Taming the efficient frontier: When should a trust fiduciary be required to use derivatives?

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ABSTRACT
Trust officers are obliged to be conservative. The assets they manage are not their own. However, as this paper examines, a conservative approach to investing can sometimes demand that fiduciaries consider alternatives to traditional investing — even derivatives. In this paper, money managers are given a test to determine if they are bound to consider the use of derivatives.

Keywords: trust, fiduciary, derivatives, efficient frontier, portfolio theory, Uniform Prudent Investor Act

INTRODUCTION
The purpose of this paper is twofold: to establish that under certain circumstances there exists a positive duty for fiduciaries to utilise derivatives, and to create a test to help legal practitioners and trust fiduciaries establish when the use of derivatives is required.

DERIVATIVES AS A SUITABLE ASSET CLASS
Modern financial engineering has developed innovative products and those products have created new conflicts that American jurisprudence has not yet begun to resolve. Many difficult issues centre on how to deal with financial derivatives. One of the challenging questions raised is whether there are potential circumstances where a fiduciary might be obligated to make use of derivative products in order to fulfill his duties under the law.

The American concept of fiduciary duty dates back to the seminal case of Harvard College v. Amory. In that landmark decision, the court first espoused the American version of the prudent man rule: ‘Those with responsibility to invest money for others should act with prudence, discretion, intelligence, and regard for the safety of capital as well as income.’ For a period, in the late 19th century, the courts interpreted this responsibility with such stringency that fiduciaries of American discretionary trusts were limited to investing only in government bonds and mortgages. This conservative approach to investing succeeded in preserving capital,
but failed to produce acceptable returns in most economic environments. Over the next 150 years, legislatures and courts began to gradually expand the interpretation of what qualified as a prudent investment under the rule. The Uniform Prudent Investor Act (UPIA), adopted in 1990 by the American Law Institute’s Third Restatement of the Law of Trusts, finally did away with the outmoded and often conflicting interpretations of the prudent man rule. By codifying the ideas espoused by ‘modern portfolio theory’ and the ‘total return’ approach to investing, the UPIA redefined the concept of fiduciary accountability. In less than two decades, the act has been adopted almost in its entirety by all but a handful of states. The UPIA abandons the restrictive concept of listing suitable investments and rather directs a trustee that ‘assets must be evaluated not in isolation but in the context of the trust portfolio as a whole and as a part of an overall investment strategy having risk and return objectives reasonably suited to the trust’. Within the UPIA there are no lists, no restrictions and no mention of derivatives or other recently developed financial asset classes. The drafters of the UPIA were keenly aware that any list of specific products could not keep up with the constant innovation that takes place in the area of investments. In recent years, the precepts articulated in the UPIA have been adopted by most of the relevant regulatory bodies as well. The Federal Deposit Insurance Corporation in their guidelines for examinations of trust funds states: ‘No category or type of investment is deemed inherently imprudent. Instead, suitability to the trust account’s purposes and beneficiaries’ needs is considered the determinant. As a result, junior lien loans, investments in limited partnerships, derivatives, futures, and similar investment vehicles, are not \textit{per se considered imprudent} (emphasis added). While not a rousing endorsement of their use, the agency’s bank examiners are clearly instructed that derivatives are not imprudent or at least, not ‘\textit{per se considered imprudent}’. Trustees are statutorily authorised by the state regulations based on the UPIA to use any class of assets deemed to be prudent investments. The FDIC guidelines specifically mention use of derivatives as a potentially ‘not imprudent’ investment for trusts.

Their use is seemingly sanctioned, but what are they? Derivatives are broadly defined as financial instruments whose value is derived from the value of another, underlying asset. The main types of derivatives are forwards, futures, options, and swaps. These products are often combined to create countless new variations of derivative instruments, yet the crux of any derivative product is the transference of risk. Derivatives are often used to mitigate the risk of potential economic loss arising from changes in the value of the underlying asset. This is commonly known as hedging. However, derivatives can also be used by investors to speculate by leveraging their profit potential if the value of the underlying asset moves in the direction they expect. In short, derivatives can be used to hedge and reduce risk or amplify risk for speculative purposes. Derivatives can be based on almost any asset class imaginable (eg, commodities, equities, foreign exchange, real estate, loans, bonds, indexes or even other items such as weather conditions).

With nothing preventing their use, there appears to be no reason that derivatives are not in common use in trust portfolios. While there is no data collected regarding derivative use in trusts, it is widely thought that most trustees do not employ their use with any regularity.
USING MODERN PORTFOLIO THEORY IN FIDUCIARY PORTFOLIOS

The drafters of the UPIA recognised that drastic changes had occurred in the investment community when they wrote the UPIA in the early 1990s. In the March 1952 edition of The Journal of Finance, a young Rand Corporation employee published a paper called simply ‘Portfolio Selection’. With it, Harry Markowitz changed the world of investing forever and in 1990 won the Nobel Prize in Economics for his work. That paper is the basis for what is commonly called ‘modern portfolio theory’ and has become the standard conceptual framework for the measurement of risk and return in the context of portfolio management. The theory, simply stated, maintains that the risk of a particular stock should not be looked at on a stand-alone basis, but rather in relation to how that particular stock’s price varies in relation to the variation in price of the entire portfolio. The theory goes on to state that given an investor’s preferred level of risk, a particular portfolio can be constructed that maximises expected return.

The basic tenet of modern portfolio theory is now embedded in the UPIA with the words ‘assets must be evaluated not in isolation’. The concept that the combinations of assets can be as important as the individual assets themselves was a radical new idea in 1952, but is now a commonly accepted truth in the investment world.

Trustees are now held to account not based on the performance of the individual stocks in a portfolio, but of the portfolio as a whole. Trustees that lack a rudimentary understanding of modern portfolio theory may fail to recognise the subtle difference. Those that undertake fiduciary management of portfolios are now charged with the responsibility of managing portfolios and not simply pools of individual assets. The only way that that obligation can be suitably discharged is with a methodology that considers all the benefits and disadvantages of combining securities or other investments in an optimal collection of underlying assets. The marketplace has overwhelmingly decided that the best methodology available for this purpose is Markowitz’s Modern Portfolio Theory (or some derivation of the theory).

If fiduciaries are to be charged with creating the best possible portfolio, they must be prepared to consider all available asset classes. This includes derivatives.

FINDING THE ‘EFFICIENT FRONTIER’ IS THE DUTY OF FIDUCIARIES

The corollary to the theory that stocks in a portfolio should not be evaluated on an individual basis is the idea that portfolios can be ‘efficient’, such that no additional diversification will improve the expected return without increasing risk. While the mathematics are too involved for the purposes of this paper, the basic principle is relatively straightforward. Using mathematical graphing techniques, Markowitz demonstrated that by mixing assets that had little or negative correlation, a portfolio could move along a so-called ‘efficient frontier’.

The efficient frontier graph depicts a portfolio’s risk profile against the universe of possible returns.

The curve, or frontier, illustrates the prospect for risk versus optimum return. Beginning with a low-risk/low-return portfolio in the lower left, the edge of the frontier gradually moves along a curve as higher risk/higher return assets are added to the portfolio. Beneath the curve lies the universe of ‘non-frontier’ possible risk/return scenarios. However, only those along the edge or frontier are ‘efficient’, all those lying below the curve are less than
optimal and those combinations should be rejected by portfolio managers. The goal is to achieve a mix of securities along this frontier that produce the best possible return for an acceptable amount of risk.

The magic that lies behind Markowitz’s numbers is actually the age-old concept of diversification. Diversification in this sense is more than simply not putting all the investment eggs in one portfolio basket — rather it is carefully choosing assets that respond differently to different market conditions — or are ‘negatively correlated’ in mathematic terms. This negative correlation means that the offsetting movements of the assets within the portfolio will actually help stabilise the portfolio and, over the longer term, help produce more consistent profits and maximise returns in relation to the amount of risk taken.\(^2\)

In Markowitz’s ‘efficient portfolio’ no added diversification can lower the portfolio’s risk for a given return expectation (alternately, there is no additional return to be gained without increasing risk to the portfolio). This concept of using diversification to reduce risk is not a new idea, but modern portfolio theory extends that idea, asserting that there is one set of portfolios that optimise returns for the level of risk.\(^2\)

A trustee has an obligation to find this intangible frontier. That is, to find the most efficient combination of assets that produce the best returns given the amount of risk. In addition, a trustee needs to determine the appropriate amount of risk for each portfolio in his care. The risk appetite for each trust account is dependent on a number of underlying factors outlined in §2 of the UPIA as ‘circumstances that a trustee shall consider in investing’. Once a trustee has determined the suitable amount of risk, there can be only one optimal portfolio, according to the efficient frontier model.

**PRACTICAL APPLICATION OF PORTFOLIO THEORY AND THE ROLE OF DERIVATIVES**

While it is true that the efficient frontier model implies that there can only be one optimal portfolio, finding the perfect port-
folio given the virtually unlimited choices of asset classes and combinations is hardly a realistic objective, rather a trustee must strive to achieve the best portfolio possible, and that presumably would require some knowledge of Modern Portfolio Theory.

Trustees, particularly professional money managers, are held to a high standard of care. Recent changes in trust law have allowed them access to virtually any class of assets, including derivatives. In fact, modern trustees are armed with two valuable tools: the mandate to utilise any available asset class, and the knowledge that Modern Portfolio Theory is widely accepted as the most practical way to evaluate risk and create diversified portfolios that maximize returns. But these tools when combined with the ‘duty to use those special skills or expertise’ require that fiduciaries consider derivatives for use in their portfolios.

The portfolio-stabilising effect of diversification achieved by Modern Portfolio Theory is accomplished through combining non-correlating assets. The price of derivatives often moves (and is often designed to move) in reverse manner to the price of the underlying asset. They are, in fact, perfectly non-correlated. This can make derivatives ideal hedges (and in some cases, the only available hedge) to the underlying asset.

If we accept that the efficient frontier creates a positive duty for fiduciaries to utilise derivatives, the question then becomes: ‘When does this duty arise?’. How is a lawyer or trust officer to know when the usage of a derivative becomes mandatory? While there may be other circumstances when derivatives represent the best alternative for a fiduciary looking to reach the efficient frontier, we will focus on the use of derivatives as a hedge of illiquid assets — the role for which they were originally created.

Markowitz’s work in development of the efficient frontier led to the development of the Capital Asset Pricing Model by Merton Miller and William Sharpe, Markowitz’s Nobel co-recipients. Their model made application of the efficient frontier concept a practical reality. However, in its purest form, the model entails certain unrealistic assumptions, including absolute liquidity.

IDENTIFYING APPROPRIATE ILLIQUID PORTFOLIOS

The average American household generally has a large percentage of its wealth committed to illiquid assets. These include such investments as proprietorships, partnerships, real estate and annuities. In recent years even corporate investors have drastically increased their holdings of illiquid assets as demonstrated by the astounding growth in the last two decades of private equity, emerging markets, venture capital and hedge funds. Does this imply that the manager of every trust must seek out and use a derivative to hedge the residence of every beneficiary simply because real estate is considered illiquid? No. There must be rational criteria for justifying the use of derivatives as a means of limiting the risks associated with the underlying asset.

The following questions form a basis for the needed analysis and a means of substantiating that a fiduciary has undertaken the required ‘prudent man’ examination:

1. Materiality: Do the illiquid assets in question represent a material portion of the portfolio?

   If the illiquid assets do not represent a material portion of the portfolio the fiduciary is likely justified in choosing not to divert time and money to seek the marginal benefit offered by employ-
ing a derivative hedge. Since some
derivative hedges, such as stock options,
are inexpensive and easy to employ,
 fiduciaries must recognise that the ini-
tial hurdle is set relatively low. As a
result, any meaningful portion of a size-
able estate that contains illiquid assets
should lead its trustee to consider the
next question.

2. Availability: Is there a derivative hedge
available?
In recent years derivative markets have
developed far beyond simple stock
options and interest rate swaps.28 Trust
fiduciaries need to keep abreast of
developments in this market particularly
if they are responsible for assets that are
atypical. The trustee overseeing an
estate composed of business interests,
real estate, royalties or licensee residuals
should know with certainty whether
there is a hedge available for the under-
lying asset.

3. Relationship: Does the derivative
exactly offset the risk associated with
the underlying asset or is it a proxy
hedge?29
Derivatives can be ‘exchange traded’ or
‘over the counter’. Over the counter
(OTC) derivatives are any derivative
negotiated and traded directly between
two parties. It is a custom hedge. These
custom transactions are what corpor-
ations use to hedge their largest expo-
sures.30 While many illiquid assets will
have a precise hedge available, others
will not. The responsible fiduciary will
need to determine how closely the
hedge matches the underlying asset in
three key elements: terms, amount and
tenor. Terms refer to the actual expo-
sure created by the underlying asset.
While matching the amount and tenor
are relatively straightforward, matching
the nature or terms of the exposure can
be problematic. Commodity hedges
must be matched exactly in terms of
composition; interest rate swaps must
match the index of the underlying
exposure precisely. Anything less than a
perfect match means that a trustee is
accepting a substitute, or proxy, hedge.
The decision to employ a proxy hedge
may be reasonable in certain circum-
stances; however, it is unlikely that a
positive duty to utilise derivatives exists
for anything but an exact offset to the
illiquid underlying asset.

4. Liquidity: Is there a reasonable second-
ary market for the derivative itself?
While some derivatives are easily trans-
ferred or unwound, some are not.
Before a fiduciary creates a second il-
liquid position in an attempt to offset
the existing underlying position, they
should consider whether the need for
the hedge might change in the future.

5. Reasonability: Applying the ‘prudent
man’ test, is it reasonable to execute a
hedge against some or all of a particular
asset?
 Armed with the above information, the
practitioner or money manager can
then make the informed decision. The
test is a familiar one albeit with a few
new criteria. Given the materiality of
the illiquid asset, the availability of the
hedge, the ability to offset the risk and
the ability to adjust the hedge as may
prove necessary, would a prudent man,
investing his own funds employ the use
of derivatives?

A COMMON EXAMPLE OF THE
PRUDENT APPLICATION OF
DERIVATIVES
One of the more common examples of
exposure — currency risk — can be used
to understand how application of these
standards might work. It begins with a
trust and a beneficiary. In this case a uni-
versity is the beneficiary of a gift. A trust is
established and is to receive an upfront gift
and a substantial sum annually from a wealthy graduate living overseas for the next 20 years. However, the university is concerned that it is difficult to measure the value of the gift because both the upfront gift and annual income are denominated in foreign currency. Since all of the university’s expenses are dollar-based the president of the university asks the trustee if there is something that can be done.

The gift is non-transferable and therefore illiquid. The entire gift is denominated in the foreign currency and therefore material for purposes of the specific trust. There is a derivative hedge available. A long-term currency swap would allow the university to lock in a dollar value for the income stream even if this is a long-term exposure. The swap could be structured to match exactly with the cash flows of the gift, so the correlation or relationship is perfectly matched. Currency swaps can be unwound, but it is relatively liquid in this sense. The final question revolves around the reasonableness of the transaction and that will be dependent upon the overall costs associated with cross-currency swap and the risk associated with leaving the exposure unhedged.

Currencies, even major currencies, can fluctuate wildly at times. Should the foreign currency that composes the gift collapse, the trustee would be asked to account for his lack of action in protecting the value of the trust. In this example, and similar cases, it is reasonable to assume that courts could find a positive duty to employ derivatives for the purposes of protecting the underlying illiquid assets.

CONCLUSION

Anytime a trustee is faced with fiduciary responsibility over a portfolio that consists of an asset that cannot be sold, derivatives may be the logical, or in some cases only, alternative. A trustee who fails to consider this available asset class has failed in his or her duty.

When should a trust fiduciary be required to use derivatives? When the overall investment strategy, with risk and return objectives reasonably suited to the trust, demands it.

References

(1) 10 26 Mass. (9 Pick.) 446 (1830).
(2) In the case of King v. Talbot, 40 N.Y. 76 (1869) the New York Court of Appeals held it ‘imprudent’ to invest trust funds in common stocks. The court held that fiduciaries were limited to investments in government-backed bonds and mortgages unless given specific instructions otherwise under the terms of the trust.
(4) Restatement (Third) of Trusts (2003).
(5) Prudent man rule is defined as ‘A legal securities standard that asks the question “What would a prudent man do?” in order to determine whether an action was reasonable or whether it violated fiduciary duties’. The legal standard originated in 1830 when Judge Samuel Putnum wrote: ‘Those with responsibility to invest money for others should act with prudence, discretion, intelligence and regard for the safety of capital as well as income.’ Webster’s New World Finance and Investment Dictionary (2003).
(7) Total return measures performance of an investment and takes into account interest, capital gains, dividends and distributions realised over a given period of time.
(8) Forty-six states have adopted The Uniform Prudent Investor Act, in whole or in part.

(9) Restatement (Third) of Trusts §2(b) (2003).


In some states legislation created so-called “legal lists” of approved trust investments. The universe of investment products changes incessantly. Investments that were at one time thought too risky, such as equities, or more recently, futures, are now used in fiduciary portfolios.’

(11) FDIC Trust Examination Manual §3 Asset Management — Part I (C).

(12) Restatement (Third) of Trusts.

(13) FDIC, supra.


(16) UPIA, supra, Prefatory Note.


(20) Restatement (Third) of Trusts 2(b).

(21) Macey, J. R. (1991) ‘Diversification reduces risk . . . [because] stock price movements are not uniform. They are imperfectly correlated. This means that if one holds a well diversified portfolio, the gains in one investment will cancel out the losses in another’, An Introduction to Modern Financial Theory, 20, American College of Trust and Estate Counsel Foundation.


(23) Restatement (Third) of Trusts §2(f).

(24) Ibid.


(28) One example of the range of derivatives that exists is the late 2009 launch of Domestic Box Office Futures by a company named Cantor Exchange whereby an investor can invest in the likely box office revenues of major motion pictures. <http://www.cantorexchange.com/>.

(29) A proxy hedge is a transaction undertaken to offset the risk of an existing position despite its non-perfect inverse correlation. Such a hedge is generally used when there is no precise offset to the underlying asset or when the proxy chosen is cheaper or more convenient.

(30) Although beyond the scope of this paper, the exact match produced by OTC derivatives allows corporations to avoid the financial statement gyrations caused by marking their underlying assets to market under the Financial Accounting Standard Board’s Rule 133.

(31) The costs and credit risk associated with the swap could be isolated if the only asset in the trust is the foreign currency cash flow. The credit swap counterparty would be dealing with the trust based on the credit of the donor.