

THE ANATOMY OF A BREACHED DUTY
Of Failure to Diversify by Reasonably Reducing Uncompensated Risk
© By J. Ben Vernazza CPA/PFS TEP emeritus & Stewart Frank CPA/PFS AIFA
Professional Fiduciary Association of California
San Mateo County California – November 16, 2018
(based on article AICPA June 2017 *Tax Adviser* www.precisionfiduciary.com/orphan/)

Part I Introduction

Through Investment Policy Statements (IPS) and implementation of their resulting asset allocation, a portfolio's compensated (systematic) risk strategies are usually well managed, while the management of Uncompensated Risk (UCR) is usually ignored.

Fiduciary Law

The history of FIDUCIARY Law shows constant evolution in defining the diversification requirements of a prudent portfolio.

Restatement, Third, Trusts

Promulgated: 1992

Full Text & Updates: 1994-2018

Publisher: American Law Institute

Publication Website: <https://www.ali.org/publications/show/trusts/>

Information About Restatement, Third, Trusts

This work provides a contemporary treatment of trust law, offering authoritative guidance to legislators, judges, and those who counsel trustees and beneficiaries or endeavor to draft instruments that accurately reflect the lawful intentions of donors. The work represents a complete revision of the Restatement Second, which is no longer in print. Volumes 1 and 2 cover the nature, creation, and elements of trusts; interests and rights of beneficiaries; and trust modification and termination. Volume 3 deals with trustee powers and duties and incorporates an updated version of an earlier Prudent Investor volume. The fourth volume covers trust administration, particularly breaches of trust and the appropriate legal remedies.

There have been three Restatements of Trust Law during the last 87 years:

1) The (1st) Restatement of the Law of Trusts by Thurman W. Arnold, Yale Law School, **1931**. This consisted of 23 pages in total and did not include any reference to investment diversification.

2) Restatement of Trust Law 2nd, American Law Institute, **1957**. This consisted of 3 volumes, 12 pages on Investment of Trust Funds, and a 2-page section on The Duty to Diversify.

3) Restatement of Trust Law 3rd, American Law Institute, **1992**. Volume 8 Section 227, specifically addressing the General Standard of Prudent Investment and consisting of 100 pages. Ten pages were specifically on "Risk and the Requirement of Diversification."

- a) Modern portfolio theory is discussed **10** times.
- b) Systematic, compensated and non-diversifiable risk are used interchangeably and are discussed **19** times.
- c) The terms uncompensated, unique, specific and diversifiable risk are used interchangeably and are discussed **24** times.

The following quotes standout: --(See www.precisionfiduciary.com/restatement/)--

- 1) "The duty of caution does not call for avoidance of risk by trustees but for their prudent management of risk." (pg. 18)

- 2) "In understanding a trustee's duties with respect to the management of risk, it is useful to distinguish between diversifiable (or "uncompensated") risk and market (or non-diversifiable) risk that is, in effect, compensated through pricing in the marketplace." (pg. 19)
- 3) "The trustee's duties and objectives with respect to non-diversifiable (compensated) risk are not as distinct as those with respect to diversifiable (uncompensated) risk." (pg.19)
- 4) "Failure to diversify on a reasonable basis in order to reduce uncompensated risk is ordinarily a violation of both the duty of caution and the duties of care and skill." (pg. 23)

The Uniform Prudent Investor Act (UPIA) is grounded in the Restatement of Trusts 3rd.
Commentary to Section 3 of the UPIA states:

"Modern portfolio theory divides risk into the categories of "compensated" and "uncompensated" risk. The risk of owning shares in a mature and well-managed company in a settled industry is less than the risk of owning shares in a start-up high technology venture. The investor requires a higher expected return to induce the investor to bear the greater risk of disappointment associated with the start-up firm. This is compensated risk -- the firm pays the investor for bearing the risk. By contrast, nobody pays the investor for owning too few stocks. Risk that can be eliminated by adding different stocks (or bonds) is uncompensated risk. The object of diversification is to minimize this uncompensated risk."

1

Uncompensated Risk Defined

Investment Risk is risk that can be eliminated with diversification and unlike systematic or compensated risk, investors cannot expect added return for assuming more uncompensated risk. Uncompensated risk comes from the inherent risk of investments in industry and sectors, individual firms and, in addition, having too many of industries/sectors/firms that are closely correlated or uncorrelated. Uncompensated risk represents approximately 2/3 of total risk.
<http://precisionfiduciary.com/glossary/>

Think of it This Way

REMEMBER THE BAD APPLE ANALOGY



Sector A

Sector B

Sector C

Sector D

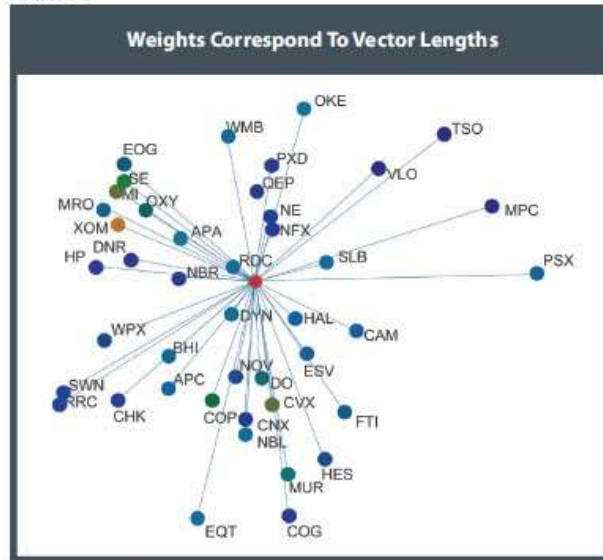
etc

*The asymmetrical nature of the problem is best illustrated by the proverb: "**one bad apple spoils a barrel (sector)!**" It applies to prudent diversification of a portfolio because allowing a "bad apple" security (one that increases a portfolio's UCR) to remain in a "barrel" compromises the entire portfolio because it contaminates the other securities by making them less of a diversification factor.*

Methodology Used

Our testing protocol leverages expertise, software and process to *asymmetrically* calculate and measure the absolute equivalent number of equally weighted diversification resources, also known as Asymmetric Concentration Coefficient Resources (ACCR) present in a portfolio. Each ACCR has the ability to move independently within a portfolio's structure. More ACCRs equal more diversification and the presence of less Uncompensated Risk (UCR). Your portfolio's is then compared to a Maximum UCR reduction portfolio of like size with similar allocation between equities and fixed income. We use our proprietary algorithms in the process to substitute "bad apple" constituents with higher Sharpe return and lower volatility assets.

Figure 2



Source: Gravity Capital Partners

California Public Pension Plan Study Findings

The unconstrained optimization was presented to help the 5 boards understand what's at stake. It gave them an idea of HOW BADLY IN BREACH OF THEIR FIDUCIARY DUTY TO DIVERSIFY THEY ARE & HOW MUCH MONEY THEY ARE LEAVING ON THE TABLE as a result. The answer to both questions rests within the range of lost diversification "alpha" resulting the board's failure to diversify.

County Retirement Boards	Range of Lost Diversification "Alpha"	
	Lower End	Upper End
Fresno	\$ 7.8 Million	\$ 44.3 Million
Imperial	\$ 2.6 Million	\$ 8.5 Million
Mendocino	\$ 1.6 Million	\$ 4.7 Million
Merced	\$ 2.9 Million	\$ 7.8 Million
Tulare	\$ 5.2 Million	\$ 14.1 Million

CalPERS \$ 1.2 Billion \$ 3.6 Billion

Based on the knowledge gained from the 5 County Study and our review of CalPERS overall asset allocation and actual rate of return during the same period we have presumed, with high confidence, that **CalPERS has also failed** the same test and **"left \$1.2 to \$3.6 billion yearly on the table."**

<http://precisionfiduciary.com/5county/> & <http://precisionfiduciary.com/calpers5county/>

For Gov. Brown fax re: CalPERS breach letter see <http://precisionfiduciary.com/calpers-breach/> and see May 14, 2018 CalPERS presentation <http://precisionfiduciary.com/breach2018/>

TAKEAWAYS FROM THIS PRESENTATION

1. **Diversification that removes a prudent and reasonable amount of uncompensated risk has been required by all fiduciary law since 1992.**
2. **In 1996 John H. Langbein of the Yale School of Law credits Richard Brealey for the estimate that portfolio risk is 69% attributable to uncompensated risk and 31% attributable to compensated risk. Our real-time big-data analysis of portfolios confirms this earlier empirical study.**
3. **We conclude that fiduciaries who embrace a prudent process for UCR elimination, avoid litigation risk and manage portfolios with increased returns (diversification alpha) and usually outperform other strategies.**
4. **Reduce Uncompensated Risk in your portfolios? - It's the prudent thing to do!**

Q&A

→**Download** this entire presentation & attachments
<http://precisionfiduciary.com/anatomy/> ←



Bingham Farms, MI
Aptos, CA
<http://precisionfiduciary.com>

Assistance from ben@benvcpa.com 831-688-6000
or SFrank@Precisionfiduciary.com 248-227-8208

THE ANATOMY OF A BREACHED DUTY
Of Failure to Diversify by Reasonably Reducing Uncompensated Risk
© By J. Ben Vernazza CPA/PFS TEP emeritus & Stewart Frank CPA/PFS AIFA
Professional Fiduciary Association of California
San Mateo County California – November 16, 2018
COMMENTS ON PRIVATE SECTOR RESULTS & ATTACHMENT BACKGROUND

Part II SOME PRIVATE SECTOR RESULTS OF INTEREST

WIRE HOUSE ROBO PORTFOLIO PROPOSAL \$300,000

This portfolio was designed by one of the large wire houses for a 60 year old couple with a portfolio of approximately \$300,000. The portfolio returned 2 ½ % less than the optimized Max UCR reduction portfolio. Potential return increase might possibly have been \$5,000/ year.

HOSPITAL ENDOWMENT \$330 MILLION

1/3 in liquid investments portfolio, 1/3 in farm land, and 1/3 in a medical related business. The portfolio was not diversified, The related medical business was important for the success of the hospital and the board decided to comment why it would no longer be covered by the IPS. Many of the smaller agricultural lands were expensive to maintain and our recommendation was to obtain a land consultant's opinion on how these might be sold with the proceeds to be invested in liquid investments that do not create UCR.

NON-PROFIT ORGANIZATON \$7 MILLION

This is very similar to recent case of a lawyer splitting trust assets between two advisers (Attachment F below). The non-profit board elected early on to use two local investment advisers who were also significant contributors. We analyzed both separately and then together. One portfolio was very well diversified and the other was not. Together adjustments were made in the portfolios to reach prudent diversification and retain two advisers. The board learned something and by doing so increased potential results and retained two contributors.

FAMILY TRUST RUN BY ONE OF THE BENEFICIARIES

This situation is becoming more common for attorneys. One of the beneficiaries manages the portfolio and the other siblings are not happy because they think the portfolio is not diversified, not performing, poor performing. We can a determine whether or not the fiduciary sibling has prudently and reasonably reduced uncompensated risk. If not, the lawyer may be able to claim prima facie evidence of breach.

ATTACHMENT A-SAMPLE SCATTER CHART ILLUSTRATION

Scatter charts are a tool that can greatly facilitate the management of fiduciary accounts in accordance with the mandates of Uniform Prudent Investors Act (UPIA) which is based on the 3rd Restatement of Trusts 1992. The simplicity of oversight by scatter charts is demonstrated by a mere glimpse.

However, before anything can be managed, it must first be identified. The Scatter Graph is a useful tool that easily identifies portfolios that contain more uncompensated risk than their portfolio's benchmark and allows all observers (including stakeholders, fiduciaries, attorneys, jurors, and judges) to simultaneously see the historical risk of loss assumed by a given portfolios when compared to the benchmark and achieved return. They are also very descriptive in visually seeing the difference between different advisers and proposals for asset allocations and suggested portfolios by Portfolio Consultants, like us, which in our case focuses on reduction of UCR.

RECENT PRIVATE SECTOR RESULT EXAMPLES

CHIPS LEFT ON THE TABLE OR THE POTENTIAL CLAWBACK TO BENEFICIARIAS

Attachment B - \$2 million SCREENING – TRUSTEE

This is a trust set up for a disabled person which starts out with a majority of the assets in short and intermediate term fixed income securities due to the situation at hand. The scatter chart clearly shows the shortfall in the actual portfolio in comparison to the Macro Assets Allocation Index and the significant increase potential of the Max UCR Reduction Portfolio. Note the significant increase in the Share Ratio showing the results of the algorithm that matches opposing correlated assets with the highest potential return in sorting through the maze of possible combinations (see under Methodology section pg.3).

Attachment C - -\$10 million SCREENING WEALTH MANAGEMENT FIRM

This was a follow-up from a 2017 engagement to determine how the existing and Max UCR portfolio reacted during the volatile and down market during January through March 2018. The risk markers comparison between the actual portfolio and the macro portfolio are reasonably close. The actual portfolio and MAX UCR portfolio both eliminated 100% of the UCR, but the actual portfolio consisted of an extraordinary 515 securities vs. 65 in max UCR portfolio. The return for the 3 months was negative for the actual portfolio while it was positive the Max UCR portfolio. This is explained by the positive Sharpe Ratio in the Max UCR portfolio due to the algorithm. This engagement also suggested that the fees being charged by the adviser were excessive especially when considering 1/3 of the portfolio was in fixed income.

Attachment D - -\$900,000 SCREENING CONSERVATORSHIP

This was an evaluation for a fiduciary as conservator for a person who managed his own portfolio but was unable to continue doing that due to his mental and physical condition. This example also shows a third column "Asset Allocation." This differs from Macro which is the same proportion of equities/fixed income whereas Asset Allocation is the benchmark relative to the sectors in which the portfolio securities fall into and combined. The actual portfolio obtained alpha over the sectors benchmark with a lower Sharpe Ratio and higher volatility. The Max UCR obtained significant increases in return as a result of a higher Sharpe Ratio due to lower volatility and the use of the algorithm to offset opposing correlated assets.

Attachment E --\$600,000 SCREENING REGISTERED INVESTMENT ADVISER

Adviser added alpha to sectors benchmark with higher return from a higher Sharpe Ratio with about ½ of UCR eliminated. Substantial improvement possible through elimination of more UCR and using the algorithm to calculate most effective offsetting assets to replace those that provide little additional return. The size of this portfolio is such that the potential benefit in further UCR reduction may only be about ½ of the difference between the actual portfolio return and the Max UCR portfolio return – or around \$10,000 per year.

Attachment F -- \$2 Million SCREENING EQUITY SPLIT 2 ADVISORS

This kind of situation is coming up more and more. It is where ‘someone’ makes the decision to take a portfolio and give half to one adviser and half to another adviser. Why would someone do that? They may think that by doing so they are diversifying the portfolio. Or, they may be thinking about returning referral favors. Or, they may be doing it for both reasons. For a fiduciary this might be considered a breach. *But more importantly the concept is a fallacy in regards to diversification* unless the portfolio is large enough and the Investment Policy Statement has a procedural process for each adviser to follow. This misjudgment is clearly shown in the scatter chart. The correct procedure is to institute a vetting procedure to evaluate two or more advisers before deciding which one to retain. Regardless of previous referrals and regardless of counsel suggestion to do so it is ultimately the fiduciary that must play by the rules of law and the requirement that UCR be reasonably and prudently reduced.

Attachment G1,G2,G3- \$1 Million CURRENT STEP BY STEP ON-GOING PROCESS

This is a case currently in process. It started as a referral from a CPA to work with his client as a portfolio consultant to give independent opinion and advice regarding a variable annuity and a separate brokerage account totaling about \$1 million. It began with a SCREENING of the annuity and brokerage account based on the holdings in each from information provided by the client. The result is shown in G1 for the year ended March 31, 2018. The cost of the screening and 15 minute consultation was \$375.

The client decided to continue on to a comprehensive evaluation and we asked for the choices available in the variable annuity. The client thought that there were 14 choices (of which he had chosen two and 14 seemed low for a variable annuity to us). We asked to get that information from the policy or someone within the company. The client had to go up the ladder in the company to get what we needed and we received the list in an email from the company. It listed 60 equity/sector funds as well as the 14 balanced funds the client thought were the only choices. We told the client we would need to do two comprehensive plans – the annuity first and then the brokerage account. \$1,500 for Annuity study and \$1,500 for the brokerage account. This included the reports and 1 ½ hours of consultation.

The results were for the year ended June 30, 2018, and are shown in Attachment G2 & G3. As one can see there is more detail with more dynamics added in the comprehensive analysis. We also suggested a “reasonable portfolio” for the brokerage account. We have prepared a suggested list of sectors (including overweighting, underweighting, or normal weighting) as a guideline for the current adviser to use in choosing individual securities, ETFs, mutual funds, etc. We will run a screening on the proposed portfolio. The potential for increased return from diversification alpha is somewhere around \$25,000+ per year for the year studied. The client has mentioned possibly changing advisers and in that case he wants us to assist him in vetting several alternatives he has in mind.

TAKEAWAYS FROM THIS PRESENTATION

1. **Diversification that removes a prudent and reasonable amount of uncompensated risk has been required by all fiduciary law since 1992.**
2. **In 1996 John H. Langbein of the Yale School of Law credits Richard Brealey for the estimate that portfolio risk is 69% attributable to uncompensated risk and 31% attributable to compensated risk. Our real-time big-data analysis of portfolios confirms this earlier empirical study.**
3. **We conclude that fiduciaries who embrace a prudent process for UCR elimination avoid litigation risk and manage portfolios with increased returns (diversification alpha) and usually outperform other strategies.**
4. **Reduce Uncompensated Risk in your portfolios? - It's the prudent thing to do!**

Q&A

→ **Download** this entire presentation & attachments
<http://precisionfiduciary.com/anatomy/> ←



Bingham Farms, MI
Aptos, CA

<http://precisionfiduciary.com>

Assistance from ben@benvcpa.com 831-688-6000
or SFrank@Precisionfiduciary.com 248-227-8208

WHAT THEY LEFT ON THE TABLE OR THE POTENTIAL CLAWBACK LIABILITY AWARDED BENEFICIARIES?

THE ANATOMY OF A BREACHED DUTY

TO PRUDENTLY & REASONABLY REDUCE UNCOMPENSATED RISK (UCR)

Presentations to PFAC Chapters and Convention in April, May, September, November 2018

By J. Ben Vernazza CPA/PFS TEP emeritus & Stewart Frank CPA/PFS AIFA

<u>Attach.</u>	<u>Total Value</u>	<u>% Return/Yr.</u>			<u>One Year</u>		<u>?6 Yr Statute Limitations?</u>	
		<u>Actual</u>	<u>Reas.</u>	<u>MaxUCR</u>	<u>Reasonable</u>	<u>MaxUCR</u>	<u>Reasonable</u>	<u>MaxUCR</u>
C	\$40,000,000*	NO UCR;	ONLY HIGH FEES		\$240,000	\$320,000	\$1,400,000	\$1,920,000

*This family office had an overall asset allocation similar to one of its entities – a limited partnership with \$10 million. For test purpose it was representative of the entire \$40 million. The portfolio had 515 securities. The Max UCR reduction portfolio had 65 securities and produced an annualized net return 2.9% higher due to a higher Sharpe Ratio. No UCR left on the table was calculated because the 515 security portfolio was reasonable diversified, albeit at a cost.

<u>F (2 adv)</u>	<u>\$1,000,000</u>	<u>8.4</u>	<u>9.4</u>	<u>9.4</u>	<u>\$ 10,000</u>	<u>\$10,000 --></u>			3 ADV SPLIT A BREACH IF NO INV POL ST INSTRUCTIONS
<u>F (UCR)</u>	<u>\$2,000,000</u>	<u>9.4</u>	<u>12.3</u>	<u>13.3</u>	<u>58,000</u>	<u>78,000</u>			
					<u>\$ 68,000</u>	<u>\$ 88,000</u>	<u>\$ 408,000</u>	<u>\$ 528,000</u>	
G2 Ann	\$ 500,000	2.1	8.4	9.2	\$ 30,000	\$ 36,000			
G3 Bkr.	\$ 500,000	8.9	11.1	12.0	<u>11,000</u>	<u>17,000</u>			
					<u>\$ 41,000</u>	<u>\$ 53,000</u>	\$ 246,000	\$ 317,000	
B	\$ 2,000,000	5.4	7.0	7.4	\$ 32,000	\$ 40,000	\$ 192,000	\$ 240,000	
E	\$ 600,000	6.2	8.1	9.5	\$ 12,000	\$ 20,000	\$ 68,000	\$ 119,000	
D	\$ 900,000	7.0	7.9	8.2	\$ 8,000	\$ 11,000	\$ 48,000	\$ 66,000	

Note #1: The so-called clawbacks (with the exception of Attachment C) should be looked at as a lost opportunity cost which could have been retained in the portfolio, but, because there was no procedural process to prudently and reasonably reduce UCR, was left on the table.

Note #2: The 6 year Statute of Limitations amount is 6 times the one year amount. In reality C and G would be much higher because each year beginning with the 6th year back would have gotten bigger each year. The rest would have been less because the portfolios were less the 6th year back meaning the amount left on the table would have been less. The main point here is the numbers are significant in some cases (B,C,F & G), marginal with others (E & D), and C is large in total, but the fee overcharge is a small percentage of the total portfolio.

Note #3: If there were a proven breach of fiduciary duties in the litigation, then, in accordance with the U.S. Supreme Court 9-0 decision in Tibble vs. Edison, there would be unlimited clawback since that decision states that the statute of limitations does not start to run until the breach is stopped.

Note #4: There is no intent to make comparisons between the portfolios. Each portfolio is a different scenario. They all share the same deficiency in that there was no procedural process to prudently and reasonably reduce UCR

A-Sample Scatter Graph Illustration

Risk of Loss vs. Returns Scatter Graph For the Period Ended on XXX XX, 20XX

REMOVE UNCOMPENSATED RISK FROM YOUR PORTFOLIO OR BE IN BREACH OF YOUR FIDUCIARY DUTIES!

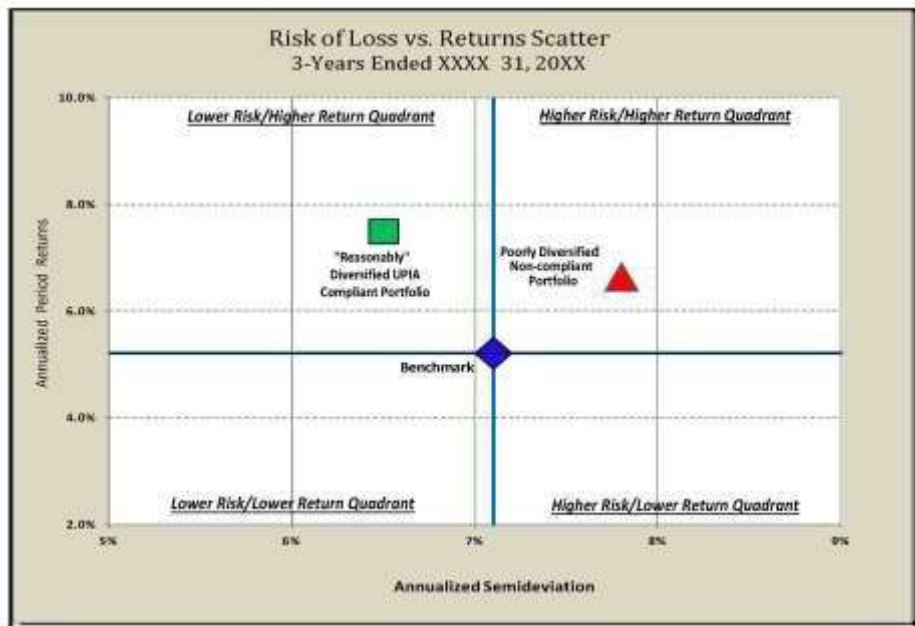
Risk that can be eliminated by adding unlike investments is uncompensated risk and the objective of diversification is to minimize uncompensated risk.*

Scatter charts are a tool that can greatly facilitate the management of fiduciary accounts in accordance with the mandates of Uniform Prudent Investors Act (UPIA) which is based on the 3rd Restatement of Trusts 1992. The simplicity of oversight made possible by scatter charts is demonstrated by a mere glimpse.

However, before anything can be managed, it must first be identified. The Scatter Graph is a useful tool that easily identifies portfolios that contain more uncompensated risk than their portfolio's benchmark and allows all observers (including stakeholders, fiduciaries, attorneys, jurors, and judges) to simultaneously see the historical risk of loss assumed by a given portfolios when compared to the benchmark and achieved return.

In the above Scatter Graph, the data point of the appropriate benchmark is represented by the purple diamond. The red triangle sits on the data point of an "improperly" diversified portfolio while the green square sits on the data point of a "reasonably" diversified portfolio. The crosshairs centered on the purple diamond mark the risk and return of the "benchmark."

The further right a portfolio's risk point is located anywhere on the graph, the greater is its risk of incurring loss. The crosshairs break the scatter plot into four convenient quadrants. The upper-left quadrant can appropriately be called the "prudent quadrant" since portfolios falling into that quadrant have exhibited higher returns yet they have exposed investors to less risk of loss than the benchmark.



The "Poorly Diversified Portfolio" is deeply into the upper-right (high-risk, high-return) quadrant. Occasionally, one finds a portfolio in the lower right-hand corner which is even worse.

Finally, even more rewarding performance risk reduction can be achieved by removing the uncompensated risk that may still remain in a portfolio. We often find results further north and west of a 'compliant' portfolio when the portfolio is designed to eliminate a majority of the uncompensated risk.

* RESTATEMENT OF TRUSTS 3rd VOL. 81992

"In understanding a trustee's duties with respect to the management of risk, it is useful to distinguish between diversifiable (or "uncompensated") risk and market (or non-diversifiable) risk that is, in effect, compensated through pricing in the marketplace. Failure to diversify on a reasonable basis in order to reduce uncompensated risk is ordinarily a violation of both the duty of caution and duties of care and skill."
www.precisionfiduciary.com/restatement/

Where Does Your Portfolio Reside
On The Scatter Chart?
Find Out FOR SURE

www.precisionfiduciary.com/ForSure/

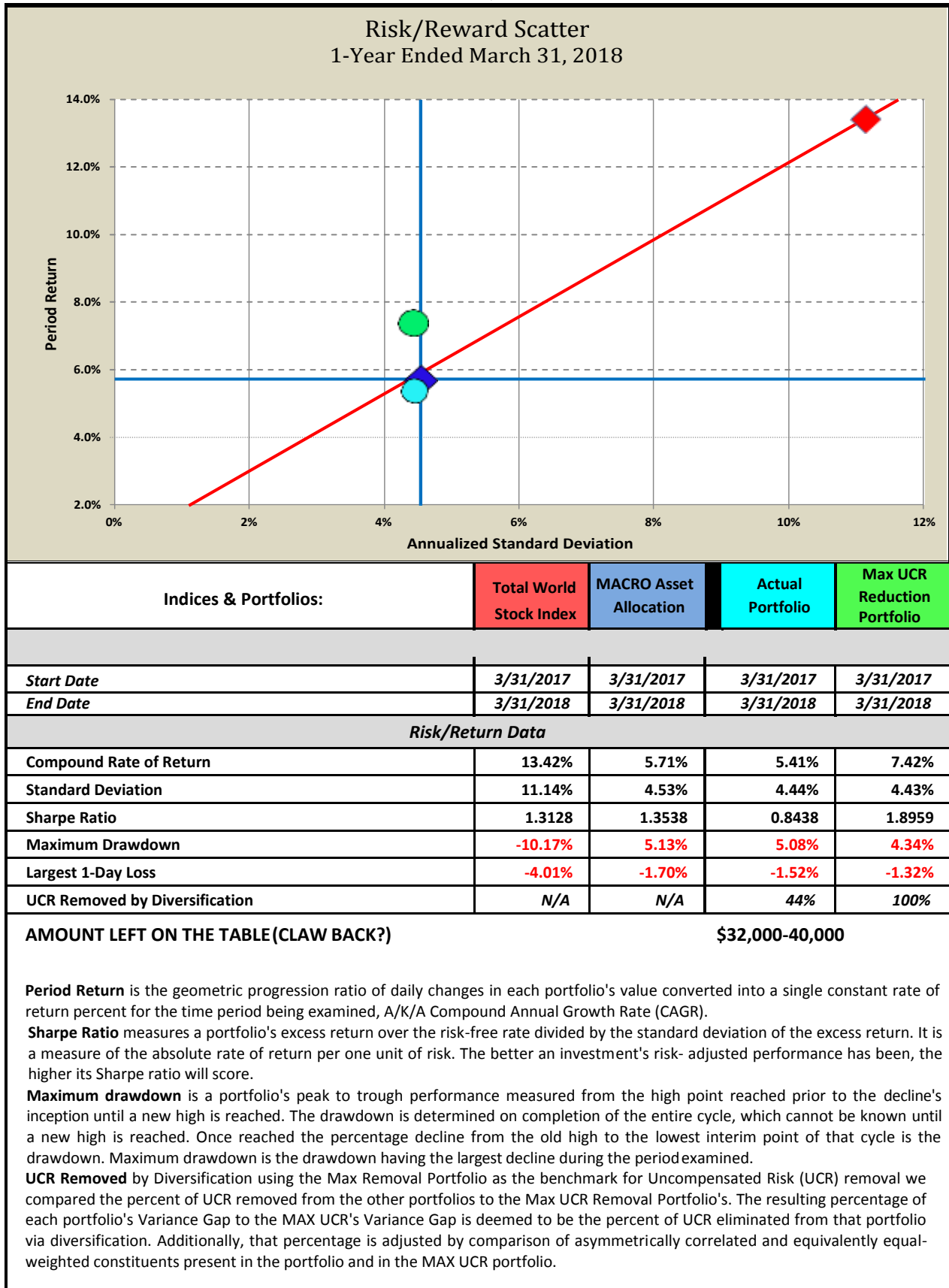
Assistance by email ben@benvcpa.com

Ben Vernazza CPA/PFA TEP emeritus 831-688-6000

B-\$2 mil. SCREENING -- TRUSTEE

Comparative Risk / Return Analysis

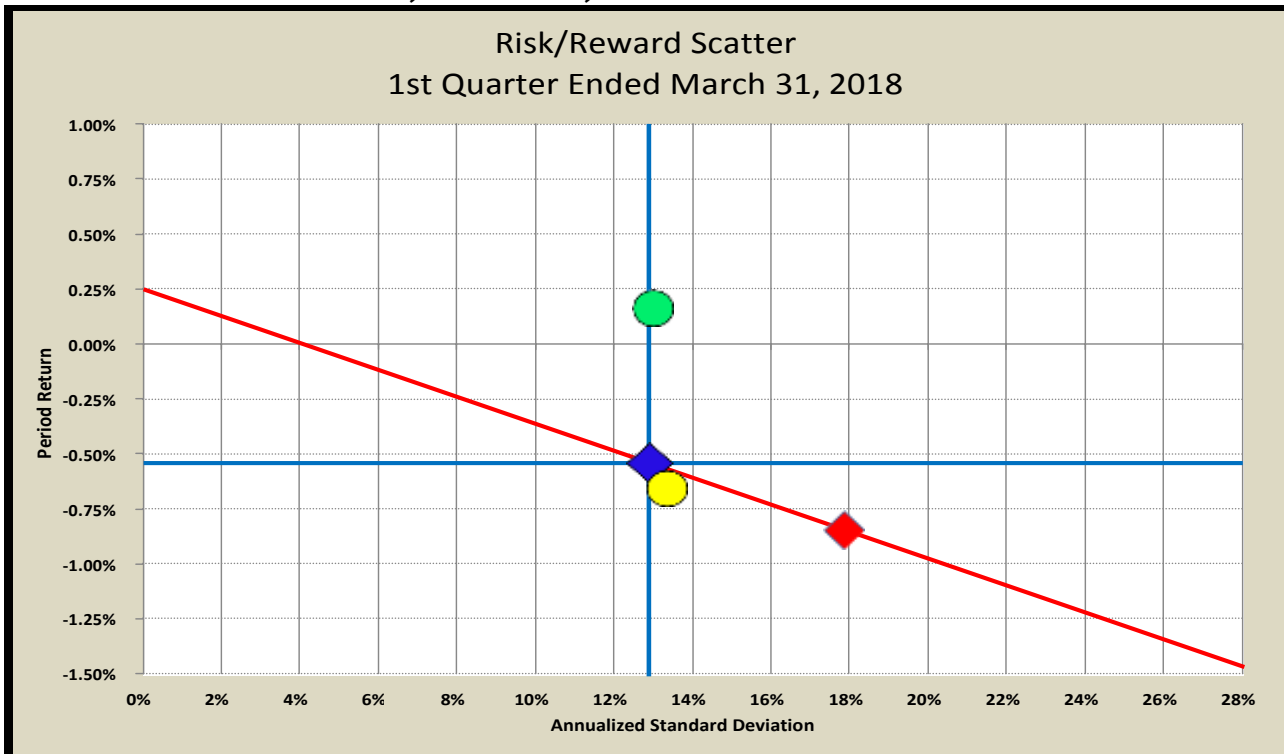
For the 1-Year Period Ended on March 31, 2018



C-\$10 mil. SCREENING WEALTH MGT.

Comparative Risk / Return Analysis

For the 3-Months Ended, March 31, 2018



Indices & Portfolios:	FTSE ALL Cap Global Index	MACRO Allocation	Actual Portfolio	MAX UCR PORTFOLIO
-----------------------	------------------------------	---------------------	---------------------	----------------------

Asset Allocation Data				
Combined Foreign & Domestic Equities	100.0%	72.8%	72.4%	74.1%
Fixed Income & Cash	-	27.2%	27.6%	25.9%

Risk/Return Data				
Period Return - Gross of Fees	-0.85%	-0.54%	-0.23%	0.29%
Period Fees (Estimated)	N/A	N/A	-0.33%	-0.13%
Period Return - Net of Fees	-0.85%	-0.54%	-0.56%	0.17%
Standard Deviation	17.85%	12.88%	13.31%	12.97%
Sharpe Ratio	-0.1865	-0.1619	-0.0678	0.0877
Maximum Drawdown	10.22%	7.53%	8.21%	7.52%
Largest 1-Day Loss	-3.92%	-2.86%	-2.95%	-2.51%
UCR Removed by Diversification	N/A	N/A	100%	100%

Number of Securities in Portfolio

515

65

AMOUNT LEFT ON THE TABLE (CLAW BACK?)

\$240,000-320,000

Period Return is the geometric progression ratio of daily changes in each portfolio's value converted into a single constant rate of return percent for the time period being examined, A/K/A Compound Annual Growth Rate (CAGR).

Sharpe Ratio measures a portfolio's excess return over the risk-free rate divided by the standard deviation of the excess return. It is a measure of the absolute rate of return per one unit of risk. The better an investment's risk-adjusted performance has been, the higher its Sharpe ratio will score.

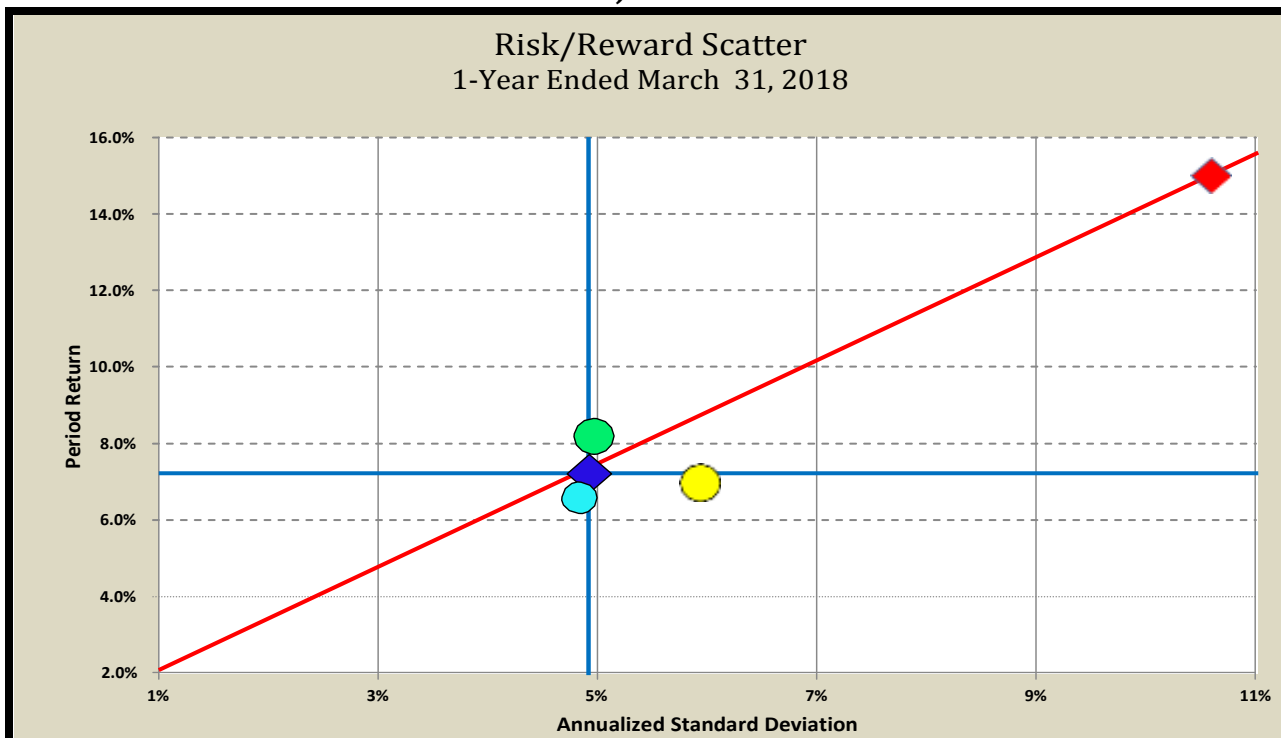
Maximum drawdown is a portfolio's peak to trough performance measured from the high point reached prior to the decline's inception until a new high is reached. The drawdown is determined on completion of the entire cycle, which cannot be known until a new high is reached. Once reached the percentage decline from the old high to the lowest interim point of that cycle is the drawdown. Maximum drawdown is the drawdown having the largest decline during the period examined.

UCR Removed by Diversification using the Max Removal Portfolio as the benchmark for Uncompensated Risk (UCR) removal we compared the percent of UCR removed from the other portfolios to the Max UCR Removal Portfolio's. The resulting percentage of each portfolio's Variance Gap to the MAX UCR's Variance Gap is deemed to be the percent of UCR eliminated from that portfolio via diversification.

D-\$900k SCREENING CONSERVATORSHIP

Risk / Return Status Screening Test

For The 1-Year Period Ended March 31, 2018



	FTSE ALL Cap Global Index	MACRO Allocation	Asset Allocation	Actual Portfolio	Max UCR Removal Portfolio
Period Return	15.01%	7.22%	6.59%	6.99%	8.20%
Standard Deviation	10.59%	4.92%	4.83%	5.93%	4.96%
Sharpe Ratio	1.2791	1.4295	1.3818	1.1714	1.5102
Maximum Drawdown	10.22%	4.87%	4.71%	5.66%	4.82%
Largest 1-Day Loss	-3.92%	-1.83%	-1.75%	-2.23%	-1.49%
UCR Removed by Diversification	N/A	N/A	7%	2%	100%

AMOUNT LEFT ON THE TABLE (CLAW BACK?)

\$8,000-11,000

Period Return is the geometric progression ratio of daily changes in each portfolio's value converted into a single constant rate of return percent for the time period being examined, A/K/A Compound Annual Growth Rate (CAGR).

Standard Deviation is a statistical measure of risk within a portfolio measured by the variability of the portfolio's return around its average over a specific time period. Unlike alpha, beta, and R-squared which are relative to a benchmark index, standard deviation is an absolute measure. In general, the higher the standard deviation, the greater the volatility or risk.

Sharpe Ratio measures a portfolio's excess return over the risk-free rate divided by the standard deviation of the excess return. It is a measure of the absolute rate of return per one unit of risk. The better an investment's risk-adjusted performance has been, the higher its Sharpe ratio will score.

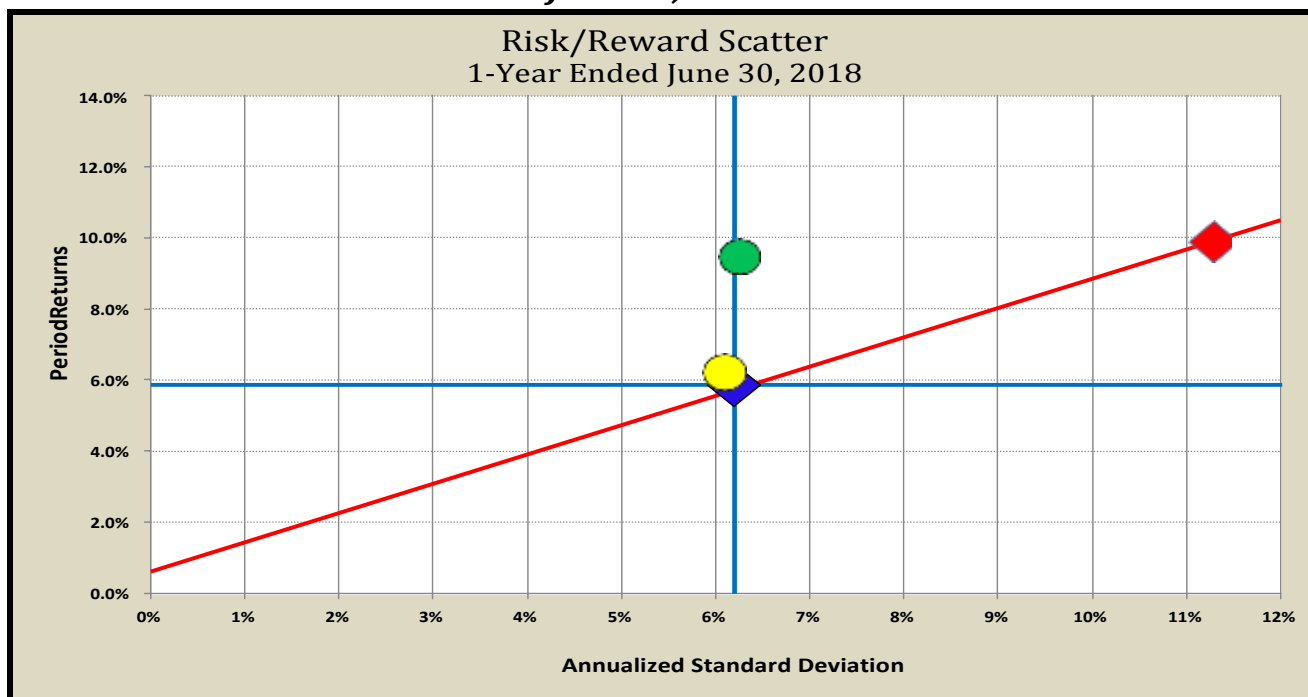
Maximum drawdown is a portfolio's peak to trough performance measured from the high point reached prior to the decline's inception until a new high is reached. The drawdown is determined on completion of the entire cycle, which cannot be known until a new high is reached. Once reached the percentage decline from the old high to the lowest interim point of that cycle is the drawdown. Maximum drawdown is the drawdown having the largest decline during the period examined.

UCR Removed by Diversification using the Max Removal Portfolio as the benchmark for UCR removal we compared the percent of UCR removed from the other portfolios to the Max UCR Removal Portfolio's. The resulting percentage of each portfolio's Variance Gap to the MAX UCR's Variance Gap is deemed to be the percent of UCR eliminated from that portfolio via diversification.

E-\$600k SCREENING REG. INVEST. ADV.

Comparative Risk / Return Analysis

For the 1-Year Period Ended on June 30, 2018



Indices & Portfolios:	Total World Stock Index	Asset Allocation	Actual Portfolio	Maximum UCR Reduction
Risk/Return Data				
Compound Rate of Return	9.92%	5.88%	6.24%	9.48%
Standard Deviation	11.30%	6.20%	6.10%	6.25%
Sharpe Ratio	1.0113	1.0770	1.2132	1.5583
Maximum Drawdown	10.22%	5.75%	5.97%	5.37%
Largest 1-Day Loss	-3.92%	-2.17%	-2.08%	-1.75%
Uncompensated Risk (UCR) Removed by Diversification	N/A	2%	49%	100%

AMOUNT LEFT ON THE TABLE (CLAW BACK?)

\$12,000-20,000

Period Return is the geometric progression ratio of daily changes in each portfolio's value converted into a single constant rate of return percent for the time period being examined, A/K/A Compound Annual Growth Rate (CAGR).

Standard Deviation is a statistical measure of risk within a portfolio measured by the variability of the portfolio's return around its average over a specific time period. Unlike alpha, beta, and R-squared which are relative to a benchmark index, standard deviation is an absolute measure. In general, the higher the standard deviation, the greater the volatility or risk.

Sharpe Ratio measures a portfolio's excess return over the risk-free rate divided by the standard deviation of the excess return. It is a measure of the absolute rate of return per one unit of risk. The better an investment's risk-adjusted performance has been, the higher its Sharpe ratio will score.

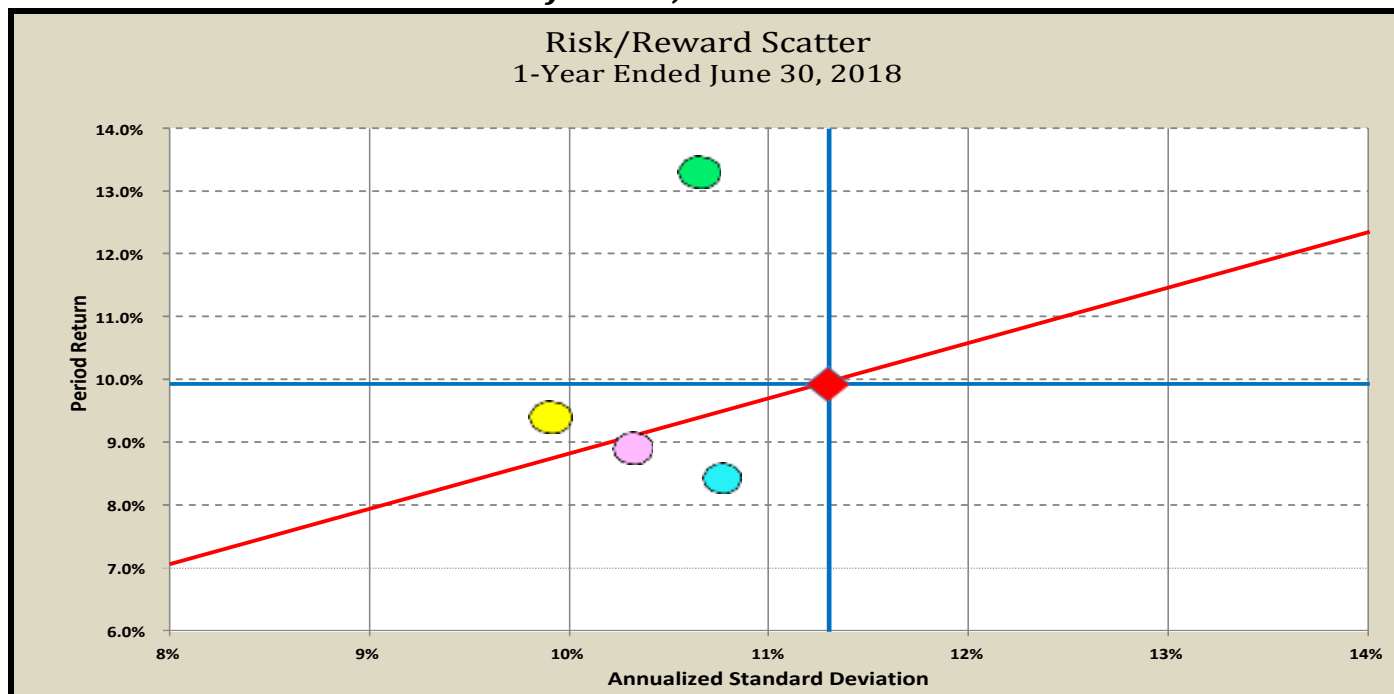
Maximum drawdown is a portfolio's peak to trough performance measured from the high point reached prior to the decline's inception until a new high is reached. The drawdown is determined on completion of the entire cycle, which cannot be known until a new high is reached. Once reached the percentage decline from the old high to the lowest interim point of that cycle is the drawdown. Maximum drawdown is the drawdown having the largest decline during the period examined.

UCR Removed by Diversification uses the Max Removal Portfolio as the benchmark for UCR removal. We compared the percent of UCR removed from the other portfolios to the Max UCR Removal Portfolio's. The resulting percentage of each portfolio's Variance Gap to the MAX UCR's Variance Gap is deemed to be the percent of UCR eliminated from that portfolio via diversification.

F-\$2mil SCREENING EQUITY SPLIT 2 ADVISORS

Comparative Risk / Return Analysis

For the 1-Year Period Ended on June 30, 2018



Indices & Portfolios:	Total World Stock Index	Advisor - I Portfolio	Advisor - II Portfolio	Combined Portfolios I&II	Maximum UCR Reduction
Risk/Return Data					
Compound Rate of Return	9.92%	9.42%	8.45%	8.90%	13.32%
Standard Deviation	11.30%	9.90%	10.77%	10.32%	10.65%
Sharpe Ratio	0.9316	1.1158	0.9685	0.9939	1.4883
Maximum Drawdown	10.22%	9.31%	10.08%	9.70%	9.72%
Largest 1-Day Loss	-3.92%	-3.50%	-3.93%	-3.72%	-3.40%
Uncompensated Risk (UCR) Removed by Diversification	0%	14%	35%	26%	100%

AMOUNT LEFT ON THE TABLE (CLAW BACK?)

\$68,000-88,000

Period Return is the geometric progression ratio of daily changes in each portfolio's value converted into a single constant rate of return percent for the time period being examined, A/K/A Compound Annual Growth Rate (CAGR).

Standard Deviation is a statistical measure of risk within a portfolio measured by the variability of the portfolio's return around its average over a specific time period. Unlike alpha, beta, and R-squared which are relative to a benchmark index, standard deviation is an absolute measure. In general, the higher the standard deviation, the greater the volatility or risk.

Sharpe Ratio measures a portfolio's excess return over the risk-free rate divided by the standard deviation of the excess return. It is a measure of the absolute rate of return per one unit of risk. The better an investment's risk-adjusted performance, the higher its Sharpe ratio will score.

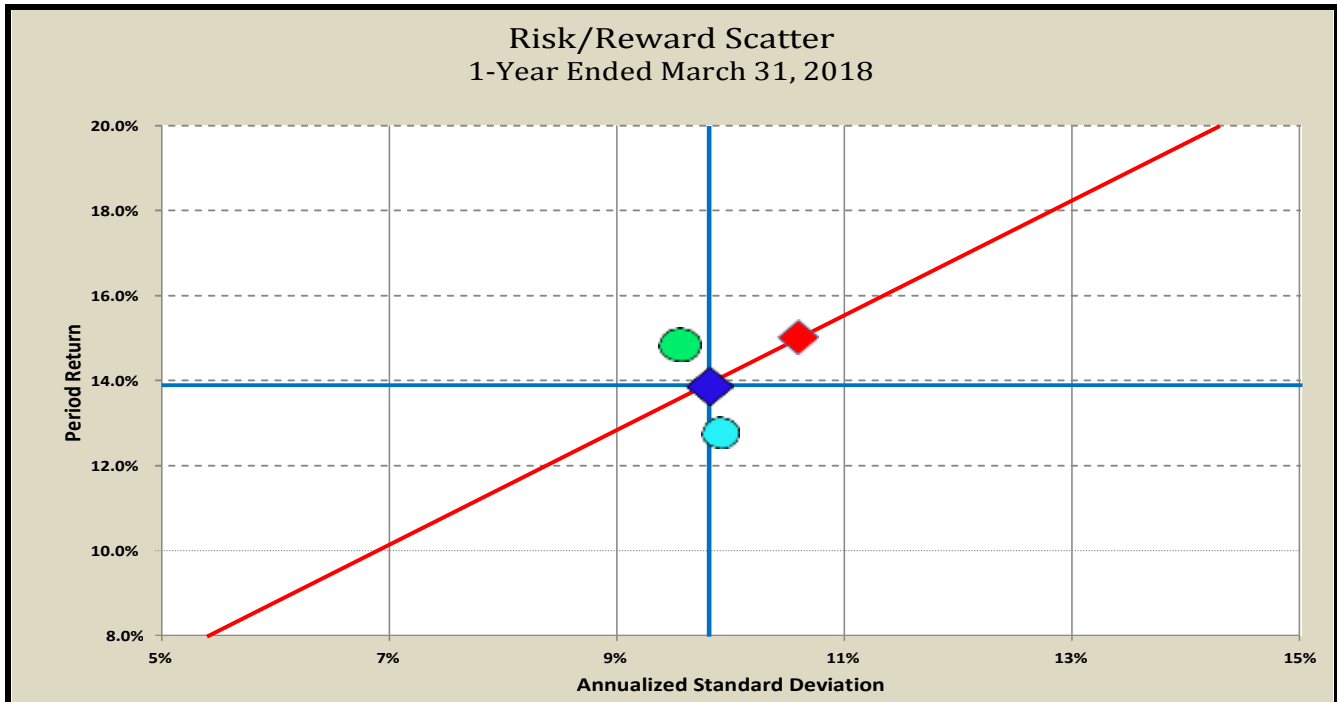
Maximum drawdown is a portfolio's peak to trough performance measured from the high point reached prior to the decline's inception until a new high is reached. The drawdown is determined on completion of the entire cycle, which cannot be known until a new high is reached. Once reached the percentage decline from the old high to the lowest interim point of that cycle is the drawdown. Maximum drawdown is the drawdown having the largest decline during the period examined.

UCR Removed by Diversification uses the Max Removal Portfolio as the benchmark for UCR removal. We compared the percent of UCR removed from the other portfolios to the Max UCR Removal Portfolio's. The resulting percentage of each portfolio's Variance Gap to the MAX UCR's Variance Gap is deemed to be the percent of UCR eliminated from that portfolio via diversification.

G1-\$1mil. SCREENING Annuity & Brokerage

Comparative Risk / Return Analysis

For the 1-Year Period Ended on March 31, 2018



Indices & Portfolios:	Total World Stock Index	Asset Allocation	Actual Portfolio	Maximum UCR Reduction
Asset Allocation Data				
Start Date	3/31/2017	3/31/2017	3/31/2017	3/31/2017
End Date	3/31/2018	3/31/2018	3/31/2018	3/31/2018
Risk/Return Data				
Compound Rate of Return	15.01%	13.90%	12.80%	14.88%
Standard Deviation	10.59%	9.81%	9.90%	9.55%
Sharpe Ratio	1.3171	1.3074	0.9965	1.6168
Maximum Drawdown	10.22%	9.49%	7.94%	8.72%
Largest 1-Day Loss	-3.92%	-3.63%	-3.42%	-3.01%
UCR Removed by Diversification	N/A	N/A	31%	100.00%

Period Return is the geometric progression ratio of daily changes in each portfolio's value converted into a single constant rate of return percent for the time period being examined, A/K/A Compound Annual Growth Rate (CAGR).

Sharpe Ratio measures a portfolio's excess return over the risk-free rate divided by the standard deviation of the excess return. It is a measure of the absolute rate of return per one unit of risk. The better an investment's risk-adjusted performance has been, the higher its Sharpe ratio will score.

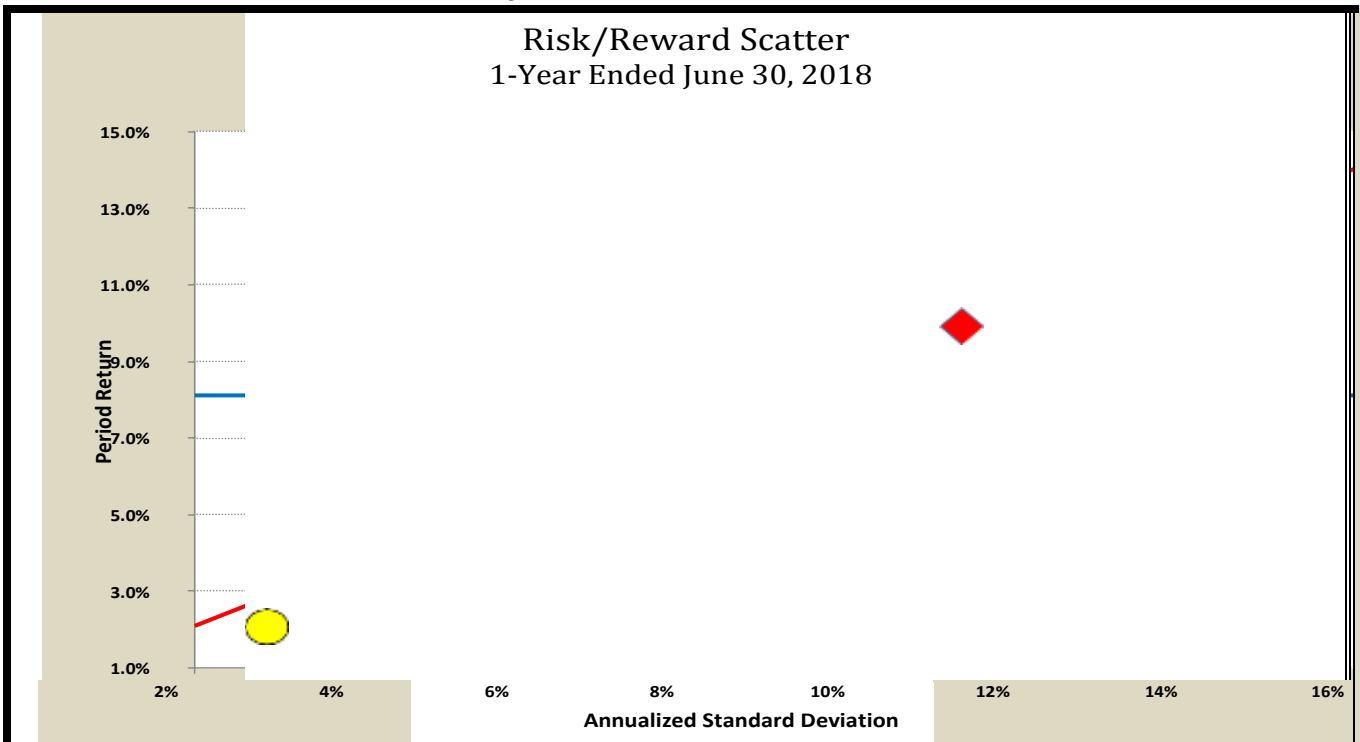
Maximum drawdown is a portfolio's peak to trough performance measured from the high point reached prior to the decline's inception until a new high is reached. The drawdown is determined on completion of the entire cycle, which cannot be known until a new high is reached. Once reached the percentage decline from the old high to the lowest interim point of that cycle is the drawdown. Maximum drawdown is the drawdown having the largest decline during the period examined.

UCR Removed by Diversification using the Max Removal Portfolio as the benchmark for UCR removal we compared the percent of UCR removed from the other portfolios to the Max UCR Removal Portfolio's. The resulting percentage of each portfolio's Variance Gap to the MAX UCR's Variance Gap is deemed to be the percent of UCR eliminated from that portfolio via diversification.

G2-COMPREHENSIVE VARIABLE ANNUITY

Comparative Risk / Return Analysis of Annuity

For the 1-Year Period Ended on June 30, 2018



Indices & Portfolios:	Total World Stock Index	MACRO Allocation Index	Asset Allocation Portfolio	Option-1 Annuity Portfolio	Option-2 UCR Annuity Portfolio
Asset Allocation Data					
Growth Assets	100.0%	80.0%	80.8%	0.0%	80.7%
Risk Reduction Assets	-	20.0%	19.2%	100.0%	19.3%
TOTALS	100.0%	100.0%	100.0%	100.0%	100.0%
Portfolio Metrics					
Correlation	1.00	1.00	1.00	0.93	0.98
R-Squared	1.00	1.00	1.00	0.86	0.95
Portfolio Beta to Risk Assets	1.00	0.80	1.00	0.00	0.00
Portfolio Beta	N/A	N/A	1.00	0.28	0.79
Portfolio Alpha	N/A	N/A	0.00%	-0.24%	0.77%
Risk/Return Data (Compensated Risk Measurements)					
ROR	9.92%	8.11%	8.37%	2.10%	9.16%
Standard Deviation	11.30%	9.03%	9.64%	2.87%	9.16%
Sharpe Ratio	0.9316	1.1178	0.9283	0.8564	1.0394
Maximum Drawdown	10.22%	8.26%	8.83%	2.77%	8.93%
Largest 1-Day Loss	-3.92%	-3.15%	-3.33%	-0.94%	-3.22%
Uncompensated Risk Measurements					
Tracking Error to Asset Allocation Portfolio	N/A	N/A	0.00%	0.44%	0.20%
Active Risk (stated as % of Variance)	N/A	N/A	0.00%	13.46%	5.08%
Weighted Cross Correlation %	N/A	N/A	100%	100%	100%
Cross Correlation %	N/A	N/A	75%	51%	71%
Total Number of Holdings	N/A	N/A	5	4	26
Concentration Coefficient (CC)	N/A	N/A	2	4	24
E-W & Uncorrelated Holdings	N/A	N/A	0	3	16
Fama-Booth Net UCR Diversification Return	N/A	N/A	0.00%	0.00%	0.34%
UCR Removed by Diversification	0%	0%	3%	N/A	100%

AMOUNT LEFT ON THE TABLE (CLAW BACK?)

\$30,000-36,000

G2-COMPREHENSIVE VARIABLE ANNUITY

EXPLANATION OF TABLE'S COLUMN HEADINGS

Total World Index is a market-capitalization weighted index that represents the performance of approximately 8000 large, mid and small cap stocks traded globally. The index covers Developed and Emerging Markets and is used herein as the benchmark for all the equity investment products available to an investor.

MACRO Allocation Index is an artificial index designed to provide high-level benchmarking data for a portfolio having identical allocation weightings of growth assets and risk reduction assets. The MACRO Allocation Index used herein utilizes an 80% weighting to Vanguard Total World Stock ETF and a 20% weighting to iShares Barclays Short Treasury Bond Fund as proxies for their respective asset classes.

Asset Allocation Portfolio is an artificial portfolio designed to provide a more granular benchmark for comparison to the portfolio being reviewed. It maintains the same 80% - 20% asset allocation mix as the MACRO, but uses products available for annuity purposes in the risk reduction space. The 80% growth asset space is filled by the Vanguard Total World Stock ETF, as proxy.

Option-1 Annuity Portfolio is an artificial portfolio constructed with 4 equally weighted representative selections from the annuity's available Option-1 choices:

1. AST Fidelity Institutional AMSM Quantitative Portfolio
2. AST Goldman Sachs Multi-Asset Portfolio
3. AST RCM World Trends Portfolio
4. AST J.P. Morgan Strategic Opportunities Portfolio

Option-2-UCR Annuity Portfolio is a hypothetical portfolio consisting of 22 equally weighted equity indices (representing 80% of the portfolio's value) and 4 equally weighted risk reduction funds selected from the annuity selection menu available on the Option-1 platform (representing 20% of the portfolio's value). PFA's asymmetrical analysis algorithm was used to eliminate candidates whose correlations were too symmetrical for consideration.

This portfolio is also used as the benchmark for UCR removal. We compare the percent of UCR removed from the other portfolios to the UCR removed from this portfolio. The resulting percentage of each portfolio's Variance Gap to this portfolio's Variance Gap is deemed to be the percent of UCR eliminated from that portfolio via diversification.

G2-COMPREHENSIVE VARIABLE ANNUITY

EXPLANATION OF TABLE'S COLUMN HEADINGS

Total World Index is a market-capitalization weighted index that represents the performance of approximately 8000 large, mid and small cap stocks traded globally. The index covers Developed and Emerging Markets and is used herein as the benchmark for all the equity investment products available to an investor.

MACRO Allocation Index is an artificial index designed to provide high-level benchmarking data for a portfolio having identical allocation weightings of growth assets and risk reduction assets. The MACRO Allocation Index used herein utilizes an 80% weighting to Vanguard Total World Stock ETF and a 20% weighting to iShares Barclays Short Treasury Bond Fund as proxies for their respective asset classes.

Asset Allocation Portfolio is an artificial portfolio designed to provide a more granular benchmark for comparison to the portfolio being reviewed. It maintains the same 80% - 20% asset allocation mix as the MACRO, but uses products available for annuity purposes in the risk reduction space. The 80% growth asset space is filled by the Vanguard Total World Stock ETF, as proxy.

Option-1 Annuity Portfolio is an artificial portfolio constructed with 4 equally weighted representative selections from the annuity's available Option-1 choices:

1. AST Fidelity Institutional AMSM Quantitative Portfolio
2. AST Goldman Sachs Multi-Asset Portfolio
3. AST RCM World Trends Portfolio
4. AST J.P. Morgan Strategic Opportunities Portfolio

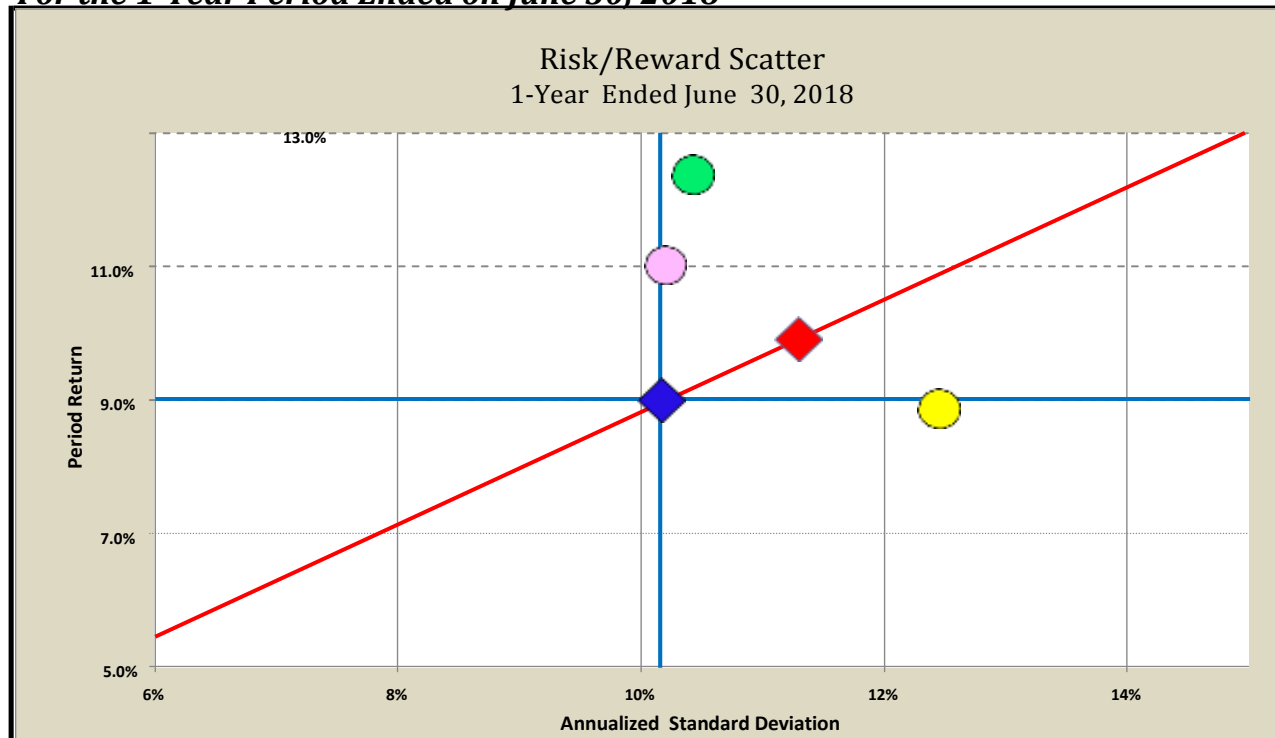
Option-2-UCR Annuity Portfolio is a hypothetical portfolio consisting of 22 equally weighted equity indices (representing 80% of the portfolio's value) and 4 equally weighted risk reduction funds selected from the annuity selection menu available on the Option-1 platform (representing 20% of the portfolio's value). PFA's asymmetrical analysis algorithm was used to eliminate candidates whose correlations were too symmetrical for consideration.

This portfolio is also used as the benchmark for UCR removal. We compare the percent of UCR removed from the other portfolios to the UCR removed from this portfolio. The resulting percentage of each portfolio's Variance Gap to this portfolio's Variance Gap is deemed to be the percent of UCR eliminated from that portfolio via diversification.

G3-COMPREHENSIVE BROKERAGE ACCT.

Comparative Risk / Return Analysis of Risk Assets Only

For the 1-Year Period Ended on June 30, 2018



Indices & Portfolios:	FTSE ALL Cap Global Index	MACRO Allocation	Existing Equity Portfolio	Max UCR "Reasonable" Portfolio	Uncon- strained Max UCR E-W Portf
AMOUNT LEFT ON THE TABLE (CLAW BACK?) \$11,000-17,000					
Equities	100.0%	90.0%	100.0%	90.0%	90.0%
Commodities & Alternatives	-	-	-	10.0%	10.0%
Fixed Income & Cash	-	10.0%	-	-	-
TOTALS	100.0%	100.0%	100.0%	100.0%	100.0%
Compensated Risk Measurements					
ROR	9.92%	9.01%	8.89%	11.01%	12.39%
Standard Deviation	11.30%	10.16%	12.45%	10.20%	10.42%
Sharpe Ratio	0.9316	1.0019	1.0601	1.2283	1.1430
Maximum Drawdown	10.22%	9.24%	8.05%	9.59%	9.68%
Largest 1-Day Loss	-3.92%	-3.53%	-3.91%	-3.64%	-3.40%
Portfolio Metrics					
Correlation	1.00	1.00	0.88	0.98	0.98
R-Squared	1.00	1.00	0.77	0.97	0.95
Portfolio Beta	N/A	N/A	0.97	0.88	0.90
Portfolio Alpha	N/A	N/A	-1.72%	1.47%	2.48%
Uncompensated Risk Measurements					
Tracking Error to Asset Allocation Portfolio	N/A	N/A	0.37%	0.15%	0.17%
Active Risk (stated as % of Variance)	N/A	N/A	21.97%	3.63%	5.13%
Weighted Cross Correlation %	N/A	N/A	76%	70%	73%
Cross Correlation %	N/A	N/A	69%	69%	69%
Total Number of Holdings	N/A	N/A	9	29	29
Concentration Coefficient (CC)	N/A	N/A	8	23	28
Diversification Sources	N/A	N/A	7	17	22
Fama-Booth Diversification Return	N/A	N/A	0.74%	0.46%	0.54%
UCR Removed by Variance Reduction	N/A	N/A	96%	89%	100%
UCR Removed by Diversification Elements	N/A	N/A	32%	77%	100%
Total UCR Removed	N/A	N/A	31%	69%	100%

G3-COMPREHENSIVE BROKERAGE ACCT

EXPLANATION OF TABLE'S COLUMN HEADINGS

Total World Stock Index is a market-capitalization weighted index that represents the performance of approximately 8000 large, mid and small cap stocks traded globally. The index covers Developed and Emerging Markets and is used herein as the benchmark for all the equity investment products available to an investor.

MACRO Allocation Index is an artificial index designed to provide high-level benchmarking data for a portfolio having identical allocation weightings of growth assets and risk reduction assets. The MACRO Allocation Index used herein utilizes a 90% weighting to Vanguard Total World Stock ETF and a 10% weighting to iShares Barclays Short Treasury Bond Fund as proxies for their respective asset classes.

Existing Equity Portfolio is an artificial portfolio consisting of only the risk assets currently held in the portfolio being analyzed.

MAX UCR "Reasonable" Portfolio is a hypothetical portfolio constrained as to the allocation percentages present in the FTSE All Cap Global Index. Selection of specific indices to be included was accomplished via PFA's asymmetrical analysis algorithm. It is known as "Reasonable" because the allocation percentages of the All Cap Global Index are reasonable and because fiduciary statutes require portfolios to be reasonably well diversified.

Unconstrained Max UCR Equal Weight (E-W) Portfolio is a hypothetical portfolio consisting of the remaining 29 equally weighted equity indices selected from the asset classes present in the FTSE All Cap Global Index after elimination of those indices having correlations too symmetrical according to PFA's asymmetrical analysis algorithm to be included.

This portfolio is also used as the benchmark for UCR removal. We compare the percent of UCR removed from the other portfolios to the UCR removed from this portfolio. We also compare the number of diversification elements present in this portfolio to the number of diversification elements present in the other portfolios. The resulting percentage of each portfolio's metric to this portfolio's is deemed to be the total percent of UCR eliminated from that portfolio via diversification.

GLOSSARY

Active Return is the excess return of the portfolio relative to an appropriate benchmark. The higher the active return the better the product's performance in comparison to the benchmark.

Active Risk (stated as % of Variance) is the segment of risk present in an investment portfolio which is greater than the risk (return) caused by the market forces, aka market risk. The difference between market risk and portfolio risk is measured as a percentage of variance. Where both beta and R² of the portfolio being studied exceed 0.90 and the tracking error registers zero %, then we can assume the portfolio's risk and return is attributable entirely to market factors (systematic or compensated risk) and not to non-market factors (NCR).

Alpha is a measure of the difference between a fund's actual returns and its expected performance, given its level of risk (as measured by beta). Alpha grades an investment's return scaled to the return expected by its benchmark. The amount of Alpha delineates the amount by which the investment has outperformed or underperformed its benchmark.

Beta is the measure of an investment's sensitivity to market movements. The beta of the benchmark is 1.00. So a fund with a 1.10 beta is expected to perform 10% better than its benchmark index in up markets and 10% worse in down markets. Conversely, a beta of .85 indicates that the fund is expected to perform 15% worse than the benchmark index in up markets and 15% better in down markets.

Compensated Investment Risk is unavoidable. It is the inherent risk assumed when making any investment. Compensated risk is also known as "undiversifiable risk," "market risk," or "systematic risk" because it affects all investments, and is not limited to a particular investment type, security, industry, etc. and investors expect higher returns when assuming more of it. As a result, every participant in the investment market is exposed to it. This compensated risk is both unpredictable and unavoidable. It cannot be changed or diversified away. It changes only when market conditions change. It is considered to be the "price of admission" paid by everyone who becomes a market participant. Compensated risk is approximately 1/3 of total risk.

Concentration Coefficient (CC) provides a measure of a portfolio concentration and is equal to the number of assets if equally weighted. As concentration increases, the number becomes proportionally less. (E.g. a portfolio with 2 assets, equally weighted at 50% each has a CC of 2; if instead, the weighting changed to 75% and 25%, the CC would be ≤ 1.6). CC is an important diversification metric because of the significance constituent weightings have on a portfolio's diversification. CC is used in combination with the KLD (see below) metric to quantify unsystematic risk removed from a portfolio by diversification. Higher CC values indicate more unsystematic risk removed through diversification.

Correlation compares the direction only (not the amount) of a portfolio's movement in relation to its benchmark. A correlation coefficient of +1 implies that as a benchmark moves either up or down, the portfolio will move in lockstep, in the same direction. Alternatively, a perfectly negative correlation of -1 means that if either the portfolio or benchmark moves one way the other will move in the opposite direction. If the correlation is 0, the movements of the portfolio and index are said to have no correlation; they are completely random.

Cross-Correlation % is the companion metric to the Weighted Cross Correlation %. It too is a stand-alone, holistic metric. But it only measures the composition of all interrelationships (without weighting them) inside a given portfolio. It is used in conjunction with the Weighted Cross Correlation % to identify the extent to which weighting influences diversification. Nearly identical percentages indicate that weighting exercised little or no impact on diversification. The greater the divergence between percentages, the greater the impact weightings have on diversification.

Diversification Elements See Equivalently Equally Weighted & Uncorrelated Holdings (EEW&UH).

Equivalently Equally Weighted & Uncorrelated Holdings (EEW&UH) is a companion metric of CC used to quantify the number of diversification elements available for removal of uncompensated risk from a portfolio. The EEW&UH metric is the number of sufficiently asymmetrical and equally weighted equivalent elements present in a portfolio. The more of these EEW&UH elements present in a portfolio; the greater is the ability for each element to perform independently, and independent performance by more elements is the hallmark of diversification.

GLOSSARY (Continued)

Equity Risk Premium is an extra return that the stock market must provide over the rate on Treasury bills to compensate for market risk.

Fama-Booth Total Diversification Returns: In *Diversification Returns and Asset Contributions*, Fama and Booth (1992) explained how diversification yielded additive portfolio returns, naming the phenomenon “diversification returns.” They reasoned that if the correlation of all a portfolio’s assets were 1, then the weighted average asset variance would equal the portfolio variance. They went on to prove how more diversification increased this incremental return, and was a function of the amount of variance reduction and not the actual level of portfolio variance. They estimated a portfolio’s “diversification returns” equaled half the variance reduction caused by diversification. For example, if you start with a portfolio made up entirely of low-volatility assets, their covariance can only reduce the portfolio’s standard deviation by a small amount — causing smaller variance reduction and reduced diversification returns. Prudent UCR management requires focusing on correlations, not standard deviations.

Fama-Booth UCR Diversification Return: Recognizing that “diversification returns” applies to both market and idiosyncratic risk, the market factors are subtracted from the totals to determine the UCR portion of the Fama-Booth “diversification return.” The risk attributable to market factors is defined by the Asset Allocation Portfolio.

Fixed-income security is a security that pays an unchanging rate of interest. Fixed-income securities include bonds and money market instruments.

Hedge Funds are investment vehicles that use advanced investment strategies such as leveraged, shorting and derivative positions in both domestic and international markets in addition to investing in traditional investments and as well as other assets. They are most often set up as private investment partnerships that are open to a limited number of investors and require an initial minimum investment.

Maximum drawdown is a portfolio's peak to trough performance measured from the high point reached prior to the decline's inception until a new high is reached. The drawdown is determined upon completion of the entire cycle, which cannot be known until a new high is reached. Once reached the percentage decline from the old high to the lowest interim point of that cycle is the drawdown. Maximum drawdown is the drawdown having the largest decline during the period examined.

R-Squared (R^2) is the percentage of the portfolio’s performance explained by the behavior of the assigned benchmark. R-Squared values range between 0 and 100, where 0 represents the least correlation and 100 represents full correlation. The R-Squared of a portfolio indicates whether the index being used to analyze beta is an appropriate benchmark. If a portfolio's R-Squared value is close to 100, the beta of the investment can be trusted. On the other hand, an R-Squared value that is less than 75 indicates that the beta is not particularly useful because the portfolio is being compared to an inappropriate benchmark.

Real Assets are investments in tangible assets such as real estate, natural resources, precious metals, oil, and gas. These can be both liquid and illiquid. Illiquid real asset funds are not sold on an exchange and are long-term investment partnerships with lock-up periods that extend for several years. Liquid real asset funds trade on an exchange and typically have daily liquidity.

Risk refers to an investment's vulnerability to fluctuations in value relative to changing economic or market conditions. Risk is used to define all uncertainty relating to the outcome. The level of risk incurred by a fund varies from fund to fund, depending primarily on the types of securities in which a fund invests.

Semideviation is a measure of dispersion for the values of a data set falling below the observed mean or target value. Semideviation is the square root of semivariance, which is found by averaging the deviations of observed values that have a result that is below the mean.

GLOSSARY (Continued)

Sharpe Ratio measures the portfolio's excess return over the risk-free rate divided by the standard deviation of the excess return. It is a measure of the absolute rate of return per one unit of risk. The better an investment's risk-adjusted performance has been, the higher its Sharpe ratio will score. A negative Sharpe ratio indicates that a risk-less asset would have performed better than the investment being analyzed.

Standard Deviation is a statistical measure of risk of a portfolio measured by the variability of the portfolio's return around its average over a specific time period. Unlike alpha, beta, and R-squared which are relative to a benchmark index, standard deviation is an absolute measure. In general, the higher the standard deviation, the greater the volatility or risk.

Systemic Risk, In Finance, is the risk of collapse of an entire financial system or entire market, as opposed to risk associated with any one individual entity, group or component of a system that can be contained therein without harming the entire system. It refers to the risks imposed by inter-linkages and inter-dependencies where the failure of a single entity or cluster of entities can cause a cascading failure, which could potentially bankrupt or bring down the entire system or market. Normally systemic risk is not a great factor, but **when it is it becomes a tsunami it overruns all other factors in the market place.**

Important Note: “systemic” (8 letters) risk is sometimes *erroneously* referred to as “systematic” (10 letters) risk (compensated risk).

Tracking Error to Asset Allocation is the metric used to define the delta between the performance of the portfolio being examined and the performances in the Asset Allocation Portfolio. Within limits, small amounts of tracking error are acceptable in UCR elimination monitoring. Larger tracking errors can cause material errors in interpreting UCR measurements even when other measurements appear normal. Accordingly, knowing the tracking error metric is an integral part of a prudent UCR investigation.

Uncompensated Investment Risk is a risk that can be eliminated with diversification and unlike compensated or systematic risk, investors cannot expect added return for assuming more uncompensated risk. Uncompensated risk is also referred to as unsystematic risk and can be reduced by methodically re-balancing the portfolio. Uncompensated risk represents approximately 2/3 of total risk.

Volatility is a statistical measure of the dispersion of returns for a given security, a portfolio, or market index. Volatility can either be measured by using the standard deviation or variance between returns from that same security, portfolio, or market index. Commonly, the higher the volatility, the riskier the security.

Weighted Cross-Correlation % is a stand-alone, holistic metric that measures the composition of all interrelationships, including their respective weightings of a given portfolio. It quantifies the degree to which the securities held inside the portfolio are expected to move in the same direction and is an academically accepted measure of the systematic risk present in the portfolio.

**Opinion Regarding Safe Haven for Delegation
to an Investment Advisor Probate Code 16052(c)**

ATTACHMENT H

by Stewart Frank CPA/PFS AIFA

A Subject Matter Expert in the area of Investment Fiduciary Compliance
by the Center for Fiduciary Studies and
Special Consultant to the AICPA Fiduciary Task Force

According to Probate Code section 16048, a Trustee “...has a fiduciary duty to diversify the investments of the trusteeship...”. Just like all other investment management duties, diversification is quite complicated and not something a non-expert should be tasked with. Thus, delegating responsibly for the diversification functions for your Trusteeship’s portfolio to an investment professional is usually the prudent thing to do for the Trusteeship as well as the Trustee.

The California Uniform Prudent Investor Act, grants Trustees power to delegate investment management duties to a professional investment manager, and provided the delegation is accomplished in a “prudent” manner it also transfers fiduciary liability from the Trustee to the agent for decisions and actions of the agent [see Probate Code section 16052(c)]. But making an imprudent delegation, even one you sincerely believe to be prudent, can be disastrous. So before you hand off diversification responsibilities, you better be sure the hand-off is done prudently.

Probate Code section 16052(a) states that “... “A trustee may delegate...” [If] “The trustee shall exercise prudence in the following:” and then goes on to lists 3 basic duties that can only be performed by the delegating Trustee. If left to the delegee, or worse not performed at all, the delegation is deemed imprudent causing fiduciary liability to remain with the Trustee.

- (1) Selecting an agent.
- (2) Establishing the scope and terms of the delegation.
- (3) Periodically reviewing the agent’s overall performance.

Exercising prudence requires selecting an agent who is capable of being held to an “expert’s standard of care”. Otherwise, the delegation will be imprudent. An “expert’s standard of care” in reasonably reducing Uncompensated Risk (UCR) matters begins with an in depth knowledge of all of the UCR metrics. It also requires the requisite technology and knowledge for applying diversification metrics to quantify the absolute amount of UCR present in a portfolio and measure the effectiveness of both absolute and relative UCR removal. At a minimum, a delegating Trustee must confirm that his/her agent’s technology is capable of calculating and quantifying those diversification metrics and the agent is capable of applying the results. A third party expert opinion is also desirable.

Close coordination between Trustee and a knowledgeable agent is required under sub section (2) to successfully establish the scope and terms for delegation of uncompensated risk management. Without an expert’s assistance, it is impossible for most Trustees to meet this high standard.

Some trustees mistakenly believe that sub-section (3) can be easily satisfied with a signed, written memo, delivered annually by the agent stating that it is his/her professional opinion that the Trusteed portfolio reasonably satisfies the standards for diversification and the removal of Uncompensated Risk of Modern Portfolio Theory. But because the memo lacks any detail, the agent’s signed memo only proves that the Trustee’s required periodic performance and compliance reviews never took place, which is, ipso facto, imprudent. In fact, suggesting that a signed diversification memo satisfies the requirements for achieving a compliant delegation is a bad faith failure to ascertain certain facts, which for a Trustee, is by itself, another breach of fiduciary duty.

Stewart Frank CPA/PFS AIFA
J. Ben Vernazza CPA/PFS TEP emeritus
PRECISION FIDUCIARY ANALYTICS.
www.precisionfiduciary.com
+1-248-227-8208 Stewart
+1-831-688-6000 Ben

This opinion is a GAME Changer
[Find Out FOR SURE](#) about Uncompensated Risk
Share with your adviser
<http://precisionfiduciary.com/ForSure/>