

Uncompensated risk: The orphan of modern portfolio theory

Editor:

Theodore J. Sarenski, CPA/PFS

Author:

J. Ben Vernazza, CPA/PFS

Stewart Frank, CPA/PFS

A continuing failure to take objectively prudent steps to manage uncompensated risks could prevent the statute-of-limitation period from running on claims for breach of fiduciary duty and expose fiduciaries to joint and several liability.

The Uniform Prudent Investor Act (UPIA) was promulgated by the Uniform Law Commissioners in 1994 and shortly thereafter enacted into law by nearly all states. The commentary to Section 3 of the UPIA explains how risk is to be managed:

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 . . .

The *Restatement (Third) of Trusts* was promulgated by the American Law Institute in 1992 and remains the authoritative guidance for applying trust law. Chapter 7, Section 227, addresses the general standard of prudent investment and specifically discusses “risk and the requirement of diversification.” Following are two clearly stated

pronouncements about what is required of a fiduciary to prudently manage uncompensated risk:

The trustee’s duties and objectives with respect to [nondiversifiable (compensated)] risk are not as distinct as those with respect to diversifiable [uncompensated] risk. [*Restatement (Third) of Trusts* §227, “Comment on Basic Duties of Prudent Investor,” p. 19]

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. [Id. at 23]

Uncompensated risk defined

Uncompensated 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 industries and sectors and in individual companies, and from having too many of industries, sectors, or companies that are closely correlated or uncorrelated.

Uncompensated risk measurement

From the inception of modern portfolio theory until recently, only academics have taken the time and effort to measure how much uncompensated risk can

be eliminated when constructing a portfolio. However, the academic standard for uncompensated risk measurement required the portfolio to be built entirely of equally weighted (to overcome weighting bias) and randomly selected (to overcome selection bias) constituents.

The academics' portfolios could not be used for real-world investment solutions because real-world portfolios had to be designed to deliver maximized risk-adjusted returns (i.e., compensated risk) and could not accommodate those rigid constraints. As a result, industry practice concentrated on managing compensated risk through asset allocation and all but ignored uncompensated risk.

The one concession industry professionals made to uncompensated risk management was adding a number of somewhat uncorrelated investments to their portfolios. This was a practice predicated on the assumption that uncompensated risk would be reduced to prudent levels if the portfolio contained somewhat more than "too few investments," an outcome suggested in commentary to Section 3 of the UPIA. That practice can cause some portfolio uncompensated risk to be reduced.

However, where the added investments were not asymmetrically compatible with the rest of the portfolio, that

practice caused other new uncompensated risks to be created. The reasons for this apparent anomaly are that academics investigated uncompensated risks in the context of constructing an entire portfolio, whereas practitioners must diversify to eliminate uncompensated risks from a portfolio with preexisting asset allocations. Furthermore, the old academic approach to uncompensated risk assessment could not be asymmetrically coordinated until the arrival of "big math."

Since Eugene Fama and David Booth published their article "Diversification Returns and Asset Contributions," 48-3 *Financial Analysts J.* 26 (May-June 1992), their formula has been a generally accepted method for measuring added returns resulting from diversification. Although published in 1992, that formula is still valued for measuring how much uncompensated risk was eliminated from a portfolio by diversification.

Once uncompensated risk was identified, its management required judgment calls on which assets to include on a one-at-a-time, trial-and-error basis; which assets to exclude; and which assets to add. After each change, the revised portfolio had to be retested using the Fama/Booth formula to see if the changes favorably affected the overall diversification return.

The arrival of big math is changing everything

With the advent of big math, the quantification of uncompensated risk and finding the right combination of noncorrelated assets can be determined with a single algorithm (see the sidebar, "Big Math Explained"). This methodology quantifies uncompensated risk, then identifies which assets need to be replaced and which need to be added to achieve maximum uncompensated risk reduction.

The authors' big math uses a proprietary testing protocol that calculates and

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measures the absolute equivalent number of equally weighted diversification resources, also known as diversification dimensions (DDs), present in a portfolio. Each DD can move independently within a portfolio's structure. More DDs equal more diversification and the presence of less uncompensated risk. The following methods are used to determine a portfolio's DDs:

Weighted average intra-portfolio correlation (IPC): IPC is a standalone holistic measure that identifies the degree to which all of the assets in a portfolio move together. Relative portfolio metrics such as alpha, beta, and r-squared measure an asset's movement against that of the market or an index. IPC measures a portfolio's overall diversity and identifies how well or poorly the portfolio will react to systematic or market risk.

Concentration coefficient (CC): CC is a metric that measures the level of a portfolio's concentration, expressed as the number of investments that would be held if they were all equally weighted. CC is an important nonsystematic diversification metric because of the significant role constituent weightings play in a portfolio's overall diversification. The higher the CC number, the

'Big math' explained

"Big math" is a term of art the authors coined and use in their practice. It is a combination of the mined daily interplay of a portfolio's intra-portfolio cross correlations (big data), followed by application of algorithms (math) to the mined data resulting in the best combination of assets and their respective weightings for achieving optimum uncompensated risk reduction and maximum added diversification return.

better the portfolio is protected against company- or strategy-specific risks.

Eigenfactor dimensionality (ED):

ED is a metric that quantifies the number of diversification elements that can move independently within a portfolio's structure. The larger the number of independently moving elements in a portfolio, the broader the portfolio's diversification.

Diversification measurement has two basic inputs: the relationship of each asset to every other asset in the portfolio, as measured by their cross-correlations, and the utility function for every asset, as measured by the relative attractiveness of each asset. These asset variables are used to quantify the diversification alpha at both the security and asset-class level and form the basis for uncompensated risk elimination.

Duty to investigate and monitor

Additionally, this methodology can be used to determine how much uncompensated risk is present in an existing portfolio, and it becomes an important tool for complying with a fiduciary's duty to investigate and monitor, defined in comments to UPIA Section 2 as follows:

[The UPIA] carries forward the traditional responsibility of the fiduciary investor to examine information likely to bear importantly on the value or the security of an investment . . .

Managing embraces monitoring, that is, the trustee's continuing responsibility for oversight of the suitability of investments already made as well as the trustee's decisions respecting new investments.

Court decisions

Fiduciaries must realize that since there is an acceptable methodology for measuring uncompensated risk, they have the duty to investigate, and as a part of that duty they must follow procedural

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prudence. Two recent court decisions emphasize the importance of diversification for fiduciaries.

In a U.S. circuit court opinion in *Tatum v. RJ Reynolds Pension Investment Committee*, No. 13-1360 (4th Cir. 8/4/14) (aka the "good luck case"), the three-judge panel found the defendant breached its fiduciary duty when it failed to practice procedural prudence. Earlier in the litigation, the district court found that the pension plan liquidated two funds held by the plan without conducting a thorough investigation. By not conducting a thorough investigation, the pension plan had breached its fiduciary duty of procedural prudence. However, because the pension plan established that "a reasonable and prudent fiduciary *could* have made [the same decision] after performing [a proper] investigation," the district court concluded that it had met its burden of proving that the breach did not cause a loss to the plan participants (*Tatum v. R.J. Reynolds Tobacco Co.*, 926 F.Supp. 2d 648, 651 (M.D.N.C. 2013) (emphasis supplied by the appeals court)).

The Fourth Circuit agreed with the lower court that the plan had breached its fiduciary duty and that the burden of proof was on the plan to prove that its breach had not caused a loss, but did not agree that the plan had met that burden. To meet its burden, the court said, the plan had to show that its investment decision was "objectively prudent"—meaning a hypothetical prudent fiduciary would have made the same decision. The court remanded the case to the district court to determine whether a fiduciary who

"conducted a proper investigation would have made the same decision" (*Tatum*, slip op. at 47).

The dissenting judge, Judge J. Harvie Wilkinson, felt that the district court had found that the plan's investment decisions were objectively prudent, that the majority was ignoring the language of the Employee Retirement Income Security Act (ERISA), and that the majority "all but directs a finding of personal liability" on the plan administrators. He was so exercised by the majority's decision, he wrote in his dissenting opinion, "As for those who might contemplate future service as plan fiduciaries, all I can say is: Good luck" (*Tatum*, slip op. at 57–58).

As two commentators noted, the takeaway from this case is that "plan fiduciaries will always be well served by having a documented record of a procedurally prudent process" (Rumeld and Hirschhorn, "Divided Fourth Circuit Panel Rules on Burden of Proving Loss Causation in ERISA Fiduciary Breach Case," *erisapracticelcenter.com* (Aug. 19, 2014)).

In the authors' view, the real issue in *Tatum* was whether a plan that was 100% invested in RJ Reynolds stock should be allowed to continue as a retirement vehicle for beneficiaries who were no longer RJ Reynolds employees. Given the risks of lack of diversification, that the stock was in a tobacco company, and the non-employee status of participants, a prudent step would have been for board members to terminate the plan. But making an obviously prudent decision without a process can cause problems. This decision really emphasizes the need to show a process as a fiduciary.

In another major ERISA fiduciary duty case, *Tibble v. Edison International*, 135 S. Ct. 1823 (2015), the Supreme Court ruled 9–0 in favor of 401(k) participants versus Edison International, overturning the Ninth Circuit. The case involved a claim by plan participants that the plan administrators violated their fiduciary duty when they selected certain

investments that were added to the plan in 1999 and 2002. The administrators argued that the claim was barred by the statute of limitation because more than six years passed between the time the investments were included in the plan and the time the complaint was filed. Under ERISA, a plaintiff's claim alleging breach of the continuing duty of prudence must be filed within six years of the "date of the last action which constituted a part of the breach or violation" (29 U.S.C. §1113).

The Supreme Court disagreed with the administrators that the claim was barred by the statute of limitation. Justice Stephen Breyer noted that "ERISA's fiduciary duty is 'derived from the common law of trusts'" and that "a trustee has a continuing duty to monitor trust investments and remove imprudent ones" (*Tibble*, slip op. at 5). The Court held that this continuing duty to monitor the investments meant that the "action which constituted a part of the breach or violation" encompassed not just the initial selection of the investments, but the ongoing failure to discharge fiduciary duties with "care, skill, prudence, and diligence" (29 U.S.C. §1104). That is, the statute of limitation does not start to run until the imprudent actions stop.

The takeaway from this case regarding uncompensated risk is the necessity for the fiduciary to have a prudent uncompensated risk strategy—one that is prudently established and prudently monitored—otherwise the statute of limitation will never start to run. It is also important to note that the liability claim in *Tibble* related to fees charged for shares of a particular fund that represented only a fraction of the portfolio's entire asset balance. In a claim for uncompensated risk management breach the damages could be much larger since liability would be based on the entire portfolio's balance.

The combined lesson regarding uncompensated risk from the two cases is that all fiduciaries should focus on

complying with uncompensated risk standards and document their procedural prudence by:

- Developing a prudent diversification strategy for managing uncompensated risk;
- Incorporating the strategy in the investment policy statement (IPS);
- Implementing the strategy in managing the portfolio; and
- Performing periodic monitoring for uncompensated risk and its IPS compliance; it is their duty.

Case study: The California state employees' pension plans

The authors have reviewed 37 IPSs of California public retirement defined benefit plans: the California Public Employees' Retirement System (CALPERS), the California State Teachers Retirement System (CALSTRS), the 20 member counties of the State Association of County Retirement Systems (SACRS), the seven California cities with separate plans, the six district and regional plans, the University of California Retirement System Plan, and the Bay Area Rapid Transit (BART) Investment Plan. These 37 entities have approximately \$750 billion in market value of invested assets. The authors did not review IPSs for 49 California defined benefit entities with smaller amounts of invested assets or that are closed to new members.

Of the 37 IPSs reviewed, only four plans mentioned uncompensated risk, nonsystematic risk, or diversifiable risk. Of the four plans that mentioned uncompensated risk in their IPSs, only one county discussed the reduction of uncompensated or nonsystematic risk in any depth. However, all four relied on the false assumption that the more investments they have the less uncompensated risk they have in the portfolio. They also discussed that the managers should not travel far from their benchmark to reduce uncompensated risk, but in doing so they failed to follow the edicts of the

Contributors

J. Ben Vernazza and Stewart Frank are shareholders in Precision Fiduciary Analytics Inc., a fiduciary consulting firm. Mr. Vernazza has served on several AICPA panels including the International Tax Subcommittee, the Member Services Subcommittee, the Investments Committee, the International Tax Technical Resource Panel, and as chairman of the AICPA's special task force on International Tax Reporting Requirements. Mr. Frank served as a special consultant on fiduciary matters to the Fiduciary Task Force of the AICPA Personal Financial Planning Executive Committee during its technical review of two handbooks on fiduciary best practices published by AICPA. He is a frequent presenter at the AICPA, the Michigan Institute of CPAs, and AICPA conferences and webinars on the subject of uncompensated risk and fiduciary compliance. *Theodore Sarenski* is president and CEO of Blue Ocean Strategic Capital LLC in Syracuse, N.Y. Mr. Sarenski is chairman of the AICPA Advanced Personal Financial Planning Conference. He is also a past chairman of the AICPA Personal Financial Planning Executive Committee and a former member of the Tax Literacy Commission. For more information about this column, contact thetaxadviser@aicpa.org.

Restatement (Third) of Trusts by not having a procedural process to determine if uncompensated risk has been eliminated to a reasonable level. Since they do mention uncompensated risk as important, the question becomes whether they are in "violation of both the duty of caution and the duties of skill and care" (*Restatement (Third) of Trusts* §227, "Comment on Basic Duties of Prudent Investor," p. 23) and therefore in breach.

However, there is no doubt concerning the remaining 33 pension plans that

account for 99% of the money in the 37 plans. It is possible that they are not only in breach, but that the statute of limitation regarding this issue has not started to run, and until an acceptable procedural process is included in their IPS and implemented, it never will.

The other concern is the amount of potential damages that can be claimed. Fama/Booth comparisons show that a well-diversified portfolio (at the overall portfolio level) will generate added diversification return of approximately 1% annually more than a portfolio that is not well diversified. And 1% annually over several years can add up to a very large amount.

Dire financial consequences

Uniform acts and restatements describing how uncompensated risk is to be prudently managed have been

in existence for almost 25 years. Yet, most fiduciaries breach this fiduciary duty simply because they ignore or neglect to follow the stated legal requirements for uncompensated risk management.

- Most retirement plans' IPSs omit any mention of diversifying uncompensated risk, thereby highlighting the trustees' negligence and possibly exposing them to huge class-action claims equal to the amount of forgone "diversification alpha" for all years uncompensated risk management was neglected.
- The annual amount of unclaimed "diversification alpha" at the portfolio level is easily obtained by a formula and can amount to 1% of a plan's assets.
- And due to the Supreme Court decision in *Tibble vs. Edison*

International, statute-of-limitation protection is usually not available to trustees who fail to comply with fiduciary standards for uncompensated risk management.

- Furthermore, retirement plan fiduciaries serving on boards are exposed to joint and several liability with their fellow board members.

Not knowing the answers to the following two questions and, if needed, failing to take appropriate remedial action could prove fatal to the financial well-being of every pension plan trustee:

1. Has enough uncompensated risk been eliminated from the pension plan's portfolio to satisfy minimum fiduciary standards?
2. How much "added diversification return" was lost due to insufficient uncompensated risk elimination? ■