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Editors' Synopsis: In this Article, the authors analyze the quantitative implications of distribution elections for current and remainder beneficiaries of total return trusts. These implications, the authors posit, are significant for the grantor, the trustee, and the drafter of the trust instrument. The authors' developed model aims to avoid methodological flaws that influence the drafting and execution of many trust instruments, such as data mining and distribution formulae based on average investment results. The authors advise that the trust document provide distribution guidelines rather than irrevocable distribution formulae. Finally, this Article discusses the benefits of a simulation model over an

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analytical model within the context of the unique purposes, circumstances, terms, and distribution requirements of individual trusts.

I. INTRODUCTION

This article discusses the topics of modeling and quantifying the financial implications of distribution elections for both current and

remainder beneficiaries of total return trusts. Part II focuses on observations that are practice oriented, in that they have particular relevance for

1. the grantor who must set the terms of the trust;

2. the trustee who must evidence prudent trust administration; and

3. the document drafter who provides guidance to the grantor before codifying the grantor's wishes in the language of the trust instrument's distribution formula.

Part III is a technical discussion of the rationale and intellectual underpinnings of our approach. Although this article is technical in nature, it is written under the assumption that the reader does not have an extensive background in mathematics, investments, or financial economics. The technical discussion suggests that:

1. Electing a distribution formula based primarily on successful historical results is not a good decision. Implementing such a formula, based on the vague and naive hope that the past will repeat itself, is not sufficient to demonstrate the level of care, skill, and caution required of the prudent fiduciary. When suggested distribution formulae are back tested against historical results, the methodological flaw is know as "data mining."

2. Attempting to develop "all-weather" or "autopilot" distribution formulae that operate independently of trustee discretion, irrespective of future economic environments, may be highly detrimental to both the current and remainder beneficiaries.

3. Some mathematical tests of the efficacy of distribution formulae are inappropriate given the uncertainty of future investment returns. Many suggested distribution formulae are based merely on empirical data and are devoid of mathematical necessity, or they are based on algebraic calculations designed to demonstrate that the formula's mathematics work "on average."

Additionally, Part III highlights the importance of a well-formulated

surveillance and monitoring policy to determine the likelihood that rigid adherence to a distribution formula may compromise the intent of the grantor with respect to either, or both, classes of trust beneficiaries. Rather than irrevocable distribution formulae, we suggest that the trust document provide distribution guidelines for the trustee. Finally, in Part IV we discuss a simulation model designed to provide the trustee with an administratively easy way to make decisions regarding the risks and rewards of distribution elections given the unique purposes, terms, distribution requirements, and other circumstances of each individual trust.

II. MANAGEMENT OF TRUST ASSETS FOR THE INTEREST OF CURRENT AND REMAINDER BENEFICIARIES

A. The Base Case

For discussion purposes, we define a base case. A grantor contemplates the establishment of an inter vivos or testamentary total return trust. The initial value of the trust is $1 million, with 60% allocated to the Standard and Poors' 500 ("S&P 500") stock index and 40% allocated to the general United States government and corporate bond market. The grantor directs the trustee to make annual distributions to the current beneficiary and, upon the death of the current beneficiary, to provide the remainderman with the inflation-adjusted value of the original trust corpus. Thus, the trustee is charged with preserving the purchasing power of the trust portfolio while distributing an annual income stream. Annual distributions are made by formula with the base case utilizing a unitrust formula of 4%.[1] The base case does not simulate mortality but rather fixes the life expectancy of the current beneficiary at 30 years. No additional distribution powers, such as invasion by ascertainable standard or trustee discretion, are considered. Taxes, investment expenses, and other portfolio

[1] Such a formula is currently under consideration in New York as a part of a proposed change to its Principal and Income Act. *See* N.Y. ESTATES, POWERS, AND TRUSTS LAW § 11-2.1 (McKinney 1967 & Supp. 2000); *see also* Linda B. Hirschson, Unitrust as Default Legislation: The New York Approach, Am. C. Tr. & Est. Couns. Fall Seminar 1 (1999) (discussing this approach and proposed changes).

frictions are ignored.[2]

B. Questions to Consider

Given the base case, we attempt to provide answers to several important questions through a 1,000 trial portfolio simulation analysis.[3] Specifically, questions regarding the remainderman's interest include:

1. What is the expected value of the remainderman's interest in constant dollars?

2. What is the risk that draining 4% of yearly value from the portfolio will thwart the grantor's objective to provide the remainderman with $1 million of purchasing power by the end of year 30? If the portfolio fails to provide to the remainderman the targeted final distribution amount, is the underperformance likely to be trivial or substantial?

3. Over 1,000 trials, what are the best and worst outcomes for the remainderman? What is the dispersion of outcomes from the average result, or standard deviation from expected value?

Important questions regarding the current beneficiary's interest include:

1. Over the 30-year period, what is the expected value of the aggregate amount of income provided to the current beneficiary? What are the best and worst outcomes for the current beneficiary? What is the standard deviation from the expected total income?

2. After specific periods, *e.g.*, 5-year intervals, what is the range of income (lowest, average, and highest) that the current beneficiary may expect to receive from the 4% unitrust formula?

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[2] *See* Robert B. Wolf, *Total Return Trusts—Can Your Clients Afford Anything Less?*, 33 REAL PROP. PROB. & TR. J. 131 (1998) [hereinafter Wolf I] (discussing the impact of fees, taxes, transaction costs, and other trust expenses).

[3] *See infra* Part III for technical information on simulation analysis.

Important issues for the grantor and trustee regarding the probable economic consequences of planning flexibilities include:

1. Does the grantor consider the probable results of the 4% unitrust option to be fair to both beneficiaries?

2. If the grantor wishes to favor the current beneficiary, what is the likelihood that raising the distribution formula to 5% or 6% will produce a greater aggregate amount for the current beneficiary?

3. At what level of distribution will the portfolio likely be unable to sustain the purchasing power of the remainderman's interest at the targeted level of $1 million?

4. What happens to each beneficiary's expectations if the distribution formula is lowered or raised to different percentage amounts?

5. Can a portfolio that makes a unitrust annual percentage of value distribution ever run out of money?

6. Will the year-to-year dollar amount of distributions prove to be too volatile to suit the budgetary needs of the current beneficiary?

7. How do distribution-smoothing techniques, such as averaging over 3- or 5-year portfolio values, affect the interests of each class of beneficiary?

8. If budgetary certainty is an important objective, what are the probable consequences of changing the distribution formula to a 4% initial value indexed annuity?

9. What are the probable consequences of varying the indexed annuity's payout percentage?

10. If the indexed annuity provides more budgetary stability for the current beneficiary, what, if any, is the opportunity cost of the stable income flow?

11. Can conservative payout rates for indexed annuities drain portfolio

value to zero prior to the end of the planning period?

Although commentary implies that a total return trust design coupled with a unitrust or indexed annuity distribution formula mitigates the potential for conflict between current and remainder beneficiaries, such a result may not actually occur.[4] Grantor selection and trustee implementation of irrevocable distribution formulae may create a level of antagonism between beneficiary classes equal to that found in the more traditional net income trusts. The antagonism arises not so much from the operation of the formula, but from its initial selection and the ensuing consequences. A review of the observations listed below makes it clear that formula-driven distribution elections should not be made without careful examination of their impact on both current and remainder beneficiary claims to portfolio values.

Finally, points to consider regarding the likely consequence of investment allocation decisions are:

1. What is the difference in probable investment results if we move from a two asset class portfolio (S&P 500 and United States government and corporate bonds) to a more broadly diversified portfolio consisting of United States and international large and small stocks, securitized real estate, United States and international bonds, and other investments?

2. What, if any, peril is faced by the trustee who elects against broad diversification of the investment portfolio?

3. What is the difference in probable investment results if we change the macro allocation between stocks and bonds from 60% equity and 40% fixed income to 80% equity and 20% fixed income?

Compiling this extensive list of questions is helpful because it shows

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[4] *See* William L. Hoisington, *Modern Trust Design: New Paradigms for the 21st Century*, 31 U. MIAMI INST. ON EST. PLAN. 6-10, 6-11 (1997) [hereinafter Hoisington 1]; William L. Hoisington, *Modern Trust Distribution Design and Implementing Investment Strategies*, U.C.L.A. EST. PLAN. INST. 16 (1998) [hereinafter Hoisington 2]; Robert B. Wolf, *Total Return Trusts—Meeting Human Needs and Investment Goals Through Modern Trust Design*, 34 U. MIAMI INST. ON EST. PLAN. I-C-35 (2000) [hereinafter Wolf 2].

how trust design, implementation, and administration are multidimensional tasks. In this case, we wish to avail ourselves of an effective tool for determining the interaction of distribution decision variables along at least three dimensions: current beneficiary expectations, remainderman expectations, and the economic consequences to each party of asset allocation policy. Either the grantor, as part of the terms of the trust, or the trustee, through exercise of fiduciary asset management discretion, may set asset allocation policy.

C. Results of Trust Portfolio Simulation Analysis

The following tables present results of a 1,000 trial simulation of the base case 60/40 portfolio with an initial value of $1 million. This two asset class portfolio allocates 60% to the S&P 500 stock index and 40% to the general index of United States bonds.[5] The unitrust distribution formula is 4% of annual portfolio value. The assumed planning horizon is 30 years.

Remainderman's Interest				
30-Year Expected Value	Standard Deviation From Expected Value	Worst Case: 5th Percentile	Best Case: 95th Percentile	Failure Rate
$3,782,785	$4,636,270	$457,106	$11,205,796	c.18%

A simulation study of this portfolio indicates that, at the end of the 30-year period, the remainderman can expect to receive a portfolio with $3,782,785 of purchasing power. This amount is well above the grantor's target of an inflation-adjusted distribution of $1,000,000. However, the remainderman's expectation is not guaranteed. The standard deviation from expected results ($4,636,270) suggests that the range of outcomes (positive and negative) that differ from the expected outcome is extensive. The lower bound (5th percentile) outcome in which the remainderman receives a liquidating distribution with the purchasing power of only

[5] *See* IBBOTSON ASSOCIATES, STOCKS, BONDS, BILLS AND INFLATION, YEARBOOK (1999) (providing return series data).

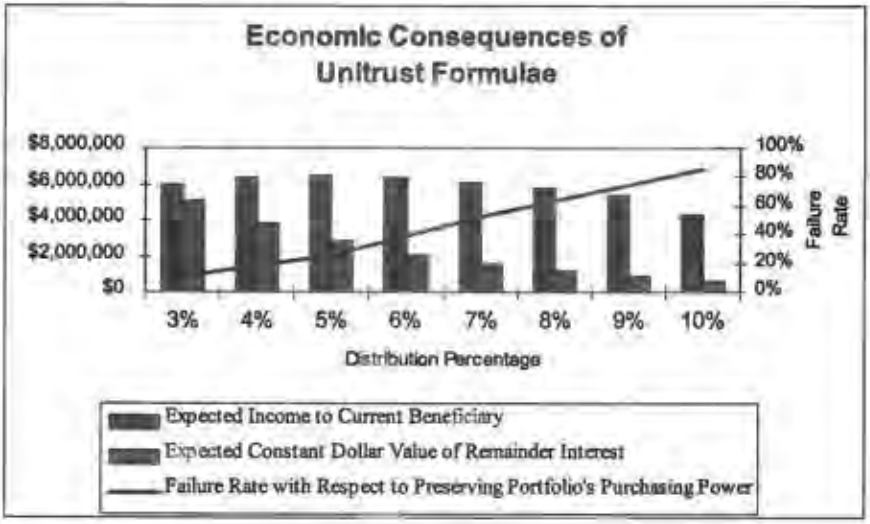
$457,106 confirms this intuition. The lower bound represents a worst case result, with "worst case" defined as that which happens less than 5% of the time. Therefore, according to the model, the remainder beneficiary may receive a final constant dollar distribution of $457,106 or lower. Conversely, the upper bound (95th percentile) outcome represents a best case result. In the best case, the table illustrates that the remainderman may receive a final constant dollar distribution of $11,205,796 or better. The 95th percentile bound indicates that the chances of a result more favorable than $11,205,796 are less than 5%. Although the bounds at either extreme produce a 90% confidence interval, the wide range of likely outcomes should caution those who believe that a 4% unitrust formula is a safe one. Indeed, further examination reveals that the formula fails to fulfill the grantor's objectives with respect to the remainderman in approximately 18% of the trials. On average, the formula works. However, the remainder beneficiary cannot rely on the average result and must accept the actual result. Unfortunately, actual results are unsatisfactory in a significant number of trials.

Current Beneficiary's Interest			
Expected Total Income Over 30 Years	Standard Deviation From Aggregate Expected Income	Minimum (5th percentile) 30-Year Income	Maximum (95th percentile) 30-Year Income
$6,366,979	$4,544,815	$2,170,650	$14,169,553

Under the base case formula, the current beneficiary expects to receive $6,366,979 in total distributions over the 30-year period. The distributions are not discounted for inflation. However, the standard deviation of $4,544,815 suggests that expected income is not guaranteed. The minimum and maximum aggregate income streams (within the 90% confidence interval) corroborate this intuition. The range of total income to the current beneficiary extends from a low of $2,170,650 to a high of $14,169,553.

Given the degree of uncertainty concerning the current beneficiary's income, the grantor may wish to revise the distribution percentage upward from 4%. However, the grantor must take great care to understand the implications of this decision. For example, simulation results indicate that

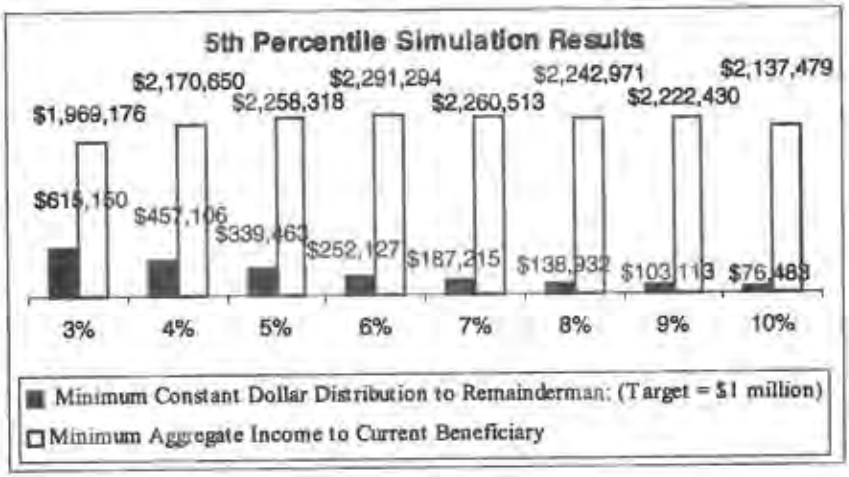
the grantor's decision to move from a conservative distribution percentage to an aggressive distribution percentage may be counterproductive for both the current and remainderman beneficiaries. At a 6% annual value unitrust distribution formula, the minimum aggregate income increases to $2,291,294, but the expected total income actually decreases to $6,328,898. Additionally, the expected value of the remainderman's purchasing power decreases by 45%, and the minimum result of final liquidating distribution is only $252,127 of purchasing power. Likewise, the failure rate with respect to the remainderman's interest increases from approximately 18% to approximately 39%. By altering the distribution formula to improve the 5th percentile worst case for the income beneficiary by $128,670 of aggregate income over a 30-year period, the grantor risks potentially catastrophic results with respect to other objectives. The following graph depicts the interrelationship between the decision variables.



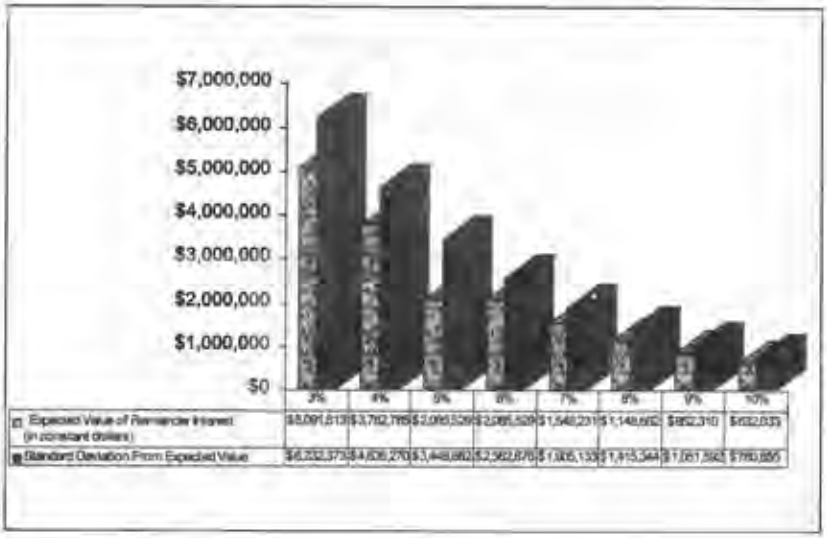
D. Evaluation of Risk

The following graphics illustrate relevant concepts of risk assessment. The first graphic depicts the worst case result of each 1,000 trial simulation for distribution formulae in the 3% to 10% yearly value range. The first

column of each unitrust distribution percentage illustrates minimum value (5th percentile) of the remainderman's purchasing power. The second column of each unitrust distribution percentage illustrates the minimum (5th percentile) total (not discounted for inflation) distributed to the current beneficiary over the 30-year period.



The second graphic depicts the expected purchasing power of the final liquidating distribution to the remainderman across the range of unitrust distribution percentages, as well as the standard deviation from the expected value. The left-hand columns illustrate the expected value amounts, and the right-hand columns illustrate the standard deviations. The standard deviation from expected value indicates that the possible magnitude of portfolio underperformance is economically significant.



E. The Asset Allocation Decision

Another relevant question regarding investment allocation involves the probable consequences of altering the portfolio's macro allocation from 60% stocks and 40% fixed income (the classic institutional allocation) to 80% stocks and 20% fixed income. Intuitively, we expect such a change to reduce the failure rate for the preservation of the portfolio's purchasing power. Making the indicated changes to the macro allocation and performing an additional 1,000 trial simulation analysis produces the following results for 4% and 5% of value distributions.[6]

[6] Unless otherwise indicated, minimum and maximum values in this and following charts represent 5th and 95th percentile results, respectively. Setting each simulation's random number generator to the same seed value ensured the comparability of results.

Remainderman's Interest: 80/20 versus 60/40 Allocation					
Distribution Formula	30-Year Expected Value	Standard Deviation From Expected Value	Minimum 30-Year Portfolio Value	Maximum 30-Year Portfolio Value	Failure Rate
80/20 Unitrust 4% of Value Per Year	$4,603,049	$6,029,717	$439,455	$14,061,508	c. 14%
60/40 Unitrust 4% of Value Per Year	$3,782,785	$4,636,270	$457,106	$11,205,796	c.18%
80/20 Unitrust 5% of Value Per Year	$3,288,200	$4,255,121	$335,539	$10,758,923	c. 24%
60/40 Unitrust 5% of Value Per Year	$2,808,599	$3,446.862	$339,463	$8,301,355	c. 26%

As expected, the remainderman generally benefits from the larger commitment to equity within the investment portfolio. Expected values increase significantly, while the failure rate decreases. However, the remainderman does not escape with a free lunch. The worst case results from the 80/20 allocation produce lower floor values at the 5th percentile lower bound.

The impact on the income stream payable to the current beneficiary, however, is critical.

Current Beneficiary's Interest: 80/20 vs. 60/40 Allocation				
Distribution Formula	Expected Total Income Over 30 Years	Standard Deviation From Aggregate Expected Income	Minimum 30-Year Income	Maximum 30-Year Income
80/20 Unitrust 4% of Value Per Year	$7,392,370	$5,847,259	$2,223,079	$17,213,066
60/40 Unitrust 4% of Value Per Year	$6,366,979	$4,544,815	$2,170,650	$14,169,553
80/20 Unitrust 5% of Value Per Year	$7,328,912	$5,814,295	$2,211,065	$18,513,792
60/40 Unitrust 5% of Value Per Year	$6,461,308	$4,495,749	$2,258,318	$14,061,407

This table illustrates the risk/return tradeoff of a more aggressive asset allocation formula. For the current beneficiary, an increased commitment to equities produces a slightly lower worst case value under the 5% unitrust formula. The greater commitment to equity does not produce a lower floor value under the 4% formula. However, this negative effect is offset by dramatic increases in both best case results and expected results. This information allows a trustee consulting with the living grantor or with the two classes of beneficiaries to formulate a distribution policy that is acceptable to all parties and that is suitable to the terms of the trust and to grantor objectives.

F. Portfolio Diversification

The second part of the portfolio allocation question considers the effects of diversifying the portfolio over a broad range of asset classes. This section could be entitled: "Peril to the trustee who fails to implement broadly diversified portfolios." We illustrate the benefits of diversification by extending our analysis of the 80/20 investment portfolio. Again, we consider the results of both 4% per year and 5% per year unitrust distribution formulae on the remainderman's interest and on the current beneficiary's interest. However, these summary tables include results from the original 60/40 two asset class allocation, the 80/20 two asset class allocation, and an 80/20 thirteen asset class portfolio.[7] The degree of allocation to any specific asset class is a function of the unique purposes, terms, and objectives of each trust. Thus, the illustrated allocation does not constitute an asset allocation recommendation suitable for every trust.

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[7] The two asset class portfolio is allocated with 60% in the S&P 500 and 40% in the United States general corporate and government bond market. The allocation of the broadly diversified portfolio is as follows:

S&P 500: 15%
U.S. Large Company Value Stocks: 10%
U.S. Small Company Stocks: 10%
U.S. Small Company Value Stocks: 10%
U.S. Securitized Real Estate: 5%
International Large Company Stock: 10%
International Large Company Value Stock: 10%
International Small Company Stock: 5%
Emerging Markets Stock: 5%
U.S. One-Year T-Bills: 5%
U.S. Intermediate Term Bonds: 5%
U.S. General Corporate/Government Bond Market: 5%
Global Bonds: 5%

See infra Part IV (providing sources of data).

Remainderman's Interest: 80/20 Broadly Diversified versus 80/20 & 60/40 Two Asset Class Allocations					
Distribution Formula	30-Year Expected Value	Standard Deviation From Expected Value	Minimum 30-Year Portfolio Value	Maximum 30-Year Portfolio Value	Failure Rate
80/20 Diversified Unitrust 4% of Value Per Year	$7,948,092	$9,750,650	$1,012,525	$22,135,332	c.4%
80/20 Two Asset Class Unitrust 4% of Value	$4,603,049	$6,029,717	$439,455	$14,061,508	c.14%
60/40 Two Asset Class Unitrust 4% of Value	$3,782,785	$4,636,270	$457,106	**$11,205,796**	**c.18%**
80/20 Diversified Unitrust 5% of Value Per Year	$5,899,074	$7,246,447	$751,497	$16,456,622	c.8%
80/20 Two Asset Class Unitrust 5% of Value	$3,288,200	$4,255,121	$335,539	$10,758,923	c.24%
60/40 Two Aset Cass Unitrust 5% of Value	**$2,808,599**	$3,446,862	$339,463	$8,301,355	**c.26%**

Results indicate that a broadly diversified investment portfolio significantly enhances the interest of the remainderman. Statistically expected failure rates, worst case results, expected value, and best case results all improve dramatically. The analysis suggests that trustees who eschew broad diversification in hopes of capturing superior investment

returns from a narrow range of investments may have a heavy burden of proof if poor future performance prompts trust beneficiaries to file fiduciary surcharge actions.

The following table compares the interest of the current beneficiary for the various portfolio allocations.

Current Beneficiary's Interest: 80/20 Broadly Diversified versus 80/20 & 60/40 Two Asset Class Allocations				
Distribution Formula	Expected Total Income Over 30 Years	Standard Deviation From Aggregate Expected Income	Minimum 30-Year Income	Maximum 30-Year Income
80/20 Diversified Unitrust 4% of Value Per Year	$10,765,502	$8,275,587	$3,254,364	$24,590,612
80/20 Two Asset Class Unitrust 4% of Value	$7,392,370	$5,847,259	$2,223,079	$17,213,066
60/40 Two Asset Class Unitrust 4% of Value	$6,366,979	$4,544,815	$2,170,650	$14,169,553
80/20 Diversified Unitrust 5% of Value Per Year	$10,791,635	$8,126,927	$3,349,942	$24,243,630
80/20 Two Asset Class Unitrust 5% of Value	$7,328,912	$5,814,295	$2,211,065	$18,513,792
60/40 Two Asset Class Unitrust 5% of Value	$6,461,308	$4,495,749	$2,258,318	$14,061,407

Tabular results indicate that broad scope diversification across multiple asset classes enhances the current beneficiary's interest. The degree of enhancement is not trivial. The grantor or trustee who wishes to assert that only blue chip United States stocks and bonds are suitable for trust investment portfolios faces a formidable task in light of this evidence.

G. Indexed Annuity Distribution Formulae

We briefly consider the economic effects of an election to change the distribution formula from a unitrust percentage of portfolio value to a fixed annual amount indexed to inflation as measured by increases in the Consumer Price Index ("CPI"). This distribution election may appeal to grantors or to current income beneficiaries who value cash flow predictability. Fixed distributions indexed for inflation provide a steady stream of dollars with predetermined purchasing power.

In the following example, we presuppose that the grantor decides that the portfolio allocation should be 80% equity and 20% stocks and that the trustee should establish a broadly diversified investment portfolio. We consider the results of simulation analysis using the 4% and 5% yearly value unitrust distribution formulae and compare them to indexed annuity distribution formulae. The following tables illustrate the effects of electing a $40,000 per year annuity indexed to CPI as well as a $50,000 per year inflation-adjusted annuity.

Remainderman's Interest: Unitrust versus Indexed Annuity (Diversified 80/20)					
Distribution Formula	30-Year Expected Value	Standard Deviation From Expected Value	Minimum 30-Year Portfolio Value	Maximum 30-Year Portfolio Value	Failure Rate
Unitrust 4% of Value Per Year	$7,948,092	$9,750,650	$1,012,525	$22,135,332	c.4%
Indexed Annuity: $40,000 Per Year Adjusted for CPI	$16,381,992	$24,331,228	$223,116	$51,229,724	c.7%
Unitrust 5% of Value Per Year	$5,899,074	$7,246,447	$751,497	$16,456,622	c.8%
Indexed Annuity: $50,000 Per Year Adjusted for CPI	$13,984,456	$22,581,014	$0	$45,835,056	c.13%

From the remainderman's perspective, the indexed annuity distribution presents an interesting set of outcomes. Expected value increases substantially, but only at the cost of increased failure rates with respect to the purchasing power target of the trust's liquidating distribution at the end of 30 years. Particularly striking is the fact that even relatively conservative annuity distribution formulae can drain portfolio values to zero. High inflation tends to drive the value of securities downward at the exact time the current beneficiary's distribution demands increase to compensate for the higher cost of living. If the portfolio is sufficiently stressed, and if the operation of the distribution formula is irrevocable, catastrophic failure results. For a risk-averse remainderman, such a result may give pause.

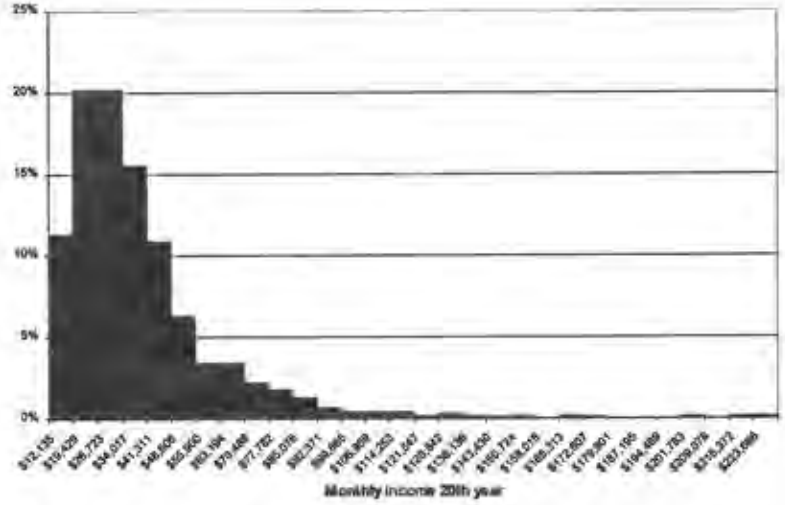
The following chart illustrates the possible outcomes for the current beneficiary.

Current Beneficiary's Interest: Unitrust versus Indexed Annuity (Diversified 80/20)				
Distribution Formula	Expected Total Income Over 30 Years	Standard Deviation From Aggregate Expected Income	Minimum 30-Year Income	Maximum 30-Year Income
Unitrust 4% of Value Per Year	$10,765,502	$8,275,587	$3,254,364	$24,590,612
Indexed Annuity: $40,000 Per Year Adjusted for CPI	$2,888,748	$284,635	$2,433,296	$3,387,472
Unitrust 5% of Value Per Year	$10,791,635	$8,126,927	$3,349,942	$24,243,630
Indexed Annuity: $50,000 Per Year Adjusted for CPI	$3,611,594	$355,858	$2,736,472	$4,235,103

The current beneficiary also faces a dramatic risk/reward tradeoff. Certainty in the amount and purchasing power of yearly income does not come without cost. The grantor or trustee must balance the benefits of budgeting and cash flow predictability to the current beneficiary against potentially significant opportunity costs. Additionally, the current beneficiary and remainderman share a common risk in that all income will cease if portfolio value decreases to zero.

Given the significant differences in cash flow streams associated with various distribution formulae, the trustee must document that interested parties fully discussed the risk/reward tradeoffs. Portfolio simulation highlights the variability of distribution amounts at particular points in time. Consider, for example, histograms illustrating the range of distributions to the current beneficiary in year 5 (short-term effects) and in year 20 (long-term effects). We compare the distribution amounts available under the unitrust formula with the amounts available under the indexed annuity formula. The first histogram depicts the dispersion of possible

long-term results in income under the 4% per year unitrust distribution formula operating in year 20 on the broadly diversified 80/20 investment portfolio.



The 30-interval histogram range is $12,135 per month income to $223,666 per month income payable to the current beneficiary in year 20. The average (statistically expected) income in year 20 is $32,432. Although this figure represents the most likely income, the histogram illustrates a wide dispersion in possible outcomes. For the 1,000 trial simulation, the absolute minimum monthly income in year 20 is $4,840.

The second histogram depicts the dispersion of year 20 cash distribution results under the indexed annuity election. In this case, the formula specifies an annuity distribution with an initial value of $40,000 per year.