WHAT IS PRUDENT & REASONABLE PORTFOLIO DIVERSIFICATION?

A Master Class in Using a Procedural Process
to Reduce Uncompensated Risk

Presented to: TRANSPARANCY TASK FORCE - USA CHAPTER

Zoom Symposium: WHAT'S IT GOING TO TAKE TO FIX FINANCIAL ISSUES IN USA?

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Co-Founder of:

PRECISION FIDUCIARY ANALYTICS

Helping make the world better with diversity & portfolios better with diversification.

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Background:

J Ben Vernazza, CPA/PFS, TEP (UK) Emeritus is a Co-founder of Precision Fiduciary Analytics, Inc. (PFA), a fiduciary consulting firm that utilizes algorithms and big data to solve diversification and uncompensated risk problems. He is a recognized expert in the areas fiduciary diversification and uncompensated risk management. Ben has been a CPA for 58 years and was an investment adviser for 40 years.

He served four-year terms on the following AICPA committees: Investment Committee, International Tax Committee (2 terms), PFP Practice Committee, and was Chair of the AICPA Task Force on International Tax Reporting. Ben also served on the Asset Protection Committee of the ABA.

Education:

B.A. Economics, Stanford University
M.A. Economics, Stanford University

Professional License and Accreditations:

Certified Public Accountant (Emeritus) - State of California
Personal Financial Specialist – AICPA
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Awards & Commendations

Private Sector Initiative Commendation from President Ronald Reagan, 1984
Wright Bros Master Pilot Award from FAA, 2012

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Legal Overview

of

Uncompensated Risk Management

The Legal Basis of Modern Prudent Fiduciary Investing is Found in ERISA & 2-Works Published within the last 28-Years

1. Restatement (Third) of Trusts (1992)
   - Several hundred page legal treatise that updates the 1935 Restatement of Trusts and the 1959 Restatement (Second) of Trusts
   - Re-defines The Prudent Investor Rule and includes Black-Letter Law, Comments, Illustrations and Reporter's Notes
2. Uniform Prudent Investor Act (1994)
   - 23-page codification of the Restatement
   - Virtually all states have enacted some form of the Uniform Prudent Investor Act into law

Managing the Risk / Return Tradeoff is a fiduciary's Primary Concern

"[managing] the tradeoff between ***risk*** and ***return*** in all investment activities [including diversification] is identified as being the ***fiduciary's central consideration***" [Emphasis added]

Source: Uniform Prudent Investor Act, Prefatory Note (2)

Total Portfolio Investment Risk

The total risk carried by a portfolio of risk assets – or a single stock or mutual fund or fixed income investments, for that matter - can be separated into two kinds:

1 Uncompensated risk comprises about 70% of total portfolio risk (virtually all of this kind of risk can be diversified)

2 Compensated risk comprises about 30% (none of this risk can be diversified)

Compensated Risk is Managed with Asset Allocation
Un-Compensated Risk is Managed by Diversification

- …[Compensated risk is] generally compensated through market pricing, so that the expected return from an investment or portfolio is directly affected by the level of [compensated risk] that cannot be diversified away…Accordingly, a [fiduciary's] duty of prudent investing normally calls for reasonable efforts to reduce [uncompensated risk], while no such generalization can be made with respect to [compensated] risk.

  Source: Section 90 of the Restatement, comment g, page 310

A Fiduciary's Failure to Reasonably Reduce Uncompensated Risk Ordinarily is Imprudent

- "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."

  Source: Section 90 of the Restatement, comment e, page 307

NOTE: The 3 fiduciary duties of caution, care, and skill legally define "prudence"

Statutory Enforcement -vs- Regulatory Compliance

- Federal and state courts follow the law (statutory language) in their decision making which allows latitude for what is "reasonable" and currently prudent as determined by technology, reduced transaction costs, etc.
  - Observation: Having a "reasonable basis" for not diversifying portfolio assets has a much higher threshold in 2020 than it did a few short years ago. With the advances in technology along with reduced transaction costs claiming that the added cost of uncompensated risk management is greater than available gains is no longer credible.
- Federal and state regulators enforce rules-based regulations that omit any mention of uncompensated risk management.
  - Observation: Compliance by investment service providers is a rules oriented exercise, but CPA financial advisers must also adhere to the AICPA Code of Conduct and follow the UPIA because it is the law of their state, and failure to adhere to the law is a violation of our code. Also, the advent of Best Interest is about to change the landscape.

Academic Overview

of

Uncompensated Risk Management

Diversification is the Only Known "Free Lunch" in All of Investing

Investment orthodoxy tells us that over time well-diversified portfolios tend to outperform those that are under-diversified. Research indicates the reason for this advantage is that diversification reduces portfolio losses in down markets allowing well-diversified portfolios to participate in market recoveries from a higher starting point.

The statutory insistence on diversifying investments responds to one of the central findings of Modern Portfolio Theory, that there are … huge and essentiallycostless gains to be harvested from diversifying the portfolio thoroughly.

Source: John H. Langbein, Reporter for the Uniform Prudent Investor Act and Sterling Professor of Law and Legal History at Yale Law School

The "Free Lunch" Includes Desert with a generous helping of Diversification Alpha

In 1992 Nobel laureate Eugene Fama and his colleague David Booth coined the term "diversification return" representing additional return realized (i.e. diversification alpha) in a portfolio because of diversification. They determined that this additional return equals the difference between a portfolio's variance and the sum of the weighted variances of the portfolio's constituent holdings.

Source: Diversification Returns and Asset Contributions," 48-3 Financial Analysts Journal. 26 (May-June 1992)

Quantity and Quality Factors Define Portfolio Diversification

- **Quantity** is measured by the number of assets in a portfolio adjusted for concentration and commonality
  - "… effective diversification depends not only on the number of assets in a … portfolio but also on the ways and degrees in which their responses to economic events tend to cancel or neutralize one another"

    Source: Section 90 of the Restatement, comment g, page 310

- **Quality** is measured by the difference between the sum of the constituents' weighted average risk, less the portfolio's overall risk
  - "…a portfolio's risk is less than the weighted average of the risk of its individual holdings"

    Source: Section 90 of the Restatement, comment g, page 310

Uncompensated Risk Management
a how it's done
Illustration

A Quantity and Quality Factor Illustration (Page 1 of 2)

Portfolio Allocations on Sept 18, 2019

		Allocation on 9/18/2019	
No.	Asset Class, Sector/Industry	Old Portfolio	New Portfolio
1	Emerging Markets	10.00%	7.00%
2	Global Real Estate	5.00%	4.00%
3	U S Core Equity	50.00%	30.00%
4	International Equity	20.00%	12.00%
5	Tax-Managed Equity	15.00%	7.00%
6	Gold	-	7.0%
7	ONLINE RETAIL	-	7.0%
8	Medical Devices	-	6.0%
9	Nuclear	-	3.0%
10	Semi-conductor	-	6.0%
11	Technology	-	5.0%
12	Health Care	-	6.0%
	Totals	100.00%	100.00%

A Quantity and Quality Factor Illustration (Page 2 of 2)

Portolio Diversification Monitoring

9/18/2019 - 6/11/2020

TIP: Modeling future period uncompensated risk exposure is accomplished by computing the metrics of a portfolio's projected quantity factors using prior period's data.

QUANTITY FACTORS		
Metric	Old Portfolio	New Portfolio
Number of Total Assets	5.0	12.0
Concentration (Asset Number if Equally	3.1	7.2
Commonality (Number of E-W & Uncorrelated)	2.9	6.3

QUALITY FACTORS		
METRIC	Old Portfolio	New Portfolio
Return	-4.80%	3.90%
Standard Deviation	30.24%	27.84%
Semi-Deviation	21.81%	19.61%
Maximum Drawdown	34.70%	31.00%
Sum of Weighted Variances	*11.05%*	*11.55%*
Portfolio Variance	*9.14%*	*7.75%*
Variance Gap	*1.90%*	*3.81%*
Diversification Alpha (in BPS)	*95*	*190*

For more details about comparative outcomes see Schedules A,B, & C attached hereto as pages 18,19, & 20.

Takeaways

Steps Required To Comply with Fiduciary Requirements for Diversification

1. Acquire a technology solution to assist you with uncompensated risk management.
2. Install a prudent diversification strategy for measuring and managing uncompensated risk.
3. Incorporate the strategy in the Investment Policy Statement (IPS) by explanation and through use of quantity and quality benchmarks.
4. Implement the strategy in managing the portfolio.
5. Monitor portfolios quantitatively & qualitatively for uncompensated risk removal and diversification, then compare results to appropriate benchmarks and to the IPS.

Important - Be sure to document the procedurally prudent process followed for all diversification decisions made.

10-Reasons for Immediately Adding Uncompensated Risk Management to your Pallett of Services

1. It is the law and Code of Conduct requires CPAs to obey the law.
2. Failure to follow Code of Conduct subjects CPAs to discipline.
3. It reduces adaptors' litigation exposure.
4. It increases a portfolio's return with same risk, or
5. It decreases a portfolio risk while delivering the same return.
6. It satisfies "in the client's best interest" requirement.
7. It exemplifies professional excellence, a Code of Conduct rule.
8. Managing uncompensated risk can easily be done with a low cost internet solution.
9. It gives adaptors protection from losing existing business.
10. It gives adaptors a competitive advantage for winning new business.

SCHEDULE A
Updated to June 11, 2020

FOR PORTFOLIO DIVERSIFICATION
USE *ARTIFICIAL* INTELLIGENCE TO *ANALYZE* AND *OPTIMIZE* & THEN
<u>*ADVISER* INTELLIGENCE TO *IMPROVISE*</u>

Comparative Analysis of Existing "Risk Asset Allocation Only" (with and without Fixed Income)
By Reducing Uncompensated Risk by 40% Client Improvised Giveaway
From September 18, 2019 until June 11, 2020
(note: optimized and improvised portfolio based on knowledge available up to September 17, 2019)

RISK ASSETS ONLY

9/18/19 to Top to Bottom to Now	Existing Allocation ANALYZED	Adviser-Driven IMPROVISE	Diversification Basis Points Advantage
ROR to TOP 9/18/19 - 2/19/20	+ 8.7%	+10.5%	180
ROR TOP TO BOTTOM ON 3/20/20	-34.7%	- 31.0%	370
ROR 9/18/19 TO NOW 6/11/20	**- 4.8%**	**+ 3.9%**	**870**
Sharpe Ratio 9/18-6/11	**- .16**	**+.18**	**340**
% Incr. Now to TOP +10.5%	**+16.0%**	**+6.4% ←**	**960←**

70% RISK ASSETS/30% FIXED INCOME

(using existing Fixed Income securities for both portfolios)

9/18/19 to Top to Bottom to Now	Existing Allocation ANALYZED	Adviser-Driven IMPROVISE	Diversification Basis Points Advantage
ROR to TOP 9/18/19 - 2/19/20	+ 6.7%	+ 8.8%	210
ROR TOP TO BOTTOM ON 3/20/20	-25.4%	- 23.4%	200
ROR 9/18/19 TO NOW 6/11/20	**- 2.5%**	**+ 4.3%**	**680**
Sharpe Ratio 9/18-6/11	**- .12**	**+.23**	**350**
% Incr. Now to TOP +8.8%	**+11.6%**	**+4.3% ←**	**730←**

s

<u>See details and explanation in published Case Study from 9/18/19 to 4/6/20</u>
https://precisionfiduciary.com/notdiversified/

The Complete Study has details including correlation tables as well as performance metrics. The adviser would not evenly reduce all assets as is suggested in the optimization recommendations as it is used this way to easily express results. The adviser would review the correlations and other performance metrics, but especially the correlations, and start any "give-aways" in their present portfolio by reducing those assets that have correlations in the 90s. Then review assets with correlations in the 80s – adviser choice!

SCHEDULE B
UPDATED JUNE 11, 2020

FOR PORTFOLIO DIVERSIFICATION
USE *ARTIFICIAL* INTELLIGENCE TO *ANALYZE* AND *OPTIMIZE* & THEN
<u>*ADVISER* INTELLIGENCE TO *IMPROVISE*</u>

Comparative Analysis of Old "Risk Asset Allocation Only" (no fixed income)
Then 30%, 50%, and Improvised 40% Giveaway Reducing Uncompensated Risk
From September 18, 2019 until June 11, 2020
(note: all portfolios based on knowledge available up to September 17, 2019)

	ASSET ALLOCATION (RISK ASSETS ONLY)			
	Existing Alloc. **ANALYZE**	30% GiveAway **OPTIMIZE**	50% GiveAway **OPTIMIZE**	**40% Giveaway Adviser-Driven IMPROVISE****
<u>Existing Portfolio Allocation ANALYZED</u>				
U.S. Core Equity	50%	35.0%	25.0%	30%
International Equity	20	14.0	10.0	12
Tax Managed Equity	15	10.5	7.5	7
Emerging Market	10	7.0	5.0	7
Global Real Estate	5	3.5	2.5	4
Total	**100%**	70%	50.0%	60%
<u>30% Give-Away Portfolio OPTIMIZED*</u>				
Medical Devices		5.0	4.0	6
On-line Retail		5.0	4.0	7
Nuclear		4.0	NONE	3
Health Care.		5.0	NONE	6
Gold		5.0	6.0	7
Semi-Conductor		3.0	2.0	6
Technology		3.0	2.0	5
Total		**100.0%**		**100%**
<u>50% Give-Away Portfolio OPTIMIZED*</u>				
Utilities				
Green Energy			5.0	
Aerospace-Defense			3.0	
Materials			3.0	
Timber			3.0	
Social Media			2.0	
Private Equity			2.0	
Asia-Pacific			2.0	
Infrastructure			2.0	
Canada			2.0	
Home Builders			2.0	
Natural Resources			2.0	
Japan			1.0	
			100%	

* more giveaways optimized before several improvising test-drives.

** **An asset allocation decision made** based on the member's knowledge, experience and understanding of *Uncompensated Risk* utilizing the Institute's platform. It would also include Investment Policy Statement or Financial Plan constraints and of the course some human knowledge and bias. In this case the major constraint was to limit the number of constituents to twelve and 40% Give-Away. Changes were also made to the relative weightings of all twelve.

SCHEDULE C

Comparative Results of Asset Allocation with 20% Give-Away on 9/18/2019 for Diversification Optimization 9/18/2019 through 6/11/2020

→ (Original Portfolio Considered By Many as Well-Diversified?!) ←

Beg Alloc %	80/20 Rebal 9/18	Sectors	Diversification Alpha Up & Down Advantage
7.4%	6.0%	SMALL CAP VALUE	
1.4	1.1	HEALTH CARE	
2.3	1.9	INTERNATIONAL EQUITY	
2.6	2.0	SMALL CAP 600	
7.1	5.7	MID CAP	
1.8	1.6	UTILITIES	
9.1	8.2	INTERNATIONAL MOMENTUM	
3.9	3.2	EMERGING MARKETS	
5.0	4.4	EURO PACIFIC	
3.1	2.2	SMALL-MID CAP	
4.6	3.5	DIVIDEND PAYING	
4.1	3.4	VALUE EQUITY	
5.7	5.1	VALUE MOMENTUM	
20.1	15.5	S&P 500	
12.1	8.0	BLUE CHIP GROWTH	
1.1	1.0	MID CAP USA	
1.0	0.9	COMMODITIES	
0.8	0.8	REITs	
4.0	3.1	U.S. BROAD EQUTIES	
2.8	2.4	MATERIALS	
	8.5	SEMI CONDUCTOR	
	6.3	GOLD	
	3.4	TECHNOLOGY	
	1.8	GREEN ENERGY	
100.00%	100.00%		
8.30%	**9.00%**	**TOTAL RETURN 9/18-2/19 TO THE TOP**	
-29.00%	**-28.10%**	**TOTAL RETURN 9/18 - 3/20**	
53.52%	**51.60%**	**% INCR. TO GET TO +9.00%**	**192 basis points**
-19.60%	**-18.20%**	**TOTAL RETURN 9/18 - 4/6**	
35.57%	**33.25%**	**% INCR. TO GET TO +9.00%**	**232 basis points**
-14.30%	**-13.00%**	**TOTAL RETURN 9/18 - 4/27**	
27.19%	**25.28%**	**% INCR. TO GET TO +9.00%**	**191 basis points**
-0.65%	**4.72%**	**TOTAL RETURN 9/18 - 6/11**	
9.71%	**4.10%**	**% INCR. TO GET TO +9.00%**	**561 basis points**
-0.0190	**0.1440**	**SHARPE RATIO**	**163 basis points**
33.44%	**32.75%**	**STANDARD DEVIATION**	
24.49%	**24.00%**	**SEMI-VARIANCE**	
34.61%	**31.98%**	**MAX. DRAWDOWN**	

NOTE: See page 47 of our 2019 AICPA webcast highlighting this diversified portfolio; Yet look at the Diversification Alpha!
http://precisionfiduciary.com/AICPA2019Webcast/