UNCOMPENSATED RISK – THE ORPHAN OF MODERN PORTFOLIO THEORY

Presented to: East Bay Chapter of the Professional Fiduciary Association of California
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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 is usually ignored.

Fiduciary Law

The history of FIDUCIARY Law shows constant evolution in defining the diversification requirements of a prudent portfolio. Currently, they are grounded in Commentary to Section 3, of the Uniform Prudent Investor Act (UPIA):

> "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."

In turn, UPIA is grounded in the Restatement of Trusts 3rd. There have been three Restatements of Trust Law during the last 86 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**. This was 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.

--(See www.precisionfiduciary.com/restatement/)--

In reference to the 3rd Restatement the following quotes standout:

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)*

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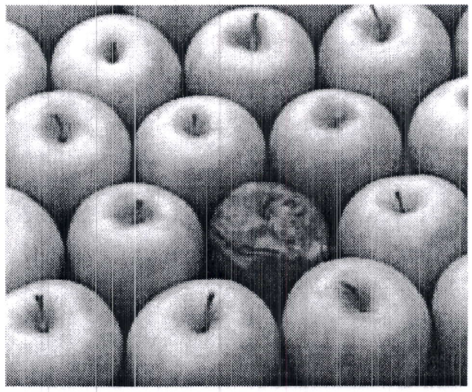
Uncompensated Risk Defined

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



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

Sample Scatter Chart Illustration **Attachment A**

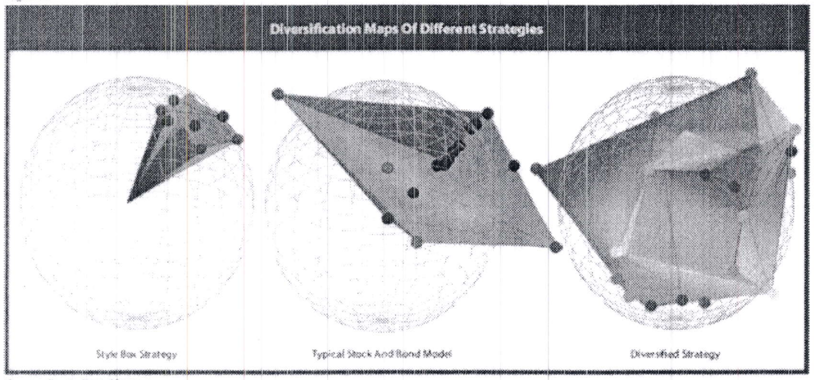
Scatter charts are a tool that can greatly facilitate the management of fiduciary accounts in accordance with the mandates of Uniform Prudent Investors Act (UPIA) which is based on the 3rd Restatement of Trusts 1992. The simplicity of oversight made possible by scatter charts is demonstrated by a mere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

Methodology Used

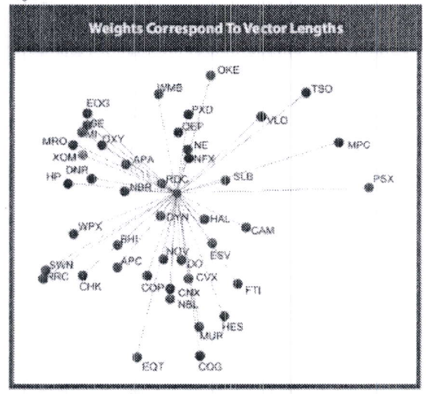
Our testing protocol leverages expertise, software and process to *asymmetrically* calculate and measure the absolute equivalent number of equally weighted diversification resources, also known as diversification dimensions (DDs) present in a portfolio. Each DD has the ability to move independently within a portfolio's structure. More DDs 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.

Figure 3



Source: Gravity Capital Partners

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 their board's failure to prudently 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

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 billion or more yearly on the table**." See attached **Attachment B** which shows more details and See **Attachment C** which looks at Fresno County scatter chart because it did the best job albeit below the reasonable portfolio.

http://precisionfiduciary.com/5county/ & http://precisionfiduciary.com/calpers5county/
For Gov. Brown fax re: CalPERS breach letter see http://precisionfiduciary.com/calpers-breach/

PRIVATE SECTOR RESULTS

WIRE HOUSE ROBO PORTFOLIO PROPOSAL $300,000

This portfolio was designed by one of the large wirehouses for a 60 year old couple with a portfolio of approximately $300,000. Surprisingly, their portfolio returned 2 ½ % less than the optimized portfolio. This can be seen by looking at **Attachment D and E**. D, being the ROBO portfolio showed a very high number of closely correlated securities. Correlations in the 90s are in RED, in the 8os are in Orange, and in the 70s in yellow. E, being the revised portfolio, showed no correlations in the 90s and only one in the 80s and a few in the 70s. In this case the conclusion was obvious.

WEALTH MANAGEMENT PORTFOLIO $10 MILLION

See **Attachment F**. Note, the chart is based on net return after fees. The client was being charged 1.3%/annum on AUM (col B) and it was assumed that for a portfolio this size with 28% fixed income/cash a reasonable fee would be 0.5%/annum. This assumption also takes into consideration the fact that the total holdings of individual investments were A=26, B=515, & C=38! We are currently working with the CPA, trustee, and then the RIA to assist in the rebalancing. Sharpe Ratio is a measure that indicates the average return minus the risk-free return divided by the standard deviation.

HOSPITAL ENDOWMENT $330 MILLION

1/3 in liquid investments
1/3 in farm land
1/3 in a medical related business

The portfolio was not diversified, BUT, since the related medical business was important for the success of the hospital the board decided to invoke a change in the IPS for that reason. Furthermore, 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

The board elected early on to use two local investment advisers. We analyzed both separatly and then together. One portfolio was very well diversified and the other was not. Together minor adjustments could be made in both portfolios to reach the objective to still have two advisers (for community reasons) but with these adjustments be in compliance with prudently and reasonably

FAMILY TRUST RUN BY ONE OF THE BENEFICIARIES

This case is in process right now. One of the beneficiaries manages the portfolio and the other siblings are not happy because they think the portfolio is not diversified. We're making a determination of whether or not the fiduciary sibling has prudently and reasonably reduced uncompensated risk.

TAKE THE CHALLENGE SHEET

See **Attachment G**. With just a few minutes of your time to complete a simple worksheet, we'll analyze your portfolio and provide you with a preliminary analysis that will tell you whether your portfolio meets the fiduciary standards for diversification. Finding out couldn't be easier, and there's no obligation or cost to you. Note: We don't need the total dollar value of the portfolio; we only need each symbol and the % of total portfolio it represents.

FIDUCIARY LIABILITY EXPOSURE CHECK-UP Practice Aid

See **Attachment H** which is a practice aid for you. Feel free to download and edit the checklist with your logo and contact information.

Q&A

PRECISION
FIDUCIARY
ANALYTICS

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http://precisionfiduciary.com

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