIM members can profitably trade.

John Kosar, CMT is Chief Market Strategist at Asbury Research, now in its 12th year. With more than 30 years of experience and insight in analyzing and forecasting global financial markets, John provides a unique analysis, understanding of intermarket relationships, and global perspective of the financial markets. His use of a diverse and comprehensive blend of technical and quantitative metrics results in market outlooks more intuitive and forward-looking than the typical Wall Street approach.

NAAIM is extremely pleased to have John Kosar return to the podium at Uncommon Knowledge 2017 and provide his knowledge of the financial markets in a series of investment outlooks. In 2015, John delivered truly tradeable insights into the market. Let’s see if he can top his record in 2017.

**Get Massive Exposure to Grow Your Business** – Christina Daves, PR for Anyone®



*“You can get the same (and perhaps, even BETTER) results as you would with a big PR firm without spending thousands and thousands of dollars with no guarantees!”*

*Christina Daves, PR for Anyone*

Want more customers but not sure where to find them? Looking for a magic pill to grow your business? Christina Daves will share her proven 3-step process detailing exactly how to get free publicity, at no cost, and with little effort. This one marketing strategy has the potential to expose

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# Uncommon Knowledge Speakers

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your business to thousands, even millions of potential new customers. Can you afford not to attend?

Having no resources for advertising or hiring a PR firm, Christina taught herself everything she could about generating her own publicity. She has appeared in over 250 local and national media outlets including: The Steve Harvey Show, Dr. Oz, The TODAY Show, local affiliates of NBC, ABC, CBS, and FOX, magazines such as, Forbes, Success and Entrepreneur, Sirius XM Radio, The Washington Post, and many more.

As a result of this success, she launched PR for Anyone® to help other small business owners have similar success. Together with her students and clients, Christina has generated well over 7 figures in sales relating to free publicity.

**Would a Buyer Find your Firm of Interest?** Chad Williams, AVEO Capital with NAAIM member Ben Warwick



Chad Williams

***“There are an estimated 10 buyers for every seller in the RIA industry. Chad Williams is one of those buyers. At Uncommon Knowledge 2017, I will be asking Chad about the process from his side; what he looks for as a buyer, red flags, and opportunities.”***

*Ben Warwick, veteran of successfully selling two money management firms*

The investment advisor industry is made up mostly of men nearing retirement age, according to the Cerulli Associates Advisor Metrics 2013 report. That makes succession planning a priority and understanding the process of selling an advisory firm a necessity.

Ben Warwick considers himself too young to retire, but that didn't stop him from successfully selling two separate money management businesses over the last six years. Now, as he launches his third investment management business, he shares his experience as a seller at Uncommon Knowledge - but this time by interviewing a buyer of investment advisory practices - Chad Williams of AVEO Capital.

Ben shared his experiences as a seller at the NAAIM 2016 Outlook Conference and found himself fielding a series of questions after the presentation to the extent that it seemed a good idea to continue the conversation at the 2017 NAAIM Uncommon Knowledge Conference. To add a new perspective, Ben will be joined by Chad Williams, who offers the insights of a purchaser of investment advisory businesses. In addition to working as a Private Wealth Advisor with AVEO, Chad seeks opportunities for the firm to grow through strategic acquisitions of advisory firms.

Regardless how long it may be before an advisor is ready to retire, knowing up front what one's options are can help optimize the selling value of a business and assure a smooth transition for clients.

## Wednesday, May 3, 2017

**Uncommon Knowledge about Raising Assets** – Lisa Vioni, Hedge Connection with Emily Collins, Spectrum Financial, Inc.



***“We believe that managers shouldn't have to pay astronomical fees for access to capital, and so we invented something different from the status quo based on the premise of disintermediating the capital raising process through online technology and events.”***

*Lisa Vioni*

Lisa Vioni is Hedge Connection's CEO and founding partner and brings extensive experience in marketing alternative investments and institutional sales to Uncommon Knowledge 2017.

Hedge Connection launched in 2005 and is a patented marketing platform for hedge funds and an information portal for investors. Before founding Hedge Connection in 2005, Lisa served as Director of Marketing at Ellington Management Group and previously at Singletary & Company. At both firms, Lisa oversaw all aspects of client relationships including raising money, organizing company events, developing marketing strategy and client servicing. Prior to her career in hedge fund marketing, she was on the sell side, rising to Senior Vice President in Mortgage Backed Securities-Institutional Sales at Lehman Brothers Securities.

**A Qualitative Approach to Best Execution** – Ana Burke, PLIA



***Regulatory compliance with best execution requirements takes more than just good intent, there's also record keeping, disclosure and documentation that your efforts met your duty as a fiduciary. Ana Burke presents a qualitative approach to best execution compliance at Uncommon Knowledge 2017.***

An increasing volume of information is being exchanged between the buy side and the sell side to meet regulatory requirements on best execution, but firms need better systems and more efficient processes to manage the exchange of information, according to senior market participants and pending MiFID II regulations.

Ana Burke has spent the past 25+ years developing, marketing and selling financial and trading products tailored to client and marketplace needs. She oversees the product development, sales, and client support of PLIA, a counterparty due diligence and process management system offered through Trade Informatics. The PLIA tool supports customized solutions for asset managers of all sizes for counterpart

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# Uncommon Knowledge Speakers

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risk management, best execution processes and due diligence data sharing between brokers and the buy-side, functioning as a broker and adviser platform, with full audit history and dashboard overviews.

At Uncommon Knowledge 2017, Ana offers the systems developer's insights into achieving best execution to meet regulatory requirements and enhance trade profitability. Ana Burke has spent the past 25+ years developing, marketing and selling financial and trading products tailored to client and marketplace needs. She oversees the product development, sales, and client support of PLIA, a counterparty due diligence and process management system offered through Trade Informatics. The PLIA tool supports customized solutions for asset managers of all sizes for counterparty risk management, best execution processes and due diligence data sharing between brokers and the buy-side, functioning as a broker and adviser platform, with full audit history and dashboard overviews.

## Where did my Alpha Go? Bridging the Gap Between Idea and Implementation – John Wightkin, Trade Informatics



*Discovering additional alpha in the investment process is becoming more and more difficult. What if you could find an additional edge in your investment process in an area often ignored – the gap between idea generation and implementation?*

John Wightkin is one of those rare specialists in improving investment decision making – from stock research through trade execution – by providing practical solutions and innovative decision tools to the professional investor. With over 28 years of hands-on experience in the investment industry with extensive working knowledge of all aspects of the investment process from idea generation to portfolio management, trading and performance analysis using both quantitative and qualitative analysis, John brings new ideas and tools for optimizing alpha from your trading system to Uncommon Knowledge.

John is a Trade Execution Consultant for Trade Informatics, a Fin Tech firm specializing in equity execution management analytics and consulting. Prior to this, he was Managing Director of Applications Research for Charles Schwab's Equity Research Department responsible for developing, positioning and supporting Schwab's global equity research and products (including Schwab Equity Ratings) for

internal business partners and retail clients. Before Schwab, he was a founding partner of Quantitative Services Group (now part of Markit) that specialized in improving client's investment decision making, from stock research through trade execution by providing practical solutions and innovative decision tools to the institutional investor. John has helped manage all aspects of the firm including product development, marketing, sales, consulting and client support and employee management and development. He's a Certified Financial Analyst (CFA) and an active member of the Chicago Quantitative Alliance (CQA) with a Mechanical Engineering degree from the University of Notre Dame and an MBA from the University of Michigan.

John takes to the podium to show how a set of optimized rules might improve a trading strategy and lower the overall execution costs helping you improve the alpha your investment strategies are designed to achieve.

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## Insights from the NAAIM Membership at Uncommon Knowledge 2017

**N**AAIM MEMBERS ALSO LEAD THE CONVERSATION in a series of agenda events at Uncommon Knowledge including:

**Identifying Market Tops – NAAIM Member Panel** with Vishal Muni, WP Asset Management; Ron Rough, FSA Advisory Services, Inc.; Maia McGehee, Hermes Econometrics and Moderator, Matt Spangler, Signal Research

### Round Tables (2 sessions)

- Pros & Cons of Trend Following
- Choosing your securities in a regulated industry
- Further discussion on using both Fundamental & Technical Analysis
- Charting Best Practices
- Content Marketing Part II
- Raising Assets in 2017

**NAAIM Founders Award paper presentation** – 1st Place Winner - Achieve Your Goals More Often: A Case for Active Allocation – Franklin Parker, Bright Wealth Management

**Shark Tank 2017** – featuring ten managers and their strategies.

# Uncommon Knowledge 2017

April 30 – May 3

Hilton San Diego Resort and Spa

## Sunday, April 30

7:00 AM	NAAIM Fishing Excursion (members only)
10:30 AM	NAAIM Golf Classic – Torrey Pines South (members only)
4:00-6:30 PM	Solo Advisors Meeting (Moderator: Mike Dean)
7:30 PM	NAAIM Welcome Reception

## Monday, May 1

7:00-9:00 AM	NAAIM Board Meeting
8:00-9:00 AM	New Member Registration/Welcome Orientation
8:00 AM	Registration/Sponsor Hall Opens – Continental Breakfast
9:00 AM	Welcome – Ken Graves, President
9:15-10:15 AM	<b>Keynote Speaker: Doug Ramsey, CFA, CMT</b> - Chief Investment Officer of The Leuthold Group, LLC
10:15-10:45 AM	Refreshment Break – Sponsor Hall
10:45-11:00 AM	Dirxion (Platinum Sponsor Announcement)
11:00-12:00 PM	<b>Tactical and Fundamental: How they can work together</b> - Joe Maas, Synergy Financial Management
12:00-1:15 PM	Lunch and Sponsor Introductions
1:15-2:15 PM	<b>Compliance Insights</b> – Thomas Giachetti, Stark & Stark with Mary Collins, Spectrum Financial, Inc.
2:15-2:30 PM	<i>ProFunds (Platinum Sponsor Announcement)</i>
2:30-3:15 PM	<b>Investment Strategies and Tactics for a Rising Rate Environment</b> - Kieran Kirwan, CAIA, Director, Investment Strategies
3:15-3:45 PM	Refreshment Break – Sponsor Hall
3:45-4:45 PM	<b>Escaping the Growth Plateau</b> - Erin Tamberella, Executive Transformations, Inc.
5:45-5:00 PM	<i>Guggenheim (Platinum Sponsor Announcement)</i>
5:00-5:45 PM	<b>The Core Conundrum</b> - William Costigan, Guggenheim Investments
6:00 -9:00 PM	Monday Evening Dinner Event – Hilton San Diego Resort and Spa

## Tuesday, May 2

7:00-8:15 AM	Continental Breakfast – Sponsor Hall
8:00-8:15 AM	<i>Advisors Preferred (Platinum Sponsor Announcement)</i>
8:15-9:15 AM	<b>Investing During the Trump Administration: Finding Opportunity and Avoiding Danger in Global Markets</b> – John Kosar, Asbury Research
9:15-10:15 AM	<b>Get Massive Exposure to Grow Your Business</b> – Christina Daves, PR for Anyone®
10:15-10:45 AM	Refreshment Break – Sponsor Hall
10:45-11:30 AM	<i>Gold Sponsor Break-out Sessions:</i> 1) Trust Company of America      2) Dressander   BHC
11:30-12:30 PM	<b>Would a Buyer Find Your Firm of Interest?</b> Chad Williams, AVEO Capital with NAAIM member Ben Warwick
12:30-1:30 PM	Lunch
1:30-2:00 PM	<b>NAAIM Membership Meeting and Awards</b>
2:00-3:00 PM	<b>Identifying Market Tops – NAAIM Member Panel:</b> Vishal Muni, WP Asset Management; Maia McGehee, Hermes Econometrics; Ron Rough, FSA Advisory Services, Inc., and Moderator, Matt Spangler, Signal Research
3:00-3:45 PM	<i>Gold Sponsor Break-Out Sessions</i> 1) Princeton Fund Advisors, LLC      2) Security Benefit
3:45-4:15 PM	Refreshment Break – Sponsor Hall
4:15-5:45 PM	<b>Round Tables (2 sessions)</b> <ul style="list-style-type: none"><li>• Pros &amp; Cons of Trend Following</li><li>• Choosing Your Securities in a Regulated Industry</li><li>• Further Discussion on Using both Fundamental &amp; Technical Analysis</li><li>• Charting Best Practices</li><li>• Content Marketing Part II</li><li>• Raising Assets in 2017</li></ul>
5:45 PM	Break until Evening Event
6:30 PM	Tuesday Night Event – Sponsor Hall

## Wednesday, May 3

7:30-8:30 AM	Continental Breakfast – Sponsor Hall
8:30-9:30 AM	<b>Achieve Your Goals More Often: A Case for Active Allocation</b> - Franklin Parker, Bright Wealth Management
9:30-10:30 AM	<b>Uncommon Knowledge about Raising Assets</b> – Lisa Vioni, Hedge Connection with Emily Collins, Spectrum Financial, Inc.
10:30-11:00 AM	Refreshment Break – Sponsor Hall
11:00-12:00 AM	<b>A Qualitative Approach to Best Execution</b> – Ana Burke, PLIA
12:00-1:00 PM	<b>Where did my Alpha Go? Bridging the Gap Between Idea and Implementation</b> – John Wightkin, Trade Informatics
1:00-2:00 PM	Closing Lunch
2:00 PM	<b>Shark Tank – Presentation of 10 Strategies</b>
4:00 PM	Adjourn



## 2017 Shark Tank Expands to 10 Managers and Their Strategies

**L**OOK FOR SOME NEW CHANGES TO THE 2017 Shark Tank at Uncommon Knowledge. This year, 10 managers will have six minutes to present their strategies, with time after each presentation for the audience to ask questions. At the end, audience members will be asked to vote on their preferred strategy.

Shark Tank takes place at the close of the regular NAAIM conference and will run from 2 to 4 p.m. on Wednesday, May 3. The goal of the NAAIM Shark Tank is to help NAAIM members gain exposure to new ideas in asset management and identify potential new business relationships. Specifically, Shark Tank's objectives are to:

- To formalize the networking potential for NAAIM members
- To provide a structured venue for NAAIM Members to present strategies/models/signals to other members, managers and asset gatherers



- To provide NAAIM members exposure to new ideas in asset management
- To provide managers/asset gatherers opportunity to identify potential new relationships

There is a caveat, however. The views expressed by the NAAIM Shark Tank judges panel are theirs alone and do not necessarily reflect the views of the National Association of Active Investment Managers (NAAIM), or any of its members. NAAIM is not responsible for the accuracy of any of the information supplied by the presenters.

### Uncommon Knowledge 2017 Sponsor Recognition

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### President's Letter

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in and also is a time when active management can really pay off for investors.

I recall setting up the sale of my first firm back in 2000. As I was about to finalize the deal I made a comment to someone there, which quickly got me a private meeting with their compliance officer. My expressed thoughts were grounded in U.S. correlations changing, but it was voiced about my delight that we had allocated away from stock portfolios and we had made and moved money to the sidelines. The conversation between myself and the compliance officer quickly began to center around what he thought was best for the firm in terms of defending it against large amounts of cash in growth portfolios versus what might be better for the clients. Correlations changing back then was at the core of my comments and at our decision-making process.

Just as was the case back then, this time things won't end well for passive investing is my assumption.

Looking forward to continuing the conversation with you at the NAAIM conference in San Diego!

Ken Graves  
NAAIM 2016-2017 President



# GUGGENHEIM

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<sup>1</sup> Other annual fund operating expenses apply, which can be found in each fund's prospectus. Accounts held at the funds' transfer agent may be subject to additional fees, including an annual \$15 fee for retirement accounts and low-balance accounts. Read the prospectus for additional information.

**Read a fund's prospectus and summary prospectus (if available) carefully before investing. It contains the fund's investment objectives, risks, charges, expenses and other information, which should be considered carefully before investing. Obtain a prospectus and summary prospectus (if available) at [GuggenheimInvestments.com](http://GuggenheimInvestments.com) or call 800 258 4332.**

**Inverse and leveraged funds are not suitable for all investors. •These funds should be utilized only by investors who (a) understand the risks associated with the use of leverage, (b) understand the consequences of seeking daily leveraged investment results, (c) understand the risk of shorting, and (d) intend to actively monitor and manage their investments.** •The more a fund invests in leveraged instruments, the more the leverage will magnify any gains or losses on those investments. •Inverse funds involve certain risks, which include increased volatility due to the funds' possible use of short sales of securities and derivatives, such as options and futures. •The funds' use of derivatives, such as futures, options and swap agreements, may expose the funds' shareholders to additional risks that they would not be subject to if they invested directly in the securities underlying those derivatives. •Short-selling involves increased risks and costs. You risk paying more for a security than you received from its sale. •Leveraged and inverse funds seek to provide investment results that match the performance of a specific benchmark, before fees and expenses, on a daily basis. Because the funds seek to track the performance of their benchmark on a daily basis, mathematical compounding, especially with respect to those funds that use leverage as part of their investment strategy, may prevent a fund from correlating with the monthly, quarterly, annual or other period performance of its benchmark. Due to the compounding of daily returns, leveraged and inverse funds' returns over periods other than one day will likely differ in amount and possibly direction from the benchmark return for the same period. For those funds that consistently apply leverage, the value of the fund's shares will tend to increase or decrease more than the value of any increase or decrease in its benchmark index. The funds rebalance their portfolios on a daily basis, increasing exposure in response to that day's gains or reducing exposure in response to that day's losses. Daily rebalancing will impair a fund's performance if the benchmark experiences volatility. **Investors should monitor their leveraged and inverse funds' holdings consistent with their strategies, as frequently as daily.** • For more on these and other risks, please read the prospectus.

Shares of the funds are not deposits of, or guaranteed or endorsed by, any financial institution; are not insured by the Federal Deposit Insurance Corporation (FDIC), the Federal Reserve Board, or any other agency; and involve risk, including the possible loss of the principal amount invested. Certain funds may be affected by risks that include those associated with sector concentration, international investing, investing in small and/or medium size companies, and/or the funds' possible use of investment techniques and strategies such as leverage, derivatives and short sales of securities and alternative or nontraditional asset classes and strategies such as absolute return, long/short, commodities, currencies and managed futures. Please see the funds' prospectus for more information.

Guggenheim Investments represents the investment management businesses of Guggenheim Partners, LLC ("Guggenheim"). **Securities offered through Guggenheim Funds Distributors, LLC.** Guggenheim Funds Distributors, LLC is affiliated with Guggenheim Partners, LLC. 0417 x0418 #27378

# DXHYY

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<sup>1</sup>Beta is a measure of price variability relative to the market. <sup>2</sup>The Solactive High Yield Beta Index is a rules-based, systematic strategy index that provides exposure to a weighted portfolio of three different ETFs. The allocation to each US High Yield Corporate Bond ETF is changed every month to an equal weighting of all ETFs. The Index is calculated and distributed by Solactive AG and is calculated and published in US Dollars. One cannot directly invest in an index.

*An investor should consider the investment objectives, risks, charges, and expenses of Direxion Funds carefully before investing. The prospectus and summary prospectus contain this and other information about Direxion Funds. Click here to obtain a prospectus or call (866) 476-7523. The prospectus or summary prospectus should be read carefully before investing.*

Investing in each Fund may be more volatile than investing in broadly diversified funds. The use of leverage by each Fund increases the risk to the Fund. The Funds are not suitable for all investors and should be utilized only by sophisticated investors who understand leverage risk, consequences of seeking monthly leveraged investment results and intend to actively monitor and manage their investments. The Funds are not designed to track their underlying index over a longer period of time. The more a fund invests in leveraged instruments the more the leverage will magnify gains or losses on those investments.

Risks An investment in the Funds involve risk, including the possible loss of principal. The Funds are non-diversified and include risks associated with concentration which results from the Funds' investments in a particular industry or sector and can increase volatility over time. The Fund will invest a significant portion of its assets in securities rated below investment grade bonds that generally involve significantly greater risk of loss of your money than an investment in investment grade bonds. High yield bonds are considered more speculative than investment grade bonds and have a higher risk of default. Active and frequent trading associated with a regular rebalance of the fund can cause the price to fluctuate, therefore impacting its performance compared to other investment vehicles. For other risks including correlation, leverage, compounding, market volatility and specific risks regarding each sector, please read the prospectus.

Distributor for Direxion Funds: Rafferty Capital Markets LLC.

# The Risk of Normalizing Interest Rates

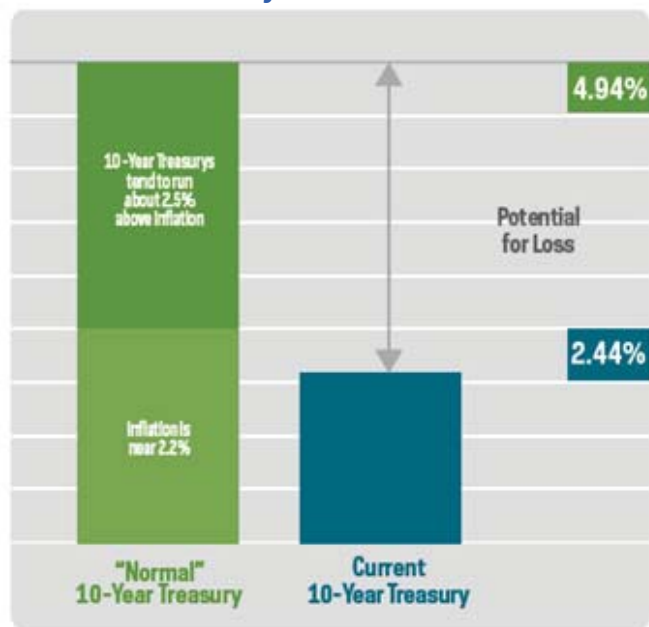
## Always Be Aware of Interest Rate Risk

Hand wringing over the health and future of the economy has led to fevered debate over the path interest rates will follow. Much of the conversation focuses on Federal Reserve plans and how to react to them. Regardless of Fed actions, astute fixed-income investors continually manage their interest rate risk, because they know the Fed isn't the only influence driving interest rates.

## The Fed Funds Rate vs. the Yield Curve

The Fed only controls the Fed Funds Rate, not the rest of the yield curve. Historically, the yield on 10-Year U.S. Treasuries tends to run about 2.5% above inflation. With inflation running right around the Fed's target of 2%, a "normal" 10-year yield should be around 4.5%. Rates could continue to "normalize," even without further changes in the Fed Funds Rate. And if they rise to "normal" levels, bond prices are likely to take a big hit. This chart may help you understand what's at stake.

### Where could yields head if they "normalize"?



Source: Bloomberg, CPI was 2.2% as of 12/31/16.

## Most Bonds Come Up Short When Interest Rates Rise

Long-term bonds carry significant interest rate risk and can lose substantial value as rates rise. Many investors turn to short-term bonds to reduce rate risk, even though it often means sacrificing return potential. However, while short-term bonds may fare better than long-term, they still have interest rate risk and will be hurt as rates rise.

## Consider Inverse Bond or Interest Rate Hedged Bond ETFs

Instead, consider hedging your bond holdings against rising rates with ETFs. Adding inverse ETFs to your strategy or investing in interest rate hedged bond ETFs are two common methods.

Adding inverse bond ETFs to your portfolio can potentially offset losses from rising rates, but these funds generally have a daily investment objective—they are designed to meet their objective (-1x, -2x or -3x) for a single trading day only. A variety of these inverse bond ETFs are available across multiple indexes and maturities. They are designed to move opposite bond returns—if their index goes *down* 1% on a day, the fund is designed to go *up* 1%, and vice versa. Inverse ETFs can be implemented quickly without disrupting existing allocations, but because of their one-day objective, they require frequent (even daily) monitoring and rebalancing. They can also magnify losses if interest rates decline instead, and rebalancing may mean greater transaction costs and tax consequences.

If you're looking for a pre-packaged solution, consider an interest rate hedged bond ETF. The concept is straightforward: it's a combination of a bond portfolio with a built-in hedge that's managed for you. Interest rate hedged bond ETFs offer diversified portfolios of long-term bonds that maintain full exposure to credit risk as a primary source of return, while the built-in hedge alleviates the drag on returns caused by rising interest rates. Combined, these features enable these ETFs to target zero duration and zero interest rate risk.

## The Takeaway

Interest rates may "normalize" on their own, so advisors need to get ready now. There are two ETF hedging strategies worth considering when tackling rising rates:

1. **Inverse bond ETFs** are typically quick to implement (and get out of) and won't disturb your existing portfolio. But they require careful monitoring and rebalancing.
2. **Interest rate hedged bond ETFs** offer a pre-packaged solution to supplement or even potentially replace existing bond holdings. They combine diversified portfolios of bonds with built-in hedges that target zero duration and zero interest rate risk. Of course, they don't address credit and other risks, so make sure they align with your clients' objectives and tolerance for risk.

## Find out more

Visit ProShares.com for more information about hedging your portfolio against rising interest rates with [inverse bond ETFs](#) and [interest rate hedged bond ETFs](#).

*continued on page 14*



# INVERSE BOND ETFs

## ETFs for Bond Bears



TBF PST  
TBT TBZ  
TTT TPS  
TBX

Turn a Bad Day for Bonds  
Into a Good Day for You



866-776-5125 or [ProSharesInverseBonds.com](http://ProSharesInverseBonds.com)

These Short ProShares ETFs seek returns that are -1x, -2x or -3x the return of an index or other benchmark (target) for a single day, as measured from one NAV calculation to the next, before fees and expenses. Due to the compounding of daily returns, ProShares' returns over periods other than one day will likely differ in amount and possibly direction from the target return for the same period. These effects may be more pronounced in funds with larger or inverse multiples and in funds with volatile benchmarks. Investors should monitor their holdings consistent with their strategies, as frequently as daily. For more on correlation, leverage and other risks, please read the prospectus.

**Investing involves risk, including the possible loss of principal.** Short ProShares are non-diversified and should lose value when their market indexes or benchmarks rise—a result that is opposite from traditional ETFs—and they entail certain risks including risk associated with the use of derivatives (swap agreements, futures contracts and similar instruments), imperfect benchmark correlation, leverage and market price variance, all of which can increase volatility and decrease performance. Bonds will decrease in value as interest rates rise. Please see their summary and full prospectuses for a more complete description of risks. **There is no guarantee any ProShares ETF will achieve its investment objective.**

**Carefully consider the investment objectives, risks, charges and expenses of ProShares before investing. This and other information can be found in their summary and full prospectuses. Read them carefully before investing. Obtain them from your financial advisor or broker-dealer representative, or visit [ProShares.com](http://ProShares.com).**

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# Cybersecurity and the Financial Advisor

MIKE FOX, ANGELA HOLLAND, AND CLAYTON HOLLAND

**Y**OU CAN'T TURN ON YOUR TELEVISION OR READ your email without seeing a story about a firm falling victim to a cybersecurity breach. Headlines like these are becoming commonplace: **They've been hacked. Yahoo has hundreds of millions of accounts compromised. Ransomware strikes again. Government employees' personal data stolen. The Russians must have done it. What about the big guy in his parents' basement?**

Firms are being bombarded by hackers trying to infiltrate their systems daily. The duty of maintaining client personal data has become a huge responsibility for all firms and is quickly becoming a major risk of organizations worldwide. So just how did we get into this position?

Cybersecurity is the grandchild of a Department of Defense defined process, beginning in the 1970s. What began as "Information Security," then, "Information Assurance," eventually evolved into what we all know today as Cybersecurity.

In 1973, the government defined an automatic data processing (ADP) System as an assembly of computer equipment, facilities, personnel, software, and procedures configured for classifying, sorting, calculating, computing, summarizing, storing, and retrieving data and information with a minimum of human intervention. Key to this definition of an ADP system is the inclusion of "personnel," "procedures"

and "equipment" that we may recognize today as the triad of "people, process and technology" used for decades by consultants to describe the basic elements of many technology-dependent business processes. People, process and technology continue to be the critical elements of information systems, and understanding the relationships between them is essential to enable effective cyber risk management.

Although Cybersecurity focuses on the management of risks associated with internet-born threats, threats are not themselves risks and the terms risk and threat should not be used interchangeably. Information-based risk (R) is the product of vulnerability (V), threat (T) and the potential impact (I) associated with a threat exploiting a vulnerability:  $R=VTI$ . In this relationship, if any of the three risk factors, vulnerability, threat or impact is zero, then risk is also zero. The goal of information risk management is to reduce one or more of the three risk factors to achieve an acceptable, cost effective level of risk. Note that of the three factors of risk, threat is the only one over which organizations have little to no control. To manage risks associated with cyber threats, organizations need to understand them and implement technical controls to counter them, but not at the expense or exclusion of people/process, operational/managerial controls that generally have the greatest impact on organizations' security posture.

In 2004, the Securities and Exchange Commission adopted an amendment to the Advisors Act of 1940, requiring registered investment advisors to have written procedures reasonably designed to prevent violation of federal securities laws. One key element to this requirement was the safeguarding of client privacy and protection of client records and information. Since firms and advisors are so varied in their operations and threats can change rapidly, the SEC advises that firms should tailor their cybersecurity program based on the nature and scope of their businesses.

At a minimum, firms should conduct periodic assessment of 1) the nature, sensitivity and location of information the firm collects, processes and/or stores and the technology systems used; 2) internal and external cyber threats to and vulnerabilities within the firm's systems; 3) controls and processes in place; 4) the impact should the information or systems become compromised; and 5) the effectiveness of their corporate structure for the management of cyber risk.

Another key component to a firm's risk assessment should be the due diligence review of any third-party administrators used by the firm. At a minimum, firms should request documentation from the third-party administrator (SSAE-16) reflecting the risk assessment and vulnerability testing performed on the systems and services provided.

Even though emphasis today is on advanced cyber threats and technical solutions, our ability to protect our client and

*continued on page 14*



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## Cybersecurity and the Financial Advisor

CONTINUED FROM PAGE 13

firm's data begins with our people. Firm employees' experience, training, reliability, and team commitment in many ways far outweigh process strengths. People and process strengths far outweigh technical strengths. Technology and gadgets come and go, but in the end, a little common sense goes a long way. For example, picking up the telephone and calling a client to confirm a money movement request is a relatively painless and inexpensive safeguard that does not require a system upgrade.

So just what does all this really mean to you? You must ensure your firm can safeguard client data and mitigate cybersecurity risks. If a breach does occur, you can be held responsible for whatever financial harm may come to your clients. The government is going to help you in many ways. For example, the SEC, FINRA, NFA and various State securities agencies are going to emphasize your cybersecurity risks and safeguards during your upcoming examinations. You should be able to demonstrate effective processes, procedures and testing of those potential weaknesses. Fines and other sanctions could be levied as with any other infraction of laws and rules.

Are you ready for your exam? If so, sleep well. If not, you should seek help with this high-risk area as soon as practicable. If you need some assistance, AtCap Partners, an affiliate of Ceros Financial Services, Inc. can lend a hand. Ceros has been providing infrastructure support to registered investment advisors for 16 years; more recently, AtCap Partners has focused on delivering compliance expertise to investment advisors.

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*This article was co-written by Mike Fox, Angela Holland, and Clayton Holland. Mike Fox, MBA, MA (computer & Information Systems Management), is Chief Compliance Officer of AtCap Partners. Mike has more than 25 years' experience in management and compliance in the financial services industry. Previously, he was with the NASD, now FINRA. Angela Holland, CAMS, is Chief Compliance Officer of Ceros Financial Services, Inc. She has over 15 years' experience in compliance in the financial services industry. Prior to joining Ceros, Angela was with H. Beck. Clayton Holland, PI, CISSP, MBA, MS (Cybersecurity Policy), has been an information security professional since 1980, and is currently engaged as a cybersecurity consultant with Missing Link Security, LLC. He has also worked as a cybersecurity consultant to the intelligence community.*

## The Risk of Normalizing Interest Rates

CONTINUED FROM PAGE 11

### About ProShares

ProShares has been at the forefront of the ETF revolution since 2006. ProShares now offers one of the largest lineups of ETFs, with more than \$27 billion in assets. The company is the leader in strategies such as dividend growth, interest rate hedged bonds, alternative and geared (leveraged and inverse). ProShares continues to innovate with products that provide strategic and tactical opportunities for investors to manage risk and enhance returns.

ProShares Inverse Bond ETFs seek returns that are -1x, -2x or -3x the return of an index or other benchmark (target) **for a single day**, as measured from one NAV calculation to the next, before fees and expenses. Due to the compounding of daily returns, ProShares' returns over periods other than one day will likely differ in amount and possibly direction from the target return for the same period. These effects may be more pronounced in funds with larger or inverse multiples and in funds with volatile benchmarks. Investors should monitor their ProShares holdings consistent with their strategies, as frequently as daily. For more on correlation, leverage and other risks, please read the prospectus.

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## Welcome New Members

**N**AAIM IS PLEASED TO WELCOME THE FOLLOWING individuals as new members. Please stop and say hello to them during Uncommon Knowledge 2017.

**Frank Barbera**  
**Salem Partners Advisors LLC**  
11111 Santa Monica Blvd., Ste. 2250  
Los Angeles, CA 90025  
310-806-4200

**Ben Coate**  
**ProfitScore Capital Management, Inc.**  
439 E. Shore Drive, Suite 250  
Eagle, ID 83616  
208-489-5262

**Christian Cyr**  
**Cyr Financial**  
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Hennepin, IL 61327  
815-925-7501

**Fred (Trey) Liebau, III**  
**Liebau Greer Wealth Management Group**  
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316-269-1115

**John Liegl**  
**Counsel Wealth Management**  
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Arden Hills, MN 55112  
651-639-8707

**Vishal Muni**  
**WP Asset Management**  
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Bedminster, NJ 07921  
201-218-8952

**Meghan Paul**  
**Potomac Advisors**  
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Venice, CA 90291  
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### Associate Member Firm:

**David McDaniel**  
**Dressander|BHC**  
8700 E. Vista Bonita Dr., Ste. 240  
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480-376-0697

**Greg Anderson**  
**Princeton Funds Advisors, LLC**  
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Denver, CO 80202  
303-382-2855



# Satisfying the Prudent Man—Quantifying and Defending Risk

SCOTT M. JUDES

## Introduction

Although investment risk decisions made by professionals are aggressively audited by regulators, the suitable and prudent fiduciary standards by which they are judged provide excess room for interpretation. Strikingly absent from the Financial Industry Regulatory Authority (FINRA) Rules, the Employee Retirement Income Security Act of 1974 (ERISA), the Securities and Exchange Commission (SEC) Investment Advisers Act of 1940, and the Uniform Prudent Investor Act (UPIA) is (a) any practical definition of risk or how it is quantitatively measured; (b) any guidance for determining how much diversification is required; and (c) any mention of the risk categories (conservative, moderate and aggressive) financial professionals most commonly discuss and employ.

While regulators have given financial professionals wide latitude, they've provided no quantitative means for professionals to defend their investment advice as suitable and prudent. Fortunately, we can look to the traditional risk-classification model portfolios used by respected industry leaders that have long stood the test of time with regulators. Together, they form a consensus set of industry-standard definitions that enable risk category portfolios to be modeled, quantified, and used as reference standards in assessing the relative risk performance of other investment portfolios.

## Defining and Measuring Risk

To credibly judge the level of risk associated with an investment portfolio, the term “risk” first must be defined in a manner that can be quantifiably measured. However, a review of the rules, regulations, and standards of FINRA, ERISA, UPIA and the SEC reveals they are either silent or nebulous about risk's definition. The term “loss of value” is occasionally found but without thresholds, and other definitions, such as standard deviation, are nowhere to be found. However, with the advent *Behavioral Economics*, academia today clearly prefers downside deviation as the measure of risk, and FINRA 2111.03(c) is satisfied so long as it is “based on generally accepted investment theory.” Thus, the underlying measure of risk used herein will be the *Quarterly Downside Deviation*, which is calculated as the root mean square of negative quarterly returns, sampled daily over the portfolio's data span. More specifically:

$$\text{Quarterly Downside Deviation} = \sqrt{\frac{\sum_{i=1}^{\text{Total Days}} \left[ \text{Min} \left( \frac{p(i)}{p(i-3\text{mo})} - 1, 0 \right) \right]^2}{\text{Total Days} - 3\text{mo}}}$$

Where:

- Total Days = the number of market days in the evaluation period.
- 3mo = one quarter of a year, typically 63 market days.
- $p(i)$  = the equity curve value on day  $i$ .

*Relative Risk*, however, provides a better perspective and will be used in the comparative performance charts that follow. It is the ratio of the Quarterly Downside Deviation (QDD) of the test portfolio to the QDD of the Consensus Aggressive Portfolio of Figure 1. Thus, *the Consensus Aggressive Portfolio is the reference standard, and by definition has a Relative Risk of 100%*.

$$\text{Relative Risk} = \frac{\text{QDD of Test Portfolio}}{\text{QDD of Consensus Aggressive Portfolio}}$$

## Consensus Risk Category Portfolios

With the measure of risk resolved, the matter of “acceptable risk” must still be resolved if one is to satisfy the regulatory prudent and suitability rules. While a review of the rules, regulations, and standards again reveals only silence on the matter, financial institutions have long been given the freedom to define their own range of risk category portfolios, such as conservative, moderate, and aggressive, as illustrated by the examples of Appendix A. Although the number of risk categories and the asset class allocation weights vary from one institution to another, together they can be used to form the consensus set of industry-standard risk category portfolios illustrated in Figure 1. Vanguard mutual funds VFINX, VTRIX, VBMFX, and VWSTX (Figure 2) were selected as proxies to represent the four asset classes (Domestic Equity, International Equity, Fixed Income, and Short-Term Funds) because of their excellent asset class matches, long data history, and broad industry respect. There are numerous equally suitable virtual clones of these funds available from other companies that will produce like results.

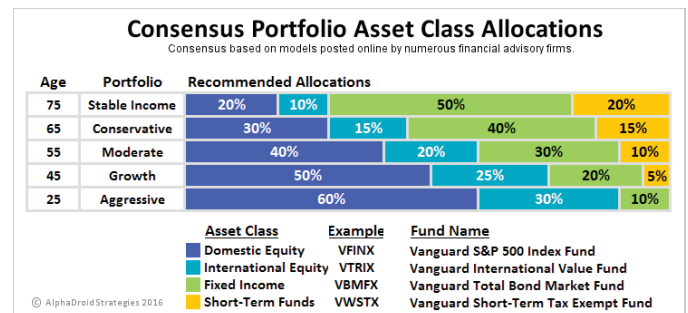


Figure 1. Consensus Portfolio asset class allocations and risk appetite categories

Regulators have indirectly approved the Consensus Portfolio definitions of Figure 1 by default through their decades-long acceptance of the financial industry's risk category portfolios. As such, these Consensus Portfolio definitions form a regulatory accepted set of standardized risk category portfolios that can be statistically quantified and used to set reference standards for the risk and return statistics typical of the Stable Income, Conservative, Moderate, Growth, and Aggressive portfolios typically offered within the industry.

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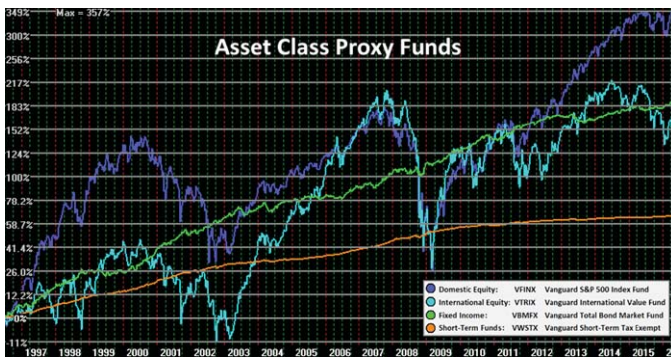


Figure 2. Vanguard mutual funds as a proxy for traditional asset class investments.

## Risk Category Portfolio Performance

The 24-year risk/return performance for the five consensus risk category portfolios is plotted in Figure 3. Return is simply measured as the compound annual growth rate (CAGR). Risk is measured as the Quarterly Downside Deviation and is an absolute negative volatility measure not

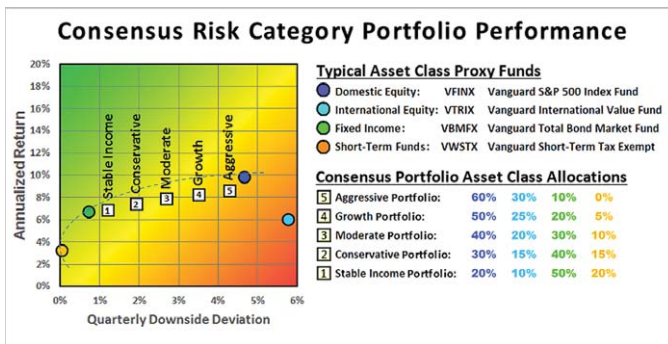


Figure 3. Consensus risk category portfolio performance.

scaled by return in the manner employed by the Sharpe and Sortino ratios. As should be expected, portfolios [1] through [5] line up evenly distributed just beneath MPT's efficient frontier stretching between the ● domestic equity fund and the ● fixed income fund. The five portfolios lie just beneath the efficient frontier because their asset class allocations actually are slightly sub-optimal, as can be demonstrated with this [Efficient Frontier online analysis tool](#). The horizontal axis of Figure 4 has been rescaled from Figure 3 to instead indicate Relative Risk. The Consensus Aggressive Portfolio [5] is designated as the primary reference portfolio and thus, by definition, has a Relative Risk value of 100%. The Relative Risk for the Stable Income, Conservative, Moderate, and Growth Consensus Portfolios are 28%, 45%, 63%, and 82%, respectively. **These five Consensus Risk Category Portfolios actually are the de facto reference standards against which all other investment portfolios can be judged.**

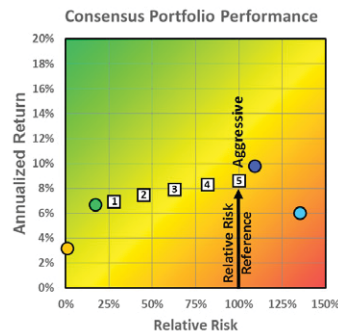


Figure 4. The Aggressive Portfolio by definition has 100% Relative Risk.

## Risk Category Mutual Fund Performance

Investment companies have not only proposed risk category models, but actually offer corresponding sets of mutual funds that implement them – as exemplified by Fidelity's Asset Manager, Vanguard's LifeStrategy, BlackRock's LifeCycle, Russell's LifePoints, and other such series of funds. The Fidelity's Asset Manager family of funds plotted in Fig. 5 aligns well with consensus risk category portfolios [1] through [5], as do the similar funds offered by others. Not surprisingly, even the portfolios recommended by the Robo Advisors Betterment, Wealthfront, and FutureAdvisor cluster around consensus risk category portfolios [4] and [5].

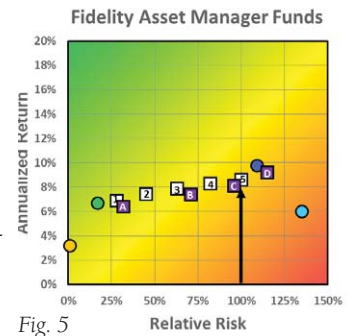


Fig. 5 FASIX - Fidelity Asset Mgr 20% C FASGX - Fidelity Asset Mgr 70% B FASMX - Fidelity Asset Mgr 50% D FAMRX - Fidelity Asset Mgr 85%

## New Tools Change Old Rules

Fortunately, there have been numerous advances in investment theory since MPT's 1952 debut, including: (2) Momentum in market data was formally *found, confirmed, and practiced*; (1) *Matched Filter Theory* and *differential signal processing* were developed to improve *signal-to-noise ratio*, which determines the probability of making a good investment decision; and (3) *Kahneman and Tversky* redefined risk through *behavioral economics*.

A Tactical Rotation strategy employing these new tools in accordance with the methods of the 2016 NAAIM white paper "[Automated Polymorphic Momentum](#)," achieves the performance illustrated in Figure 6. While a traditional MPT portfolio holds a fixed allocation of every one of its funds, **this strategy** holds only the trend leader among them at any given time; switching between VFIX and VTRIX in bull markets, and to VBMFX in bear markets.

**Tactical Rotation produced twice the return with half the risk of a traditional moderate risk MPT portfolio, and is performance that is quantitatively defensible.**

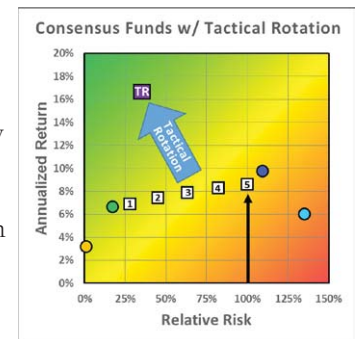


Figure 6. Tactical Rotation Strategy using the same Consensus Asset Class Funds.

Scott Juds is a Founder and Chief Science Officer of AlphaDroid Strategies of San Luis Obispo, CA, and Founder and CEO of SumGrowth Strategies of Seattle, WA. He holds an MSEE from Stanford University, a BSEE from the University of Wisconsin – Madison. He is the named inventor on over 40 U.S. and foreign patents.