Prudent Investing Under the Uniform Prudent Investor Act
What Judges, Estate Planning Attorneys, Fiduciaries, and Trustees Should Know

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**Exhibit 1: Standardized Questionnaire**

This questionnaire may be submitted by fiduciaries to the court with their client’s investment plans. It will not only provide the judge with a uniform set of information, but will also guide the fiduciary in adopting effective techniques in selecting and overseeing his investment advisor.

**Exhibit 2: Investment Plan/Care Plan**

The Prudent Investor Rule requires a fiduciary to have “an overall investment strategy having risk and return objectives...” (Section 2(b)). In other words, a prudent fiduciary should probably have a written “Investment Plan” with (among other things) a summary of the client’s needs and a clear statement of investment objectives to guide him and his advisor in the appropriate management of the portfolio. Exhibit 2 suggests various elements a fiduciary may want to include in his investment plan which, in turn, should be an integral part of his care plan.

**Exhibit 3: Reports**

Some possible reports a judge could request from the fiduciary and his advisor that would facilitate his evaluation of the prudence with which a portfolio is being managed and encourage the use of care, skill and caution in the management of the portfolio by the advisor.

**Exhibit 4: Advisor-Vetting Questions**

A fiduciary might ask these questions of a prospective investment advisor to qualify him as suitable for management of fiduciary accounts. The court or attorney might want to provide fiduciaries with this white paper, or Exhibit 4 alone might be passed on to assist fiduciaries in their vetting process.

**Exhibit 5: Prudent Investor Act Summary**

The Uniform Law Commission – National Conference of Commissioners on Uniform State Laws – publishes this summary of the Prudent Investor Act, giving valuable insight into the intent of its various sections.
**Executive Summary**

Investing is an area fraught with the potential for personal liability for trustees and all other fiduciaries. This is especially true for those who are unversed in the fiduciary investment laws, primarily the Uniform Prudent Investor Act, which is now the law in most states (42 states plus US Virgin Islands and the District of Columbia).

The Uniform Prudent Investor Act (UPIA), or “Prudent Investor Rule,” embraces the most current concepts of “prudent investing.” It grew out of ERISA (the Employee Retirement Income Security Act), which lays out appropriate investment management practices for trustees of corporate retirement plans. ERISA and UPIA admonish fiduciaries to embrace the principles of Modern Portfolio Theory, an investment methodology that has garnered three Nobel Prizes in economics.

**Diversification & Correlation**

Modern Portfolio Theory (MPT) is founded on research demonstrating that investment risk is best managed at the portfolio level (as opposed to the individual asset level) through careful diversification of the underlying assets. Market timing and picking the best securities are of lesser importance. Under MPT, diversification is a mathematical term derived from correlation analysis. The concept of correlation is not difficult and will be discussed in detail below. “Diversification” is based on the fact that the various sectors of the market and economy are subject to differing business cycles - some may be rising while others are falling. Chosen carefully, if one invests in companies or assets in multiple sectors of the markets, and if those sectors have differing cycles, one’s portfolio tends to be more stable and the risk of loss at the portfolio level is reduced. Conversely, even though one might attempt to diversify by investing in differing sectors, if those sectors share the same market cycle, one will have achieved little actual diversification, resulting in a portfolio that rises and falls with the same volatility as the shared market cycle. The cycles of most equity types (large, mid, and small cap) overlap closely for example.

Negative correlation occurs when the values of two investments typically move in opposite directions. For example, equities and bonds are often negatively correlated. Inflation tends to drive the dollar value of real assets up, so equities (representing ownership of corporate assets) will, over the longer term, rise in dollar value in response to inflation. Conversely, inflation causes interest rates to rise, so the market value of existing bonds not only falls as inflation picks up, but the inflation erodes the buying-power of the bonds, which have fixed-dollar values ($100,000 invested in a bond today is going to bring back $100,000 at maturity, even if inflation has reduced the buying power of the dollar to 50 cents). Equities and bonds are therefore generally negatively correlated in response to inflation.

That is not always the case, however. Generally, the best an investor can hope to achieve is to assemble a portfolio of “non-correlated” assets – assets driven by differing, unrelated market or economic forces. Their price movements relative to one another tend to be arbitrary. If the correlation between assets is measured and then used to create a portfolio with many non-correlating assets, it will be a rarity when all the assets move up or down simultaneously. Such a portfolio would be well diversified – its risk of loss potentially much lower than that of a more highly correlated portfolio. It is therefore critical that a fiduciary’s investment advisor possess the analytical tools necessary to measure the correlations between individual assets in his portfolio in order to create truly diversified portfolios.

**Investment Risk**

In the investment industry, the two most common methods of measuring what is referred to as “investment risk” are beta and standard deviation. Both are measures of the volatility of an asset’s market price – the presumption being that the more volatile the price movements, the higher the risk. But both standard deviation and beta give equal weight to upside and downside volatility. Yet an asset showing great upside volatility, but little downside volatility, could conceivably give rise to more attractive investment returns with less risk of loss. Unfortunately, since both beta and standard
deviation give equal weight to upside and downside volatility, the asset just described would be treated as being very risky by those two most common forms of “risk” measurement (ironically, due to its great upside volatility). Neither represents an actual measure of the risk of loss, which is the fiduciary’s prime concern. One of the most basic principles of MPT is that, “given two investments with equal returns, a rational investor would choose the investment with lower risk.” Yet, a fiduciary needs to measure “risk” as the potential for loss, not as mere price volatility.

**Scatter Charts**

The most effective tool the authors have found for measuring risk of loss is *semi-standard deviation*. The similarity of name to standard deviation is unfortunate, but is a consequence of the fact that semi-standard deviation is a subset of standard deviation, differing in that it ignores upside volatility and focuses only on the probability of downside volatility (i.e., losses) - hence it is a true measure of the risk of loss, not merely of volatility. Thus, the greater an investment’s semi-standard deviation, the greater have been the actual losses suffered by that investment historically, whereas a high standard deviation may result from large gains as well as from losses.

The use of scatter charts employing semi-standard deviation as the measure of risk can greatly facilitate management of fiduciary accounts in compliance with the prudence mandates of UPIA. At a mere glance, the advisor, fiduciary, attorney and judge can see the historical risk of loss and, simultaneously, the return of portfolios relative to an appropriate benchmark, thereby enabling them to easily determine the prudence with which the portfolios are being managed.

By requiring that an advisor’s investment research and reporting include the use of correlation tables, scatter charts and semi-standard deviation (or a valid equivalent measure of actual risk of loss if the advisor has a preferred alternative), fiduciaries and trustees are more likely to benefit their clients with the potential for:

1. Fewer and/or smaller losses in fiduciary accounts.
2. Higher long-term investment returns and, hence, improved ability to provide for the client’s long-term needs.
3. Reduced potential liability for a fiduciary arising from mismanagement of the assets.
4. A substantial improvement in a judge’s ability to expeditiously, yet accurately oversee the prudence with which fiduciary accounts are being monitored and managed.
INTRODUCTION

In their work as expert witnesses in fiduciary mismanagement cases, the authors have seen financial firms and even bank trust companies fail disastrously in diversifying client accounts. In one such instance, the trustee used its own proprietary mutual funds as investment vehicles. Not only was there an obvious potential conflict of interest, but the trustee placed 60% of the assets in just one of its proprietary growth funds (i.e., an aggressive vehicle) and the remaining 40% in three of its bond funds. This, it asserted, was a properly diversified account, allocating 60% to equities and 40% to bonds (a traditional allocation for pension funds in decades preceding Modern Portfolio Theory). Of course, a simple 60/40 allocation does not constitute adequate diversification. Each of those broad sectors (equities and bonds) needs further diversification over many sub-sectors. A single “growth” mutual fund represents only one of over 80 equity market sectors (as categorized by Morningstar, a major analytical service in the investment industry). It would be difficult to argue that one proprietary fund out of the tens of thousands of funds that are available (or that one market sector out of over 80) constitutes a serious effort to diversify. The consequence of that failure to diversify was soon apparent. During the bear market centered on 2008, that fund dropped much faster than the overall equities market (as represented by the Standard & Poor’s 500 Index). The severity of the loss (over $400,000) brought the account to the attention of the court at an ensuing accounting and the bank was ultimately held liable for the mismanagement of fiduciary assets.

If large institutional trustees (such as banks and trust companies) can be held responsible for such alleged breaches of investment prudence, how much greater is the likelihood that individual fiduciaries with much less investment experience will fail in their efforts to prudently manage portfolios? The authors set forth in this paper both the difficulties trustees, fiduciaries and their advisors have in adopting “prudent” management practices, and practical solutions that the average fiduciary and his advisor are able to implement.

This paper provides suggested actions that can be taken to help promote

- Improved understanding of, and compliance with, fiduciary investment laws by fiduciaries and their advisors.
- A commitment to the “fiduciary standard” by investment advisors, not just by the fiduciary.
- Reduced potential for investment losses in fiduciary accounts.
- The opportunity for improved long-term investment returns with which to provide for the needs of beneficiaries, conservatees and wards over the long term. (Hereafter, for brevity, the term “client” shall be understood to include wards, conservatees and beneficiaries.)
- Improved reporting tools that will greatly facilitate a judge’s ability to expeditiously evaluate the prudence with which fiduciary portfolios are managed.
FIDUCIARY INVESTMENT LAWS

The Uniform Prudent Investor Act (UPIA), or “Prudent Investor Rule,” is trust investment law enacted by 42 states, the US Virgin Islands, and the District of Columbia. It embraces the most current concepts of “prudent investing” and grew out of ERISA (the Employee Retirement Income Security Act), which lays out appropriate investment management practices for trustees of corporate retirement plans. ERISA and UPIA admonish fiduciaries to embrace the principles of Modern Portfolio Theory (see Exhibit 5, fourth paragraph) an investment methodology that has garnered three Nobel Prizes in economics. In fact, the Prudent Investor Act Summary (published by the Uniform Law Commission that promulgated the model Uniform Prudent Investor Act to the states in 1994) says bluntly that “UPIA requires trustees to become devotees of Modern Portfolio Theory.” Of course a “devotee” is not the same as an “expert.” A devotee, while not having to be an expert himself, would nevertheless ensure that whoever manages the investment accounts would possess the requisite expertise in the application of Modern Portfolio Theory (MPT). If not, presumably, the fiduciary would risk finding himself in violation of the law. UPIA was originally written as an update to trust investment law, but states were encouraged to apply it to all fiduciaries, not just trustees.

MPT is founded on research demonstrating that investment risk may be best managed at the portfolio level (as opposed to the individual asset level) through careful diversification of the underlying assets. Market timing and picking the best securities are of lesser importance. Though some criticism of MPT has arisen in the highly volatile markets of recent years, the experience of the authors suggests that it stems largely from two things:

- First, a failure by most in the investment industry to understand that diversification is a quantitative discipline, not qualitative guesswork (discussed later in this paper).
- Second, a failure to adopt the improved methods for measuring and managing investment risk developed in the years following the original research underlying MPT (also discussed later).

A Look Back: To fully appreciate the benefits of and reasons behind the drafting of the UPIA, it is helpful to first understand the difficulties created by the interpretation of the old Prudent Man Rule. As its name implies, when the Prudent Man Rule originated in 1830 it espoused broad principles of investing “as a prudent man would,” similar to those of today’s Prudent Investor Rule. Unfortunately, over the ensuing decades, it devolved into something quite the opposite – rules listing specific investments considered safe and, therefore, to be used by fiduciaries. Even worse, there was a strong tendency to judge by hindsight under the Prudent Man Rule – if a fiduciary took a loss on an investment, he must have been imprudent in choosing it and could be found liable. This presumption had become so entrenched that the drafters of the new UPIA stated that, “a loss with respect to a single asset does not mean that the trustee has violated his or her fiduciary responsibilities” and wrote into the new law (the UPIA) verbiage specifically forbidding “hindsight” as an appropriate criterion. In an environment so rife with potential liability for the fiduciary (i.e., under the old Prudent Man Rule), it is not surprising that lists of “acceptable” assets were not only created, but written into law. Fiduciaries sought to minimize their risk of being sued for losses by using guaranteed bank certificates of deposit, shorter-term bonds, and “blue-chip stocks.”

Unlike conservatorships or guardianships, trusts have two beneficiaries: income and remainder beneficiaries. The income beneficiary typically receives the annual income generated by the trust’s assets during his life. “Income” is narrowly defined and does not include capital gains or growth. Capital gains are added to the trust corpus and accrue to the remainder beneficiary’s benefit. The two beneficiaries therefore have conflicting interests: The income beneficiary wants to maximize current income. The remainder beneficiary wants to maximize growth. The trustee is charged with a duty of impartiality – to not favor the interests of one beneficiary over those of the other unless the trust document specifically calls for such treatment (or at least authorizes the trustee to exercise discretion in that matter). This tension between the interests of the beneficiaries was the primary impetus for change in trust law in the 1990s.
As double-digit inflation consumed the buying power of trust assets in the 1970s and early 1980s and as interest rates spiked and then gradually declined through the latter 1980s and 1990s, it became increasingly apparent that “income-only” trusts (typically invested in bank CDs or bonds) were not serving the interests of either beneficiary. Since the income beneficiary was entitled only to the “income” earnings of the trust, he found himself increasingly short of income as a result of the effects of inflation and falling interest rates in the years following 1982. In response, income beneficiaries pressured trustees to invest in bond-type assets to maximize the “income.” As interest rates continued to decline into the low single digits, the pressure for income intensified. Some trustees resorted to “high-yield” bonds (i.e., bonds of low quality and high yield due to their high risk).

But the income beneficiary was not alone in his suffering. Resorting to fixed-dollar assets (whether bank CDs, bonds or even fixed annuities) effectively eliminated a trust’s potential for growth of capital. The “dollar value” of the trust corpus was fixed at the value of the underlying instruments while the income was being spent, so the remainder beneficiary was now watching the value of his future inheritance erode as inflation rendered the buying power of those fixed dollars less with each passing year. The remainder beneficiary’s return on investment was, quite literally, negative. Furthermore, if high-yield bonds were being employed to achieve higher yields, it was the remainder beneficiary’s principal that was at risk if those bonds defaulted.

By the early 1990s, this tension had escalated to the point that the Uniform Law Commission drafted, and promulgated to the states for adoption, the Prudent Investor Rule (UPIA) as a replacement for the old “Prudent Man Rule.” Unlike the latter, UPIA encourages “total-return investing,” i.e., maximizing the combined return derived from both income and growth of capital. This was in stark contrast to the “income-only investing” that had become standard under the older Prudent Man Rule. To resolve the tension between the conflicting interests of the income beneficiaries and the remainder beneficiaries of trusts, the adoption of the UPIA was accompanied by the enactment of a companion law, the Uniform Principal and Income Act that addressed the issue of the fair division of the trust’s earnings by authorizing the trustee to reallocate income or capital gains, in either direction, in order to meet the requirements of income-only trusts. This enabled him to maximize the total return on the portfolio while fulfilling his duty of impartiality by “splitting” the total return in some equitable manner between the two sets of beneficiaries.

Modern Portfolio Theory and the UPIA: The commissioners who drafted the UPIA summarized their purpose in the Prefatory Note to the original model Uniform Prudent Investor Act (a copy of which may be found at http://www.prudentnetwork.com/the-uniform-prudent-investor-act-annotated-by-lee-anke/). Their purpose, they said, was to update “trust investment law in recognition of the alterations that have occurred in investment practice since the 1960s. These changes have occurred under the influence of a large and broadly accepted body of empirical and theoretical knowledge about the behavior of capital markets, often described as modern portfolio theory.” To eliminate any possible misinterpretation of that point, the commissioners (in the fourth paragraph of their “Prudent Investor Act Summary”) emphasized that “UPIA requires trustees to become devotees of ‘modern portfolio theory’.” Indeed, MPT has moved investing from the realm of intuition to a science-based discipline. Over the past half century, use of MPT has been shown to help improve long-term investment returns while simultaneously helping reduce the risk of investment loss. The inherent “prudence” of that outcome makes clear the commissioners’ motivation for encouraging the adoption of MPT in the management of trust and other fiduciary accounts. As noted earlier, however, MPT is a math-based science, not an intuitive guessing game. The need for skilled, educated, committed and experienced investment advisors is critical for the person with a fiduciary duty to properly manage the assets in the fiduciary accounts.

In Prefatory Note 2 to the model UPIA, the commissioners state that, “the tradeoff in all investing between risk and return is identified as the fiduciary’s central consideration (emphasis added).” While the taking of undue risk in fiduciary accounts is not desirable, the avoidance of risk “at all costs” is itself to be avoided since, of course, there are significant costs for “guarantees” when investing (as
evidenced by current low interest rates on guaranteed instruments). UPIA requires “prudent” risk management by the fiduciary and his advisor in their effort to satisfy the needs and achieve the objectives of the trust (or guardianship or conservatorship).

Prefatory Note 4 to the model UPIA states, “The long familiar requirement that fiduciaries diversify their investments has been integrated into the definition of prudent investing (emphasis added).” For a fiduciary, therefore, the words “prudence” and “diversification” are synonymous. As demonstrated by the research supporting Modern Portfolio Theory, diversification is the most effective method for reducing portfolio-level risk. In their “Comments” to Section 2 of the model UPIA, the commissioners also noted that to achieve proper diversification, “investments that were at one time thought too risky, such as equities, or more recently, futures, are now used in fiduciary portfolios. By contrast, the investment that was at one time thought ideal for trusts, the long-term bond, has been discovered to add a level of risk and volatility – in this case, inflation risk – that had not been anticipated.” Carefully managed risk (through effective diversification) and improved long-term returns are therefore the driving forces behind the UPIA.

The Prudent Man Rule vs UPIA: Treasuries, bank CDs and money market accounts were the favored investments under the old Prudent Man Rule since traded equities exposed fiduciary accounts to market losses and the fiduciary to potential personal liability. However, over the past 85 years or more, returns from capital gains on equities have exceeded the returns from yields on government bonds by more than 70% and have almost tripled the yields of 90-day Treasury bills on which bank CDs are generally modeled.9 Therefore, a diversified “total-return” approach to investing may provide the potential for improved investment returns at acceptable (i.e. prudent) levels of risk as mandated by the Uniform Prudent Investor Act.

Figure 1 illustrates the growth of $100,000 invested in the most commonly used Prudent-Man-Rule assets. Contrasted with those (on the same graph) is a carefully diversified, UPIA-compliant portfolio.
of attention in relation to the matter of prudence. The UPIA-compliant portfolio experienced only a 17% decline during the 2007 – 2009 bear market in contrast to the 51% loss of the equities market. Avoidance of loss was responsible for the higher long-term return achieved by the UPIA-compliant portfolio, not speculative gains. Note the dramatic recovery of the S&P after it bottomed in early 2009 compared to the more sedate gains of the UPIA-compliant portfolio. Speculative gains are not needed if losses can be minimized over time. The fiduciary’s risk is also greatly mitigated that he may experience a need to make substantial withdrawals (for medical or other emergencies) just after heavy losses have been realized in the portfolio.
FACTORS THAT SET FIDUCIARY INVESTING APART FROM RETAIL INVESTMENT PRACTICES

The Fiduciary Standard: The typical investor is answerable only to himself. If he speculates and loses, he is the only one hurt. By contrast, a fiduciary has accepted responsibility for someone else’s welfare. If he speculates and loses, his client suffers the consequences of his imprudence. Thus probate laws typically impose the “fiduciary standard” upon all fiduciaries (public, private, or professional). That standard requires a fiduciary to act solely in the client’s best interest. This is also the standard applied to registered investment advisors (RIAs). Many advisors servicing fiduciaries, however, are registered representatives of the brokerage industry. Registered representatives (in both the securities and insurance industries), are subject to the “suitability standard” – investments recommended need only be suitable, not necessarily in their client’s best interest. On the other hand, registered representatives are fiduciaries, but to their firms, not to their clients. A “broker does not have a special duty of care to its client that rises to the level of a fiduciary duty.” On the other hand, the fiduciary standard clearly does apply to conservators, guardians, and trustees. If the advisor is subject to a lesser standard than the fiduciary, a potential conflict of interest exists. The authors therefore recommend that all fiduciaries require advisors who are not inherently subject to the fiduciary standard, but who wish to serve as their investment advisors, to sign a written acknowledgement that they accept responsibility as a fiduciary in the management of the fiduciary’s accounts and that they will fully comply with the “fiduciary standard.”

It has been observed by the authors that financial advisors whose primary clientele consists of non-fiduciary investors have learned over the years that one way to garner referrals is to generate large investment gains. Of course, speculative investments may also result in speculative losses. However, personal liability to the advisor for investment losses, although possible, is not common in the industry. In other words, it could be perceived that advisors are generally rewarded (rather than penalized) for taking risk. Add to this the fact that Wall Street news in recent years has been replete with conflict-of-interest fines of hundreds of millions of dollars against the investment industry for such things as allegedly favoring their larger, more profitable investors at the expense of smaller investors; market timing; and after-hours trading for favored clients. Fiduciaries must be very cautious in their choice of advisor and should ensure that the advisor understands his own fiduciary responsibility and the potential personal liability for mismanagement of the assets.

Diversification - a Mathematical Concept: The fiduciary standard (doing only what is in the client’s best interest) combined with the concept of investing as a “prudent investor” would, underlay UPIA’s adoption of Modern Portfolio Theory (MPT) as the best way to manage investment risk. The most basic principle of MPT is that portfolio risk is best managed through careful diversification. A diversified portfolio should generally be far more stable than the individual assets comprising it (whose prices may be quite volatile). Unfortunately, the term “diversify” is one given much lip service in the investment industry, but with little science backing up the claims. The typical advisor will tell his clients he is diversifying their accounts and, as evidence, cites the fact that he has allocated the investments over many different market sectors (or “categories,” as Morningstar, one of the foremost analytical services in the industry, calls them). In all probability, he sincerely believes this is what constitutes diversification. The advisor’s lack of understanding of the true meaning of “diversification” leads him down a dangerous path since most market sectors are rather highly correlated (moving up and down as a group, as will be clearly demonstrated below). In other words, it is the opinion of the authors that most sectors offer very little diversification benefit and that most advisors are ignorant of that fact.

Under Modern Portfolio Theory, diversification is a technical term mathematically based in “correlation” analysis. Fortunately, it is not necessary to understand how to compute the “correlation coefficient” between two assets in order to make effective use of it in diversifying portfolios. The basic understanding of the concept (taught in the following pages) is all that a judge, attorney or fiduciary needs in order to evaluate the diversification (or lack thereof) of a portfolio.
Understanding Correlation – The Basis of Diversification

Correlation: The concept of correlation derives from the fact that the economic cycles of the various sectors of the market and economy are driven by many forces. If too many forces are shared by two sectors of the market, their price movements will be closely correlated - rising and falling simultaneously. Not all sectors are closely correlated, however. Chosen carefully, if one invests in companies, mutual funds, or assets in multiple sectors of the markets, and if those sectors have differing cycles, one sector will be rising when another is falling, thereby offsetting one another at the portfolio level. That constitutes diversification. Conversely, even though one might attempt to diversify by investing in differing market sectors, if those sectors tend to share the same market cycle, the investor will have achieved little actual diversification. For example, the cycles of the best-known equity types (large, mid, and small cap) overlap closely. Research done by our firm in 2014 demonstrated that the average correlation between the 25 Morningstar U.S. Equity categories (i.e., market sectors) from October 2005 through April 2014 was a surprising 90%! Even non-US Equity Funds averaged an 84% correlation with U.S. equities (as represented by the Standard & Poor’s 500 Index). The average correlation between Morningstar bond categories over the period was 64%, but their average correlation to the S&P 500 Index was only 38% - so they provide a worthwhile diversification tool. Averages tell us only that diversifying a portfolio is not easy. One must cherry pick individual categories, or even funds within categories, that demonstrate low correlations relative to one another. It is inadequate to merely select a group of different categories and assume that this will provide a diversified portfolio. Eighty or ninety percent of the time, that approach will fail disastrously.

Negative Correlation: Though the market cycles of many assets coincide, others do not. Negative correlation occurs when the value of two investments regularly move in opposite directions. Equities and bonds are often examples of negatively correlated sectors. Equities cycle through well-known bull and bear markets. Bonds, on the other hand, sometimes follow that cycle inversely. For example, inflation tends to drive up the value of real assets, so over the longer term, equities (representing ownership of corporate assets) should tend to rise in dollar value in response to inflation. On the other hand, inflation causes interest rates to rise, which drives the market value of existing bonds down. Unfortunately, inflation will have undermined the buying-power of the fixed-dollar values of those bonds. Hence, stock prices tend to rise in response to inflation over the longer term, whereas bonds are hurt (long term as well as short term). The two therefore tend to be negatively correlated during inflationary (and also recessionary) times, moving in opposite directions. The top and bottom wavy lines in Figure 2 illustrate how negatively correlated assets behave when their values are charted over time. It also demonstrates the benefit of negative correlation when used in the context of a portfolio. When the two volatile assets are owned in a single portfolio (investing half in Asset 1 and half in Asset 2) the result is the much smoother line through the center. It is apparent that the risk of loss inherent in investing in either of the underlying assets has been significantly diminished.

Figure 2 - Negatively Correlated Assets

<table>
<thead>
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<th>Value (in thousands)</th>
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<tr>
<td>70K</td>
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<td>60K</td>
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<td>50K</td>
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<tr>
<td>40K</td>
</tr>
<tr>
<td>30K</td>
</tr>
<tr>
<td>20K</td>
</tr>
<tr>
<td>10K</td>
</tr>
<tr>
<td>0K</td>
</tr>
</tbody>
</table>

- Asset 1
- Asset 2
- HALF IN EACH
by investing in both. The central “portfolio” line has the same long-term rate of growth as the riskier underlying assets, but with a great deal less risk of loss. Providing the investor with comparable returns, yet significantly reduced risk of loss is the whole point of Modern Portfolio Theory. It is diversification (i.e., non-correlation), the foundation of MPT, that can achieve this result.

**Non-Correlation:** Investment management would be trivial if two almost perfectly negatively correlated assets such as those shown in Figure 2 existed. Unfortunately, life is not so kind. Although stocks and bonds are often negatively correlated (as in the inflation scenario painted above), that is not always the case. Generally, the best an investor can hope to achieve is to assemble a portfolio of “non-correlated” assets.

Non-correlated assets are not the same as negatively-correlated assets. Non-correlated assets are assets driven by differing, unrelated market or economic forces. Their price movements relative to one another tend to be arbitrary. One asset may be moving up when another is moving down at a given point in time. Yet at another time, those same assets may move up or down together. Such assets are “non-correlated.”

If we can measure the correlation between assets and then create a portfolio with many non-correlating assets, it will be a rarity when all the assets move up or down simultaneously – something in the portfolio will typically be moving up when another asset is suffering losses. Hence, such a portfolio would tend to track more like the smooth line in Figure 2 with most of the risk inherent in the underlying assets reduced through non-correlation. Such a portfolio would be well diversified.

The reader can now appreciate why UPIA mandates the “portfolio standard” in the management of fiduciary assets.

It is therefore critical that a fiduciary’s investment advisor possess the tools necessary to measure the correlations between individual assets in his portfolio, and not merely assemble an intuitive assortment of assets from differing investment categories that may, in spite of his efforts, be highly correlated.

**How to Measure Correlation**

Correlation tables will enable the advisor, the fiduciary, attorney, or judge to determine if a portfolio is diversified. Below is an example of a correlation table.

**Table 1 - Correlation Table of a Sample Portfolio of Investments**

<table>
<thead>
<tr>
<th></th>
<th>Asset A</th>
<th>Asset B</th>
<th>Asset C</th>
<th>Asset D</th>
<th>Asset E</th>
<th>Asset F</th>
<th>Asset G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset A</td>
<td>0.89</td>
<td>0.81</td>
<td>0.87</td>
<td>0.82</td>
<td>0.85</td>
<td>0.94</td>
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</tr>
<tr>
<td>Asset B</td>
<td>0.89</td>
<td>0.86</td>
<td>0.94</td>
<td>0.96</td>
<td>0.97</td>
<td>0.95</td>
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</tr>
<tr>
<td>Asset C</td>
<td>0.81</td>
<td>0.86</td>
<td>0.85</td>
<td>0.77</td>
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<td>0.86</td>
<td></td>
</tr>
<tr>
<td>Asset D</td>
<td>0.87</td>
<td>0.94</td>
<td>0.85</td>
<td>0.77</td>
<td>0.9</td>
<td>0.87</td>
<td></td>
</tr>
<tr>
<td>Asset E</td>
<td>0.82</td>
<td>0.96</td>
<td>0.77</td>
<td>0.9</td>
<td>0.96</td>
<td>0.91</td>
<td></td>
</tr>
<tr>
<td>Asset F</td>
<td>0.85</td>
<td>0.97</td>
<td>0.79</td>
<td>0.98</td>
<td>0.91</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>Asset G</td>
<td>0.94</td>
<td>0.95</td>
<td>0.86</td>
<td>0.98</td>
<td>0.91</td>
<td>0.9</td>
<td></td>
</tr>
</tbody>
</table>

Correlation tables are displayed as a matrix of “correlation coefficients” exhibiting the correlation of each asset to every other asset in the portfolio. Let us illustrate that point: In Table 1, notice that the first correlation (Asset A) in the second column of the table is 0.89. That is the correlation of Asset A (column 2) to Asset B (row 3). This means that 89% of the forces driving A’s gains or losses have historically also driven B’s gains or losses. The result is that these two assets have historically tended to move in near lock step with one another – both taking losses or making gains at the same time since the same forces are generally driving each.
The range of possible correlation coefficients is from 1.00 to -1.00. The prices of two assets sharing a correlation of 1.00 (100% correlation) have historically moved in the same direction at all times (rising and falling simultaneously). At the other extreme, the prices of two assets with a coefficient of -1.00 (negative one) are also perfectly correlated, but inversely, so one is always gaining when the other is losing. Figure 2 exemplifies two negatively correlated assets.

The higher the positive correlation of two assets, the less value they have in diversifying a portfolio. Conversely, the higher the negative correlation, the greater the diversification value. We can expand upon that understanding to develop the simple set of rules in Table 2 to assess the diversification value of each asset in a portfolio using a correlation table such as the one above.

**Table 2 - Interpreting Asset Correlations**

<table>
<thead>
<tr>
<th>Correlation Range</th>
<th>Effectiveness of the Two Assets in Diversifying A Portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
<td>Excellent</td>
</tr>
<tr>
<td>0.0 to 0.49</td>
<td>Very good</td>
</tr>
<tr>
<td>0.5 to 0.59</td>
<td>Good</td>
</tr>
<tr>
<td>0.6 to 0.69</td>
<td>OK</td>
</tr>
<tr>
<td>0.7 to 0.79</td>
<td>Of questionable value</td>
</tr>
<tr>
<td>0.8 to 0.89</td>
<td>Bad</td>
</tr>
<tr>
<td>0.9 to 1.0</td>
<td>Of no value (one of the two assets should probably be replaced or eliminated)</td>
</tr>
</tbody>
</table>

Systematically evaluating a correlation table is not difficult. Starting with Asset A (column 2 in Table 1), one can see by looking down the column that its correlation with Asset B (row 3) is 0.89. A check of the “Effectiveness” table (Table 2) shows that such a high correlation would be on the very bad end of “Bad.” This is such a high correlation that either Asset A or Asset B should probably be removed from the portfolio or replaced; keeping both would be counterproductive to the portfolio’s diversification – they are generally going to be moving in unison.

Continuing down that second column, Investment A’s correlation to Investment C is 0.81 and its correlation to D is 0.87, etc. Its correlations range from a low of 0.81 to a high of 0.94 - all very high correlations. This asset is adding virtually no diversification to the portfolio. Even if its historical investment returns have been high, its high correlations with the rest of the assets mean it has historically moved in concert with the rest and will probably do so in the future. In a bear market, that could be most harmful. An asset with multiple high correlations should be a red flag to an advisor (and his fiduciary) whose objective should be to assemble a diversified portfolio of assets that do not move in tandem.

When reviewing a portfolio, one should look at each asset in this same manner (i.e., scanning down each column quickly) to determine how many high correlations there are for each asset and, therefore, how effective each asset is in diversifying the portfolio. Any correlations above 0.69 should be worrisome. Where should the limits on high correlations be placed? That depends on the number of assets in the portfolio. Here’s a simplified rule of thumb used by the authors: 70s (between 0.70 and 0.79) count for 1 strike. 80s count for two strikes. There should be no more than 30% strikes per column. So if the portfolio had, say, 10 assets, an advisor should permit no more than three strikes. That could be three 70s or one 70 and one 80. However, even one correlation in the 90s should probably cause an advisor to eliminate or replace one of the two offending assets. There are only seven assets in Table 1, so it would be tolerable to have more than two strikes per asset or column (30% of 7 is 2.1). Sadly, every cell in Table 1 shows correlations in the 0.77 to 0.98 range. The only asset (column) in Table 1 that doesn’t have one or more correlations in the 0.9s is Asset C, and the “strike count” in even that column is ten!. This is a very poorly diversified portfolio.

The likely reason this portfolio exhibits such high correlations is that a typical broker or advisor may diversify solely based on an Investment’s category or sector assignment. When an effort is made
to diversify a portfolio, the general rule is that the advisor simply avoids acquiring more than one asset in each market sector (or Morningstar asset category). In the opinions of the authors, this is quite inadequate since, as mentioned previously, roughly 90% of Morningstar categories are highly correlated (in the 80s or 90s). This is clearly demonstrated by the fact that the portfolio comprising Table 1 consists of seven mutual funds in seven different Morningstar Categories. Without a proper correlation table to mathematically evaluate the correlation of each asset to the others in the portfolio, this widely accepted method of diversifying a portfolio usually fails dismally.

Table 3 - Diversified, UPIA-Compliant (Non-Correlating) Portfolio

<table>
<thead>
<tr>
<th>Asset 1</th>
<th>Asset 2</th>
<th>Asset 3</th>
<th>Asset 4</th>
<th>Asset 5</th>
<th>Asset 6</th>
<th>Asset 7</th>
<th>Asset 8</th>
<th>Asset 9</th>
<th>Asset 10</th>
<th>Asset 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset 1</td>
<td>0.59</td>
<td>0.50</td>
<td>0.52</td>
<td>0.45</td>
<td>0.08</td>
<td>0.52</td>
<td>0.28</td>
<td>0.55</td>
<td>0.12</td>
<td>0.22</td>
</tr>
<tr>
<td>Asset 2</td>
<td>0.59</td>
<td>0.79</td>
<td>0.86</td>
<td>0.69</td>
<td>0.17</td>
<td>0.66</td>
<td>0.72</td>
<td>0.18</td>
<td>0.01</td>
<td>0.31</td>
</tr>
<tr>
<td>Asset 3</td>
<td>0.50</td>
<td>0.79</td>
<td>0.73</td>
<td>0.75</td>
<td>-0.01</td>
<td>0.91</td>
<td>0.69</td>
<td>0.19</td>
<td>-0.15</td>
<td>0.20</td>
</tr>
<tr>
<td>Asset 4</td>
<td>0.52</td>
<td>0.86</td>
<td>0.73</td>
<td>0.84</td>
<td>0.41</td>
<td>0.57</td>
<td>0.61</td>
<td>0.29</td>
<td>0.06</td>
<td>0.27</td>
</tr>
<tr>
<td>Asset 5</td>
<td>0.45</td>
<td>0.69</td>
<td>0.75</td>
<td>0.84</td>
<td>0.22</td>
<td>0.65</td>
<td>0.45</td>
<td>0.38</td>
<td>-0.07</td>
<td>0.33</td>
</tr>
<tr>
<td>Asset 6</td>
<td>0.08</td>
<td>0.17</td>
<td>-0.01</td>
<td>0.41</td>
<td>0.22</td>
<td>-0.03</td>
<td>0.04</td>
<td>0.34</td>
<td>0.46</td>
<td>-0.29</td>
</tr>
<tr>
<td>Asset 7</td>
<td>0.52</td>
<td>0.66</td>
<td>0.91</td>
<td>0.57</td>
<td>0.65</td>
<td>-0.03</td>
<td>0.60</td>
<td>0.34</td>
<td>-0.10</td>
<td>0.13</td>
</tr>
<tr>
<td>Asset 8</td>
<td>0.28</td>
<td>0.72</td>
<td>0.69</td>
<td>0.61</td>
<td>0.45</td>
<td>0.04</td>
<td>0.60</td>
<td>0.06</td>
<td>-0.05</td>
<td>0.27</td>
</tr>
<tr>
<td>Asset 9</td>
<td>0.55</td>
<td>0.18</td>
<td>0.19</td>
<td>0.29</td>
<td>0.38</td>
<td>0.34</td>
<td>0.06</td>
<td>0.24</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>Asset 10</td>
<td>0.12</td>
<td>0.01</td>
<td>-0.15</td>
<td>0.06</td>
<td>-0.07</td>
<td>0.46</td>
<td>-0.1</td>
<td>-0.05</td>
<td>0.24</td>
<td>-0.03</td>
</tr>
<tr>
<td>Asset 11</td>
<td>0.22</td>
<td>0.31</td>
<td>0.20</td>
<td>0.27</td>
<td>0.33</td>
<td>-0.29</td>
<td>0.13</td>
<td>0.27</td>
<td>0.02</td>
<td>-0.03</td>
</tr>
</tbody>
</table>

Table 3 represents a better constructed portfolio, probably constructed with the help of correlation tables. Though two of the assets (columns) still violate the “strike criteria” given above, improved diversification is obvious from the fact that only a handful of assets have correlations of 0.7 or higher (highlighted by a gray background in the cell). Some of the assets in this portfolio even have negative correlations. To clearly demonstrate the critical importance of using correlation tables in the diversification of portfolios, Figure 3 provides a comparison of the growth over time of $100,000 invested in the “poorly diversified portfolio” of Table 1 (dotted line) with the same dollars invested in the more properly diversified, portfolio illustrated in Table 3 (solid line on the graph). Notice (especially on the left side of the graph) how the poorly diversified portfolio (dotted
line) rose significantly faster in positive markets, but fell much faster as well in the 2007 through 2009 bear market. That 50% loss is precisely the kind of behavior that invites scrutiny and potential personal liability for fiduciaries. The fact that the dotted line in Figure 3 showed such high returns in the bull market, followed by large losses in the bear market demonstrates that the advisor who recommended it either 1) pursued aggressive returns rather than taking into account the nature of fiduciary investing, or 2) lacked an understanding of correlation analysis and proper portfolio diversification.
**TRACKING A PORTFOLIO’S RISK OF LOSS**

The benefit of diversification is reduced risk of portfolio loss. However, one needs more than a correlation table to feel confident of having reduced the risk to a desirable level. A fiduciary should never be in a position of recognizing risk only through hindsight – i.e., having already suffered a serious loss. He needs to be able to anticipate a portfolio’s risk of loss in advance so as to be able to take evasive action before damage is done.

**Measuring Portfolio Risk**

In the investment industry, the two most common methods of measuring what is referred to as “investment risk” are beta and standard deviation. Both, however, fall far short of the effectiveness a fiduciary needs to manage the risk of his portfolios. They are both, in reality, measures of price “volatility,” not of risk of loss. To demonstrate the difference, let us briefly define beta and standard deviation and then look at some examples.

**Beta** is the volatility of a stock’s price relative to some benchmark – in most cases, the Standard & Poor’s 500 Index. Roughly translated, a beta of 1.0 means volatility equal to that of the Standard & Poor’s 500 Index. If the S&P gains or loses 10%, an asset with a beta of 1.0 would be expected to also gain or lose the same (10%). In contrast, an asset whose beta was 1.2 would be expected to rise or fall roughly 12% (i.e., 1.2 times, or 20%, faster than the S&P). An asset whose beta was 0.7 would be 30% less volatile.

**Standard Deviation** is a measure of the volatility of an asset’s returns around its average return. The best-known attribute of standard deviation is that in roughly two-thirds of the periods measured, an asset’s return will fall within plus or minus one standard deviation of its average return. To most fiduciaries, knowing that relationship still does not provide much insight into the potential for suffering a loss.

There is however an even more serious problem with both standard deviation and beta: their computations give equal weight to upside or downside price volatility. The following standard deviation examples should make the problem clear (examples of beta would be similar since both are based on relative “volatility”). Assume that there are two investments, both have 8% average annual returns historically and both have the same standard deviations. This year the price (or value) of one of those investments shoots up 58%, the other loses 42%. Contrary to all logic, at the end of the year both investments will still share the same “risk” as measured by the standard deviation. Why? Because (in the case of standard deviation) one investment experienced a gain 50% above its average return (i.e., a 50% “deviation” from its mean) and the other experienced a loss of 50% below its average return (also a 50% “deviation” from its mean). Since upside and downside deviations from the average return are given equal weight in computing the standard deviation, the two investments end the year with the same standard deviation, suggesting that they were equally “risky.”

The point is that a fiduciary’s (or worse, a court’s) perception of risk (the chance of loss of principal) and the standard deviation’s “perception” of risk clearly do not coincide. The authors consider the common measures of “volatility” (described above) inaccurate in gauging the probability of loss. Let us look at the potential ramifications to the fiduciary of using standard deviation as a measure of investment risk.

Figure 4 shows the values over time of two hypothetical investments. Asset A is growing over time whereas Asset B is suffering long-term losses. Yet both assets have identical standard deviations.

![Figure 4 - Investments with same “risk”](image-url)
because they exhibit the same volatility around their average returns. Standard deviation therefore assigns equal “risk” to both.

In reality, there would have been no problem in choosing between the two assets (even without the graph) because the analytical services would have shown one as averaging a minus 9% yearly return while the other would have shown a positive 9% per year return. No one would bother looking to the standard deviations to evaluate their “risk” (or if they did, they would probably assume one was erroneous.)

Figure 5, however, paints a very different scenario – two assets (asset A, the stair-step pattern and Asset B, the wavy pattern) both exhibiting the same positive long-term return of 9% per annum. Asset A would obviously be more “prudent” for a fiduciary because it never takes losses. In contrast, Asset B cycles up and down, periodically exposing the portfolio to losses in the range of 40% followed by gains exceeding 100% (typical of the historical bear and bull equity market cycle). Distressingly, however, if standard deviation is used as the measurement of “risk,” the stair-step asset actually has a standard deviation of 14.0, whereas the wavy asset’s standard deviation is only 9.7 -- suggesting that the stair-step asset is 44% riskier than the wavy asset!

At a mere glance, the reader will know intuitively that to say Asset A is riskier is nonsense. So how can standard deviation give such a wrong answer? Remember, standard deviation is a measure of volatility. “Spikes” (i.e., periodic abrupt jumps in the value of the stair-step asset) register as extreme volatility (far more so than the smoothly rising and falling waves of Asset B). So, without the benefit of Figure 5, a fiduciary (or his advisor) researching these two assets would find them listed as having the same annualized rate of return, yet the risk (as measured by the standard deviation) of the stair-step asset would be shown as significantly higher.

One of the most basic principles of Modern Portfolio Theory is that, given two investments with equal returns, a rational (or “prudent”) investor would choose the investment with lower risk. Based on that principle and the commonly published measures of “risk” (standard deviation and risk), a prudent fiduciary could easily be led to the mistaken conclusion that Asset B (the wavy asset) is “the more prudent” of the two!

From these examples it can be learned that:

1. Risk measured in terms of volatility can be very deceiving.
2. A fiduciary needs to measure “risk” as the potential for loss, not simply as volatility.

Semi-Standard Deviation – a True Measure of “Risk of Loss”

The most effective tool found by the authors for measuring risk of loss is the “semi-standard deviation.” The similarity of names (i.e., to “standard deviation”) is unfortunate, but results from the fact that semi-standard deviation is computed in a manner similar to the standard deviation, but with one critical difference – only the “undesirable” returns below a minimum permissible level are included in the calculation of semi-standard deviation. By setting that minimum acceptable return at zero, only historical losses are included in the computation of the semi-standard deviation (gains, especially large gains, are ignored). Thus, when measuring risk, the greater the semi-standard deviation of an investment, the greater have been the actual losses suffered by that investment from
time to time historically. By contrast, a high standard deviation may result from large gains as well as from losses. Employing semi-standard deviation as the measure of risk technically moves a user from the practice of Modern Portfolio Theory to what is now known as “Post Modern Portfolio Theory,” considered, even by Markowitz (the inventor of MPT), to be a superior approach.20

Returning now to the two investments illustrated in Figure 5 and applying semi-standard deviation as the measure of risk, it can be seen that Asset A (the stair-step pattern) never takes losses and, therefore, exhibits a semi-standard deviation of zero, whereas Asset B (the wavy pattern) has a significant semi-standard deviation because of the periodic large losses it takes. The difference in results of using standard deviation vs. semi-standard deviation is clearly illustrated in Table 4.

| Table 4 - Risk Comparison Standard vs Semi-Standard Deviation |
|----------------------------------|------------------|------------------|
| Annual Return                    | Asset A (stair)  | Asset B (wave)  |
| Risk using Standard Deviation    | 14.0%            | 9.7%            |
| Risk using Semi-Standard Deviation| 0%               | 5.2%            |

Using semi-standard deviation, a fiduciary would therefore recognize that Asset B exhibits a significant risk of loss, whereas Asset A has none and would make a more prudent decision.

**Risk Analysis at a Glance - The “Perfect” Supervisory Tool**

Scatter charts are a tool that can greatly facilitate the management of fiduciary accounts in accordance with the mandates of UPIA. The simplicity of oversight made possible by scatter charts is demonstrated in Figure 6. At a mere glance, the fiduciary (or judge or attorney) can simultaneously see a portfolio’s historical risk of loss and its return relative to an appropriate benchmark. The triangle icon in Figure 6 represents the improperly diversified portfolio previously illustrated in Figure 3. The square is the better diversified, UPIA-compliant portfolio, also illustrated in Figure 3 (the growth chart). On the horizontal scale of this scatter plot is the semi-standard deviation for the period of the study. The further right an asset is located on the graph, the higher its semi-standard deviation and, therefore, the greater the losses it has actually sustained during the period spanned by the graph and, generally speaking, the less prudent it is as a fiduciary portfolio. The vertical axis represents the asset’s average investment return for the period. The cross hairs centered on the diamond mark the risk and return (the vertical and horizontal cross hairs respectively) of the “benchmark.” The benchmark the authors have used is the average of Morningstar’s Moderate Allocation Category of funds21 (a diversified, rather conservative group of mutual funds that we therefore consider to be a suitable benchmark for fiduciary accounts). The cross hairs break the scatter chart 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 than the benchmark, yet they have exposed investors to less risk of loss than the benchmark. Taking lower risk while achieving comparable or higher returns than a suitable benchmark would appear to meet the prudence requirements of the Prudent Investor Rule.

In Figure 6, the “Poorly Diversified Portfolio” is far to the right of the benchmark (nearly 50% higher risk than the benchmark). A glance back at Figure 3 and Table 4 explains why: It has periodically experienced both high gains and high losses (the latter giving it a high semi-standard deviation). As we might also have anticipated from the high correlations found in Table 1, this portfolio exhibits nearly 100% greater risk of loss (i.e., double) in down markets relative to the compliant portfolio when viewed on a scatter chart. More worrisome is the fact that its risk of loss is nearly 50% greater than that of the benchmark, increasing the potential liability of a fiduciary that might use this portfolio. In contrast, the UPIA-compliant portfolio lies in the “prudent quadrant” with much higher potential returns than the benchmark, yet about 25% less risk of loss. Section 7 of the Model UPIA states, “compliance with the prudent investor rule is determined in light of the facts and circumstances existing at the time of a trustee’s decision or action and not by hindsight.” In a worst-case scenario, if either of these portfolios sustained a large loss, the undiversified portfolio, showing 50% higher risk than the benchmark well before the loss occurred (when a decision should have been made), would be more difficult to defend in court than the UPIA-compliant portfolio.

Sophisticated financial planners and investment advisors use scatter charts in their research and in reporting to their clients. Scatter charts provide a tool that can guide the advisor in assembling lower-risk portfolios and make it an easy task for the fiduciary, his attorney, and the judge to see, at a mere glance, whether the fiduciary’s accounts have been managed prudently based on the quadrant in which the portfolio’s icon lies. Thus, the authors feel it important to advocate the usage of such tools for all fiduciary accounts. Some advisors provide risk statistics on individual assets, but most offer no measurement of “portfolio-level” risk at all (contrary to UPIA’s “Portfolio Standard”). The difference between asset-level versus portfolio-level risk management is crucial since knowing the risk of individual assets tells one nothing about their correlation and, hence, the risk of loss to the overall portfolio (if all assets fall simultaneously in a bear market).

By requiring his advisor to provide semi-standard deviation scatter charts for portfolios he (the advisor) recommends, a fiduciary can see, in advance of making the decision to invest, whether the proposed portfolio exhibits significantly above-benchmark risk of loss. Such a fiduciary will be much less likely to approve an aggressive portfolio in ignorance of its true nature. Of course, after making a prudent choice to invest, changes in economic and market conditions may result in a previously low-risk portfolio drifting toward increased risk. If the advisor is required to monitor the fiduciary’s accounts using scatter charts, that advisor will see the risk of his accounts moving up and will be motivated to make changes to bring their risk back in line with the objectives. Furthermore, the fiduciary (judge or attorney) will also become aware of the problem. But that will only be possible if the fiduciary requires scatter charts in the periodic performance reports the advisor provides. Requiring such reports establishes a natural feedback loop that may result in reduced losses and improved long-term returns in fiduciary accounts.

Since correlation software is widely available, and since correlation is the measure of diversification, the authors feel a fiduciary should require his advisor to employ both correlation tables and scatter charts in his management of fiduciary accounts. All fiduciaries should possess the basic understanding of correlation tables offered above. With that knowledge, if the fiduciary finds himself in doubt about the diversification in his clients’ accounts, or of an advisor’s proposal, the fiduciary is in a position to request a correlation table of the assets and review it for weaknesses. An understanding of correlation tables and scatter charts empowers a fiduciary to review his advisor’s work with confidence and enables him to give constructive feedback to that advisor.
CONCLUSION: RAISING THE BAR FOR FIDUCIARIES AND ADVISORS

Before undertaking the management of fiduciary accounts, trustees, other professional fiduciaries and their investment advisors should acquire a working knowledge of the Uniform Prudent Investor Act. Too often, fiduciaries focus on avoidance of all risk and accept such low investment returns that the client’s assets are quickly consumed. Compliance with the UPIA requires sophisticated risk and return analysis at levels brokers, financial planners and investment advisors rarely apply and may not even understand. Fiduciaries must therefore exercise great care, skill and caution in the vetting, hiring and monitoring of their advisors.24

The fiduciary is not only responsible to “exercise care, skill and caution” in the management of his client’s assets, but he is specifically required to employ the principles of Modern Portfolio Theory under UPIA. As permitted by the UPIA, most fiduciaries turn to professional investment advisors for assistance. Unfortunately, rigorous application of the methods of MPT has not been broadly embraced except at the institutional level (large corporate pension plans, university endowment funds, etc.). Investment advisors and financial planners (small or large) have been reticent to commit the resources necessary to employ diversification and risk management as defined by Post Modern Portfolio Theory. However, in view of the mandates of the Uniform Prudent Investor Act, there can be little excuse for mere guesswork and intuition in the management of fiduciary accounts when such tools as provided by MPT are not only available, but called for under the law. To master these tools does require committed study and the dedication of resources on the part of advisors. Therefore, fiduciaries must exercise considerable caution in their choice of advisors.

All investment advisors working for a fiduciary should have, or be provided with

- A copy of the Prudent Investor Act Summary
- A copy of the UPIA Model Act that includes the commissioners’ notes providing valuable information pertaining to the intent of the various sections of the law (both can be found at uniformlaws.org)

Either independently, or as part of a Care Plan, the trustee or fiduciary should have an investment plan. With proper review, he can delegate the effort of preparing that plan to his advisor, or he may wish to prepare it himself. Information to be included in that plan may be gathered in a questionnaire. An example is illustrated Exhibit 1.

The fiduciary should

- Require the advisor to sign a document acknowledging his personal responsibility to manage all fiduciary accounts in compliance with the “fiduciary standard.” It may be important to state what that standard is in the text of the document to ensure there are no misunderstandings.
- Require that the advisor’s investment research include, at the very least, the use of correlation tables, scatter charts and semi-standard deviation (or a valid equivalent measure of actual risk of loss if the advisor has a preferred alternative).
- Require that the advisor provide periodic performance reporting including scatter charts. The latter could be constructively added to any court accountings required of the fiduciary.
By making these requirements a condition of the advisor’s employment, the fiduciary may help ensure that his investment advisor is both willing and prepared to comply with the mandates of the UPIA. Through proper stewardship by both fiduciary and advisor, the following benefits may result:

1. Potential for fewer and smaller losses in fiduciary accounts.
2. Potentially higher long-term investment returns with improved ability to provide for the client’s long-term needs.
3. Reduced potential liability arising from mismanagement of the assets.
4. A substantial improvement in a court’s or judge’s ability to expeditiously, yet accurately oversee the prudence with which fiduciary accounts are being monitored and managed.

In summary, compliance (especially with the mandate to apply the diversification and risk management principles of Modern Portfolio Theory) requires serious commitment on the part of professional investment advisors. Demanding such commitment and expertise is both reasonable and, under UPIA, a responsibility of the fiduciary. The targeted result of proper compliance with UPIA is the potential to significantly improve long-term investment returns in fiduciary accounts while simultaneously reducing the risk of loss. The higher long-term returns offer the opportunity of better providing for the needs of the client. Use of scatter charts could greatly simplify both the fiduciary’s and the court’s responsibility of overseeing the prudence with which fiduciary accounts are managed.
Guardianship/Conservatorship Investment Questionnaire for Creation of an Investment Plan*

Guardianship/Conservatorship of: ____ Person ____ Estate of ______________________________

Date of guardianship: __________ Client’s SS#: ______________ Client’s date of birth:__________

Physical Health of the Client:____________________________________________________________

Mental health of the Client: __________________________________________________________________

Any additional information regarding the circumstances or conditions of Estate or Client: ____________

_____________________________________________________________________________________

Annual Income (non-investment sources):
Social Security $__________
Pension $__________
Property rental $__________
Annuity $__________
Other $__________
Total Annual Income $__________

Annual Expenses:
Living expenses $__________ (mortgage, property insurance, association dues, rent, patient liability, room & board)
Medical expenses $__________ (prescriptions, co-pays, in-home care)
Personal expenses $__________ (groceries, clothing, public transportation, cable, Internet)
Travel & entertainment $__________
Financial Advisor fees $__________
Property taxes $__________
Legal fees $__________
Income taxes & tax preparation fees $__________
Guardianship fees $__________
Other $__________
Total Annual Expenses $__________
NET (Income less Expenses) $__________

Assets to be managed $________________

Description of assets (cash, brokerage, etc.): ________________________________________________

Is court approval needed to invest? ___ Yes ___ No
If yes, has court approval been obtained? ___ Yes ___ No

Tax bracket:
_____ 0-15%  ____ 25-27½%  ____ Over 27½%

*A similar questionnaire is available for Trusts
Fiduciary investing is often the result of incapacity of the person and an inability to manage his own affairs. In such cases the Investment Plan needs to be created in conjunction with the Care Management Plan (the National Guardianship Association calls it a “Care Plan”) so that needs and resources are coordinated, balanced, and realistic. The Investment Plan should include an Investment Policy Statement and a specific Investment Recommendation.

The creation of the Investment Plan begins with accurate data collection that should include the following:

- The titling of the account. This will give information as to the type of fiduciary account – whether it is a trust, conservatorship, or guardianship. The title on the account will also indicate who has standing.
- Contact information for those who will act as trustee, conservator of the estate, or guardian of the estate. This may include mailing addresses, email addresses and telephone numbers.
- The date of the trust, most recent amendments, or court appointment dates for conservatorships, guardianships, and court supervised trusts.
- Income – monthly or annual. Extraordinary or infrequent income should be indicated. Income that will start at a future date, such as a pension or structured settlement payouts, should also be included. Income should be indicated as inflating or non-inflating. If inflating, include an estimate of the anticipated inflation rate.
- Expenses – monthly or annual. Expenses should be tabulated in the same manner as income. Care should be taken to include infrequent, periodic fees and expenses such as fiduciary, legal, and accounting fees; insurance premiums, etc. Projected future expense should be indicated with approximate dates. An estimate of the projected inflation rate on expenses should be indicated. Much of this information may be obtained from the Care Management Plan.
- Age of income beneficiary or ward. The projected life expectancy using IRS tables. If there is a documented reduced life expectancy in writing from a doctor, use the latter.
- Physical health. Information on physical health will help determine if physical impairments are temporary, or long term, as well as whether or not health is expected to deteriorate.
- Mental health. This information will also give an indication of whether circumstances are temporary or long term.
- Copies of investment statements with tax basis of the assets indicated. As an investment plan should avoid creating excessive tax liability, a history of statements and cost basis will help an advisor invest appropriately to avoid creating excessive taxable gains. Conversely, excess annual medical deductions may be useful to offset gains from low-basis assets.
- Copy of most recent tax return. Use the most recent tax return that is representative of the client’s current situation. Indicate if there are any expected changes in the future.

Once the data is collected, a narrative should be created that summarizes the key points in the individual case. This narrative will form the foundation for the Investment Policy Statement and Investment Recommendation. If there is any question that the client may outlive his assets, then an asset depletion analysis is highly recommended. It should include the impact of inflation on income and expenses.
Investment Policy Statement

An Investment Policy Statement is a written document drafted by either the advisor, the fiduciary, or the two together. The statement outlines the general rules for the manager to follow in managing the portfolio. The document is usually a written agreement between the fiduciary and the investment advisor. With the guidance of the “narrative” alluded to in the prior paragraph, the investment advisor generally takes the lead in drafting the statement because of his greater familiarity with investment-related matters. The fiduciary reviews the proposed document and offers input and direction. The completed document should be signed by both parties. If adhered to, the Investment Policy Statement can serve as evidence of forethought, planning and compliance with the UPIA for both parties. It helps minimize potential liability to the fiduciary.

The investment policy statement should provide general investment goals and objectives for the account and may describe strategies the investment advisor may employ to meet these objectives. Specific information on asset allocation procedures, diversification, risk management, returns expectations, benchmarks, and liquidity requirements may also be included. The simpler and more direct an Investment Policy Statement is, while covering essential points, the more effective it will be. The more restrictive the terms of the IPS, the more difficult it will be for the advisor to achieve desirable investment results. It is generally better to begin with an advisor who has been carefully vetted for expertise in UPIA-compliant investing, then give him the freedom to exercise that expertise for the benefit of the client.

Investment Recommendation

The Investment Recommendation should be specific, listing the proposed assets and their allocations within the initial portfolio. The investment recommendation should review the historical performance (risk as well as return) of the proposed portfolio. Asset diversification should be addressed within the document to show that the proposed portfolio complies with the diversification mandates of the UPIA. A suitable benchmark should be established against which the portfolio’s success in achieving its objectives may be gauged. Expectations of future returns and risk levels should be addressed. The Investment Recommendation should address whether the portfolio will be managed or unmanaged and whether the investment advisor will have management discretion. Assuming the fiduciary has carefully chosen the advisor, giving him management discretion and then providing supervision can be an effective way for the fiduciary to transfer potential liability for management of the assets to the advisor (CA Probate Code §16052).

A functional Investment Plan will include the specific circumstances of the individual, an Investment Policy Statement and an Investment Recommendation. With this document, a fiduciary can show compliance with the UPIA, minimize potential personal liability, and help increase the opportunity for investment success.
Reports

Reports generated by the investment advisor should allow a fiduciary to quickly assess the historical risk of the portfolio the account is invested in as well as the long-term performance of the account. In addition to standard Performance Summary information, it is recommended that a scatter diagram and long-term growth chart be included. These charts will help a court or judge more easily determine whether the account is UPIA compliant.

### Portfolio Performance Summary

**Time Period 12/1/2001 to 6/30/2012**

- **Beginning Market Value:** $100,000
- **Additions:** $0.00
- **Withdrawals:** $0.00
- **Ending Market Value:** $177,341.74
- **Period Investment Gain/Loss:** $77,341.74
- **Annualized Return:** 5.65%

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#### Figure 7 - Risk of Loss vs Return

*December 2001 to June 2012*

- **Risk of Loss (Semi-Standard Deviation)**
- **% Annualized Return**

- **6-Month CDs**
- **John Doe Account**
- **S&P 500 Index**
- **Benchmark**
Figure 8 - Long-Term Growth

December 2001 to June 2012

- John Doe Account
- S&P 500 Index
- Benchmark
The Investment Advisor Vetting Process

When interviewing potential investment advisors to manage his fiduciary accounts, the fiduciary might use some of the following questions:

Q: Can you tell me what a fiduciary is? [If not,] Do you have any trustees of irrevocable trusts in your clientele?

Q: Tell me what you know about the Uniform Prudent Investor Act.

If the answer to either of the above questions is unsatisfactory, the fiduciary should probably look elsewhere for an advisor with significant experience in managing assets under UPIA. If the fiduciary must train a new advisor in the ins and outs of managing fiduciary accounts, he will carry much of the responsibility and potential liability for mismanagement, at least in the early period of that advisor’s work for the fiduciary.

Q: How many distinct portfolio disciplines do you manage for your clients? Tell me a bit about them.

Q: Can you provide me with the average return for each of your portfolio disciplines over the past five years?

[The fiduciary may need to clarify that he is looking for the average return computed from the performance of all the advisor’s client accounts invested in each of his disciplines. He is looking for “actual” performance results, not hypothetical look-back performance computed for the portfolio the advisor is currently recommending.]

There are several alternative answers the fiduciary may receive to this question. We will address them in order, from the least desirable to most desirable.

1. “No, we don’t have that information.”
   The fiduciary should probably shy away from such advisors.

2. “We don’t keep averages because each of our clients has a unique portfolio tailored to his specific needs.”

In our experience, this is a smoke screen for failing to track client returns. This is particularly true of fiduciary accounts where most clients (conservatees or income beneficiaries) fall into just a few broad categories – the averages for which can be easily computed:

   a. A client with a life expectancy of three or fewer years and assets barely adequate to his needs OR assets likely to be exhausted in three years or less independent of age.

      No “investments” would be appropriate in our opinion. The client’s monies should be put in liquid, guaranteed instruments. Even if invested, the difference in earnings over such a short period is unlikely to change the date at which the assets will be exhausted by more than a month or two. On the other hand, a severe bear market could result in losses that could shorten the point at which the assets could be exhausted by many months.

   b. A client with assets well in excess of anticipated needs.

      This client’s assets should be fully invested in compliance with the Uniform Prudent Investor Act in a low-risk portfolio.

   c. A client with life expectancy of three to five years (such as a 90-year old) and assets marginally adequate to his needs.

      Enough assets should probably set aside in guaranteed, liquid assets to cover two to three years of anticipated expenses (to cover expenses during a potential major bear
market). The balance of the assets might be invested under UPIA in a very low-risk portfolio.

d. A client with life expectancy of five years or more and assets marginally adequate to his needs.

The assets should be invested in either a low-risk, or very low-risk UPIA-compliant portfolio (the more marginal the assets, the more conservative the portfolio ought to be).

With most fiduciary clients falling into one of these four categories, the advisor should be able to come up with some average performance numbers by investment discipline.

3. “We don’t compute average returns. We track a representative account and would be happy to provide that.”

This can be an acceptable method, but is susceptible to manipulation. One needs to pursue how the advisor selected that particular account as “representative” of all accounts invested in that same discipline. The advisor needs to demonstrate to the fiduciary’s satisfaction that it is truly “representative” and not just the best-performing of his accounts. Proving that may be difficult. If at all in doubt, the fiduciary should probably ask the advisor to allow him (the fiduciary) to select several other accounts at random (by account number, for example) and confirm that the returns are similar. An average is clearly more desirable.

4. “Sure, here’s how you would have done if you had you been in this portfolio over the past five years.”

This may be an evasion of the fiduciary’s request for an “average.” The words, “would have done” are a strong suggestion that the fiduciary is being shown a “hypothetical” one the advisor is currently putting clients into; i.e., one that they have recently researched using historical performance data. Five years ago they had no idea this particular combination of assets would have been the best portfolio for the ensuing five years. “Hypothetical” portfolios are designed with the benefit of 20/20 hindsight and may not perform nearly as well over coming years. The follow-up question the fiduciary must then ask is, “can you show me a client account you invested in this portfolio five years ago?”

Q: Will you be able to provide me with the risk of my client’s portfolio as a whole, or only the risks of the individual assets?

UPIA requires the fiduciary to develop an “overall investment strategy having risk and return objectives.” In their comments to the Model UPIA under the title, “Portfolio Standard,” the commissioners who drafted it explained that, “Subsection (b) emphasizes the consolidated portfolio standard for evaluating investment decisions.” Measuring risk only at the individual asset level would not only be out of compliance with the law, but would expose the portfolio to undue risk of loss since the individual assets could be highly correlated (see the section titled “Measuring a Portfolio’s Risk of Loss”). Until the assets dropped simultaneously, neither the advisor nor fiduciary would be aware of the lack of diversification. Portfolio-level risk cannot be measured without the proper tools.

Q: What method do you use for measuring the risk of loss in your portfolios?

For reasons explained in this white paper, the preferred response would be the semi-standard deviation or an equivalent measure of risk of loss, not mere volatility. (See the section titled, “Measuring a Portfolio’s Risk of Loss.”)

Q: How do you report the “risk” of their portfolios to your fiduciary clients?

Q: Can you tell me what a risk/return scatter chart is?
Q: **Do you use scatter charts (or some equivalent) in your research and in reporting to your clients?**

Q: **Can you tell me what correlation analysis is as it relates to assets in a portfolio?**

See the section of this white paper beginning with the paragraph preceding the title, “Non-Correlation – The Basis of Diversification.”

Q: **Do you perform correlation analyses on all portfolios before recommending them?**

Q: **Do you track the correlations of the assets in your existing fiduciary client accounts on a regular basis?**

Q: **Can you provide me a sample correlation table of one of your current portfolios?**

Q. **Does your management agreement commit you to abiding by the Fiduciary Standard in managing my clients’ assets, or only to the Suitability Standard?**

If the answer to the previous question is “only to the Suitability Standard”, ask the following:

Q. **Are you and your firm willing to sign an agreement to abide by the Fiduciary Standard when working with my clients’ accounts?**

If so, you might consider having him sign an agreement stating so. If he is not an RIA (most financial advisors working for brokerage firms are not), you might want to require his manager to sign it as well. That way you will ensure that his firm will stand behind his commitment.

If the advisor is not able or willing to abide by the Fiduciary Standard, then he is subject to a lower standard than you (who are subject to the Fiduciary Standard), thus increasing your potential liability.

**Final Note:**

**What about location?** With today’s technology, including video conferencing, e-mail, and fax, you can focus on the advisor’s expertise, not his/her geographic location. The advisor’s expertise in fiduciary (prudent) investment management is far and away the most important factor in choosing the advisor.
Trustees of trusts and like fiduciaries have been subject to rules severely restricting the types of investment modalities in which they can invest the assets of the trusts that they administer and manage. Interest bearing instruments—safe income—of limited kinds (no junk bonds) are the limit of risk permitted or thought to be permitted under the traditional rules. Protect the paper value of the principal at all costs is the mandate for trustees. In addition, a trustee’s performance is rated by the performance of each and every investment, singly, and not on the performance of the whole of the portfolio. And trustees have been precluded from obtaining professional investment help.

The result for trusts is modest income production at best without regard for the erosion of a trust’s assets by inflation. Can it be that these rules miscalculate the real risk and actually jeopardize the assets of a trust rather than provide for their protection?

The answer is yes. And a remedy is now at hand in the Uniform Prudent Investor Act (UPIA), promulgated by the Uniform Law Commissioners in 1994. The adoption of this act by the state legislatures will correct the rules, based on false and damaging premises, that now govern the actions of trustees.

By no means does UPIA turn trustees into unrestrained speculators. It provides rules governing investment that, in fact, result in greater protection for the trust’s assets while providing a prospect of better income. UPIA does not encourage irresponsible, speculative behavior, but requires careful assessment of investment goals, careful analysis of risk versus return, and diversification of assets to protect them. It gives the trustee the tools to accomplish these ends. UPIA requires trustees to become devotees of “modern portfolio theory” and to invest as a prudent investor would invest “considering the purposes, terms, distribution requirements, and other circumstances of the trust” using “reasonable care, skill, and caution.”

The trustee has a list of factors which must be considered in making investment decisions, including “general economic conditions,” “possible effect of inflation or deflation,” “the expected total return from income and the appreciation of capital,” and, “other resources of the beneficiaries.” The trustee must take tax consequences of investment decisions into account. There is a positive obligation to diversify assets “unless the trustee reasonably determines that, because of special circumstances, the purposes of the trust are better served without diversifying.” The trustee’s obligations are significant, requiring sophisticated approaches to investment that really take into account the right risk to return ratio for the particular trust.

In addition, a trustee’s performance in UPIA is measured by the performance of all the assets together. A loss with respect to a single asset does not mean that the trustee has violated his or her fiduciary responsibilities. The act takes the truly holistic approach to investment practices.

In return for these obligations, UPIA removes any restrictions upon the types of investment modalities which may be chosen in a trust’s portfolio. It is quite possible, for example, to hold positions in high-interest bonds (junk bonds) or mutual funds investing in such bonds, in a diversified portfolio, if such an investment meets the needs of the particular trust in light of the risk/return analysis specific to that trust.

One of the boons to trustees of smaller trusts is the ability to invest in mutual funds. Mutual funds reduce investment risk by diversifying their portfolios. By using mutual funds, a trustee of a trust that does not have a large enough corpus to effectively diversify its assets can enhance diversification of the trust’s portfolio to limit the trust’s risk of loss.
UPIA also permits the trustee to delegate investment and management functions “that a prudent trustee of comparable skills could properly delegate under the circumstances.” Careful selection of the agent and careful, periodic review of the agent’s actions are part of the trustee’s responsibility when delegating authority. An agent has a responsibility of reasonable care in conducting the delegated business of the trust.

Why is it that the prudent man rule of prior law may, in fact, jeopardize the assets in a trust? Some of the instruments in which trustees have been able to invest have become more volatile in price. Treasury bonds, for example, long thought to be safe investments, now fluctuate considerably in value with the fluctuation of interest rates. The former so-called safe investment may not be so safe anymore. In contrast, common stocks have shown consistently better returns over the years than bonds - yet trustees have been prevented from investing in common stocks. Stocks have been historically safer investments, therefore, in diversified portfolios than bonds have been. Trusts have been deprived of return at some greater risk by the antiquated rules that govern investment of their assets.

By far the most insidious damage to trust assets comes from inflation. If trustees cannot invest in modalities that exceed the rate of inflation in return, the inevitable result is diminution of the corpus of the trusts they manage. The beneficiaries of trusts so restricted lose in all ways, both with respect to income and principal.

The UPIA provides rules that can be modified or waived in the trust agreement. Any person who wishes to put property in trust and who wants to provide different standards of conduct for the trustee is permitted to do so under UPIA.

UPIA provides a reasonable approach to the investment of trust assets that better meets the needs of beneficiaries while preserving trust assets. It should become the law in every state as soon as possible.
1 It stems from the 1830 Massachusetts court case of *Harvard College v. Amory.*


3 *Prudent Investor Act Summary,* sixth paragraph.

4 Section 8, Uniform Law Commission’s original model UPIA, states, “Compliance with the prudent investor rule is determined in light of the facts and circumstances existing at the time of a trustee’s decision or action and *not by hindsight.*”


6 Prefatory Note to the original model “Uniform Principal and Income Act” promulgated to the states by the Conference of Commissioners on Uniform State Laws in 1996. The note states that a purpose of this act “is to provide a means for implementing the transition to an investment regime based on principles embodied in the Uniform Prudent Investor Act, especially the principle of investing for *total return* rather than a certain level of “income” as traditionally perceived in terms of interest, dividends, and rents.” The model Principal and Income act is available online at [http://www.law.upenn.edu/bll/archives/ulc/upaia/upaia97.htm OR AT HTTP://UNIFORMLAWS.ORG](http://www.law.upenn.edu/bll/archives/ulc/upaia/upaia97.htm OR AT HTTP://UNIFORMLAWS.ORG).


8 Mark Rubinstein, “Markowitz’ “Portfolio Selection”: A Fifty-Year Retrospective, The Journal of Finance. Vol. LVII, No. 3. Jun. 2002: 1041+ A concluding paragraph states “Markowitz’s approach is now commonplace among institutional portfolio managers who use it both to structure their portfolios and measure their performance. It has been generalized and refined in innumerable ways, and is even being used to manage the portfolios of ordinary investors. Its prescriptive extension has led to increasingly refined theories of the effects of risk on valuation. Indeed, the ideas in his 1952 paper have become so interwoven into financial economics that they can no longer be disentangled.”


10 The UPIA-Compliant Portfolio is a representation of the PIN Conservative Portfolio, which began November 30, 2001. The charts track the actual results of PIN’s first client in its “Conservative” Portfolio Model from November 30, 2001 through June 30, 2003; from July 1, 2003 to the present, it represents the average performance of all clients in the PIN Conservative Portfolio. PIN’s performance includes dividends and is net of fees, including management fees. Individual results will vary depending on factors such as date invested and cash added to or withdrawn from the account. It should be noted that past performance does not guarantee future results. There are risks inherent with all investments and there is no assurance objectives will be achieved.

11 The Merrill Lynch 3-month T-Bill Index consists of U.S. Treasury Bills maturing in 90 days. The performance of this index does not reflect the deduction of any fees or expenses. It is not possible to invest directly in an index.
BofA Merrill Lynch 1-5 Year U.S. Treasury Index is a sub-index of the BofA Merrill Lynch U.S. Treasury Master Index, which tracks the performance of the direct sovereign debt of the U.S. Government. The index includes securities with a maturity from one up to (but not including) five years. The source for this benchmark is BNY Mellon Asset Servicing – Performance and Risk Analytics. It is not possible to invest directly in an index.

The Standard & Poor’s 500 Index (S&P 500 Index) is an unmanaged broad index of 500 leading U.S. stocks representing the overall market. Calculations assume dividends and capital gains are reinvested and do not include any expenses. It is not possible to invest directly in an index.


Insurance Agent Cannot Be Sued for Breach of Fiduciary Duty; Musick Peeler; June 8, 2011; http://www.musickpeeler.com/publications/publications.cfm?id=1038.

Section 9(a), Uniform Law Commission’s original model UPIA.

The UPIA-Compliant Portfolio illustrated in Table 3 and used throughout the paper thereafter is the Prudent Investors Network (PIN) Conservative Portfolio currently being recommended to the authors’ clients as of the writing of this paper. It is hypothetical in that it was researched in early 2012 for optimal performance in then-current market conditions. PIN had no clients in this specific portfolio of assets in prior years. It is therefore comparable to the equally hypothetical “Poorly Diversified Portfolio” used in Table 2 and thereafter. Figure 1, by comparison, provided a representation of the actual results experienced by PIN’s clients invested in its Conservative Portfolio discipline over the years since its inception in 2001.

The Poorly Diversified Portfolio in Figure 3 is the same portfolio shown in Table 1. As noted elsewhere, the authors teach the “Management of the Investment Portfolio” class in the California State University at Fullerton’s “Trustee Certification Curriculum.” The “final exam” in the class is for the students to submit an actual portfolio, preferably one recommended by an advisor for one of their clients. The authors return a set of charts and tables (like those discussed in this paper) and the student must evaluate the compliance of their own portfolio relative to the prudence mandates of the UPIA. The “Poorly Diversified Portfolio” used in this paper is one of the portfolios submitted by a former fiduciary student.


Javier Estrada, Mean-Semivariance Optimization: A Heuristic Approach, pg 57. “What may be less well known is that, from the very beginning, Markowitz favored another measure of risk: the semivariance of returns. In fact, Markowitz (1959) allocates the entire chapter IX to discuss semivariance, where he argues that “analyses based on S [semivariance] tend to produce better portfolios than those based on V [variance]” (see Markowitz, 1991, page 194). In the revised edition of his book (Markowitz, 1991), he goes further and claims that “semivariance is the more plausible measure of risk” (page 374). Later he claims that because “an investor worries about underperformance rather than overperformance, semideviation is a more appropriate measure of investor’s risk than variance” (Markowitz, Todd, Xu, and Yamane, 1993, page 307)

The authors consider Morningstar’s Moderate Allocation Category of funds an appropriate benchmark against which to compare the performance of fiduciary accounts. A “balanced fund”
typically invests roughly 60% of its assets in equities and 40% in bonds to achieve some diversification and, thereby, limit the risk of loss (though the ratio of equities to bonds may vary significantly between funds). Balanced funds are therefore relatively conservative in their approach to investing.

22 In the comments to Section 2 of the Model Uniform Prudent Investor Act under the heading Portfolio Standard, the commissioners state, “Subsection (b) emphasizes the consolidated portfolio standard for evaluating investment decisions.” They further state, under the heading Duty to Monitor, “Subsections (a) through (d) apply both to investing and managing trust assets. “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.” If risk objectives are required under UPIA, and if risk must be monitored, then one must have an effective measure of risk to comply. And, of course, the risk of the portfolio as a whole, not just the individual assets, must be measurable.

23 It is probably not necessary that the fiduciary require the advisor to provide correlation tables in his reports to the fiduciary since the scatter charts he would require summarize the advisor’s success in managing the risk of the portfolio. The ability to read correlation tables and scatter charts also gives a fiduciary the knowledge and tools to recognize advisors who tell a great story, but who actually have limited understanding of how to construct diversified portfolios. Exhibit 4 offers a number of questions we recommend a fiduciary might use in interviewing potential investment advisors to identify those with the appropriate expertise and credentials to manage fiduciary accounts. The court or attorney may wish to provide that list to fiduciaries. To use the questions effectively, the fiduciary must be able to answer the questions himself. Providing him with this white paper would supply him with much of the needed background knowledge, including how to read correlation tables and scatter charts. If a fiduciary desired a more in-depth understanding of the concepts presented in this white paper, one source would be the online class taught by the authors: Management of the Investment Portfolio; Trustee Certification Curriculum; California State University at Fullerton; Extended Education Department; ueeinfo@fullerton.edu; 657-278-3313.

24 Insurance Agent Cannot Be Sued for Breach of Fiduciary Duty; Musick Peeler; June 8, 2011; http://www.musickpeeler.com/publications/publications.cfm?id=1038.

25 Section 9, Uniform Law Commission’s original model UPIA.

26 “6-Month CDs” represents the Citigroup 6-Month Certificate of Deposit index. This is an unmanaged index of certificates of deposits maturing in six months. Citi reports returns net of expenses. The impact of taxes is not included. It is not possible to invest directly in an index.

27 The John Doe Portfolio is a representation of the PIN Conservative Portfolio, which began November 30, 2001. The charts track the actual results of PIN’s first client in its “Conservative” Portfolio Model from November 30, 2001 through June 30, 2003; from July 1, 2003 to the present, it represents the average performance of all clients in the PIN Conservative Portfolio. PIN’s performance includes dividends and is net of fees, including management fees. Individual results will vary depending on factors such as date invested and cash added to or withdrawn from the account. It should be noted that past performance does not guarantee future results. There are risks inherent with all investments and there is no assurance objectives will be achieved.