

## **Annuities and Inflation**

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A guaranteed lifetime annuity can maximize a retiree's annual income and provide an income that cannot be outlived, as discussed in our first paper, "The (Mostly) Pros and (Few) Cons of Lifetime Payout Annuities." However, fixed-rate annuities do not protect a retiree's income from purchasing power losses because of inflation (e.g. as measured by changes in the CPI). The purpose of this paper is to describe types of annuities and other strategies that will offer the possibility of growing payments during retirement.

Inflation, like longevity, is a major risk factor for retirees. If we factor in 20 or 30 years of inflation, the purchasing power of a fixed monthly annuity payment will gradually diminish in relation to the cost of a retiree's expenses. This is not an argument against insuring against longevity, but inflation is a concern that advisors should address explicitly and procedurally.

From 1926 through 2000, inflation (as measured by changes in the Consumer Price Index) has been increasing the cost of a person's purchases by slightly more than 3% per year, according to Ibbotson Associates. Over a 20-year period, this would translate into an increase of about 80% for similar goods purchased 20 years earlier. Over a 30-year period, the increase would be about 140%. This means that \$10,000 of income received in the first year would be worth about \$5,500 in purchasing power 20 years later, and about \$4,150 in purchasing power 30 years later. If inflation increases by 4% per year, \$10,000 of income received in the first year would be worth about \$4,600 in comparable purchasing power 20 years later, and about \$3,100 in comparable purchasing power 30 years later. Unless a retiree is willing to accept a lower standard of living in later years, this is a real problem.

Fortunately, there are mechanisms available to allow a retiree to establish an initial income level that can rise over time to compensate for the effect of inflation, but these solutions come at a price. The price is a reduction in the starting income that a retiree receives versus the starting income he would receive under a fixed or guaranteed annuity payout. This more realistic look at initial income levels could require a person to postpone retirement for a period of time. In effect, he would realize that he does not have the financial resources to retire at his desired standard of living, when such income is adjusted for expected inflation during retirement.

There are two lifetime annuity mechanisms that have been devised to help protect a retiree's income from losing purchasing power because of inflation. These are the variable annuity and the graded benefit payment annuity<sup>1</sup>. Before discussing these, however, let us briefly discuss investment returns in general and list some concerns with non-annuity distribution mechanisms that try to compensate for inflation.

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<sup>1</sup>The graded benefit payment method is currently only available from the Teachers Insurance and Annuity Association (TIAA).

## **Investment Returns and Their Variability**

A retiree (or his financial advisor) has to choose the appropriate investments for a retiree's retirement fund, whether this fund is used to purchase an annuity or is self managed. As we discussed in our first paper, a 65-year old retiring couple can expect to live for more than 25 years, on average, during retirement. Most advisors appropriately consider this to be too long a period of time to have an investment portfolio that consists solely or primarily of fixed income financial instruments (this would include fixed-income annuities). If a retiree includes certain asset classes (e.g. common stocks) in his portfolio, the potential for higher investment returns during retirement increases. These extra earnings can be used to offset the potential decline in purchasing power of a retiree's income or to improve a retiree's standard of living.

However, as investments that have a probability of producing a greater investment return are added to his portfolio, the retiree also increases the risk of suffering losses on his investment dollars, especially over shorter time periods. We all recognize the desirability of increasing the probability of obtaining greater investment returns for retirees within acceptable risk parameters. However, we do not always appreciate that we must have a retirement distribution or payout mechanism in place that is consistent with and recognizes the probability of volatile and sometimes negative investment returns on a retiree's investment portfolio. Otherwise, a period of years with poor investment performance could contribute to the retiree running out of money before he had planned. This was documented most recently in, "Making Retirement Income Last a Lifetime," by John Ameriks, Robert Veres and Mark J. Warshawsky, which can be read at <http://www.tiaa-crefinstitute.org/Publications/pubarts/pa12-01.htm>.

Unlike a level payout under a fixed annuity, the investment return on a self-managed investment portfolio will vary each year and in some years be negative, especially if the investments are in more aggressive portfolios (e.g. common stocks). As indicated in our earlier paper, a financial advisor using a principal and interest take down of retirement funds might: (1) try to reduce the annual take down so that the fund will not run out of money prior to the death of the retiree or prior to the second to die of a retired couple, and/or (2) try to be more conservative in the retirement fund's investment policy to avoid short-term adverse investment results. A more conservative investment policy can reduce the potential for a period of poor investment performance that could negatively impact a retiree's annual income. While these techniques may reduce the probability of not running out of money prior to the retiree's death, they will not eliminate this probability. In addition, these techniques can seriously reduce the amount of income a retiree will live on during retirement, and therefore negatively impact his standard of living, or the estate he will leave to heirs.

## **Variable Payout Annuity**

In contrast to this, a variable payout annuity structure will permit the election of lifetime annuity income (and, therefore, eliminate the risk of running out of money) while permitting and properly accounting for investments in more aggressive investment portfolios. If history is any guide, the more aggressive investment portfolio (e.g. a good percentage of common stock) would be expected to provide higher investment returns and permit the retiree's initial income (which would be calculated using a conservative 4% or 5% assumed interest rate) to rise over time to

offset the effects of inflation.<sup>2</sup> Using historical data, it can be shown that this has occurred (see the attached Exhibit I), although there have been extended periods when it has not occurred (e.g. in the 1970s).

To describe how variable annuities work, we introduce the concept of an AIR, or Assumed Interest Rate. The AIR is the interest rate used to discount future benefit payments when we calculate the cost to provide one dollar of income for life. The higher the AIR (e.g., 8%) the more interest we assume to be earned and the lower the calculated cost to provide one dollar of annuity income. This would produce a higher first year benefit payment than if we assumed a lower AIR. The lower the AIR (e.g., 4%), the less interest we assume to be earned and the higher the calculated cost to provide one dollar of annuity income. This would produce a lower first year benefit payment than if we assumed a higher AIR. If actual earnings turn out to be higher than the AIR, the extra earnings are used to increase subsequent benefit payments. For example, if the investment returns were 10%, the following year's income would rise by almost 6% when the discount rate or AIR is 4%. If the investment returns were 2%, the following year's income would decline by about 2%. Let's discuss how this works.

Under a variable annuity, a retiree's account value is converted to an income stream in a manner similar to the way an account value is converted to an income stream when a fixed or guaranteed lifetime annuity is purchased. The account value is divided by the cost of providing \$1 of annuity income for life to the retiree or couple assuming future earnings at a rate of 4% per year<sup>3</sup>. When a 4% AIR is used, only 4% out of each year's actual earnings is used to discount future annuity payments and any earnings in excess of 4% will be used to increase future income payments. And because earnings on more aggressive investment portfolios (e.g. a common stock portfolio) have earned more than 4%, on average, in the past, variable annuity payments have risen under these products to more than keep pace with inflation over time. Note, however, that variable annuities generally are not guaranteed to provide inflation-protected returns.

If a variable annuity uses a 4% Assumed Interest Rate (AIR) to calculate the initial income payment instead of the expected return of the investment pool (e.g. a common stock fund might have average historical earnings of 8% or more per year) the income payments in subsequent years stand a good chance of increasing to offset the effects of inflation. In recent years, the increases have been sufficient to not only protect against inflation, but also to provide an increase in the retiree's standard of living, as shown in Exhibit I. Also, by using a 4% projected interest assumption when planning for retirement, the retiree is taking a more conservative approach to estimating retirement income, rather than assuming higher initial income levels that have less chance of keeping up with inflation.

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<sup>2</sup> Past performance is no guarantee of future returns.

<sup>3</sup>The annuity calculation could be adjusted to include a guarantee that payments would continue for at least a fixed or certain period.

In effect, a retiree will accept a lower income in early years so that his lifetime income will stand a good chance of increasing to offset a loss in purchasing power because of inflation. For example, if an SLA annuity were purchased at age 65 using an earnings assumption of 4% instead of 8%, the first year income from a \$100,000 fund would be \$7,199, instead of \$10,362, about a 30% reduction in first year income. However, each subsequent payment would increase by the ratio of 1.08 to 1.04, if future investment returns were exactly 8% per year, and would start to exceed the levelized payout in the eleventh year, or at about one-half the retiree's expectation of life, and exceed the income under a levelized or guaranteed payout from that year on. If the retiree lived to his expectation of life, the present values of the two income streams would be similar.

After we calculate the first-year income under the variable annuity as described above using a 4% AIR, we convert the first-year dollar payment into a unit value and a number of units in a manner similar to the conversion of a mutual fund account value into a unit value and a number of units. The first year payment is divided by the current annuity unit value (or share price) of the investment pool in which the retiree invests. This calculation results in a number of units owned by the retiree that will be paid to him for life. The number of units becomes guaranteed for life, not a specific dollar payment.

The actual payment to the annuitant each year is equal to the number of units he owns times the annuity unit value, which is revalued each year (or month) based on the actual investment experience of the fund during the prior year (or month). The annuity unit value increases each year whenever the investment performance of the fund exceeds 4%, and decreases whenever the investment performance of the fund is less than 4%. The retiree's income payments change each year in a manner that is identical to the change in the unit value because income payments are equal to the retiree's number of units times the current unit value. As indicated above, the first year payment would be increased the following year by the ratio of 1.08/1.04 if the actual investment experience during the first year were exactly 8%. Exhibit I illustrates how a retiree's income payments would have changed over the years under the CREF variable annuity, using the CREF Stock fund. There would be a wide variety of investment portfolios to choose from or split assets among. The decision about which funds to invest in would be based on the retiree's risk tolerance while looking at historical data on funds that produced investment returns which allowed a retiree's income to keep pace with or exceed inflation over time.<sup>4</sup>

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<sup>4</sup> Past performance is no guarantee of future results.

The variable annuity structure will not permit the take down each year of a level income or of a specific initial income adjusted for cumulative changes in the CPI (a measure of inflation). Instead, it will vary the percentage change in income levels each year with the investment performance of the fund (as measured by changes in the value of the annuity unit or share price). If the prior year's investment performance exceeds the assumed interest rate, the next year's income will rise. If the prior year's investment performance is less than the assumed interest rate, the following year's income will decline. This technique assures that the retiree will not run out of money regardless of investment performance and regardless of how long the retiree lives. It does this by reducing the amount taken from the fund when common stock prices are low, and raising the amount taken from the fund when prices are high. Historically, this technique has produced income streams that have more than kept pace with inflation over time. Of course, there have been periods when this has not occurred (e.g. during the 1970s) and this is the reason that retirees should not settle their entire account in a variable annuity with a common stock base. Under the variable annuity structure and during periods of poor equity returns, a retiree's income will not keep pace with inflation each year. However, over the longer run it can be shown that variable annuities with a common stock portfolio base have done a remarkably good job in keeping pace with inflation (see Exhibit I).

### **Advantages of Variable Annuities**

The variable annuity serves three very important purposes for retirees. The first, of course, is that it provides an income that cannot be outlived. The second is that it allows the retirement fund to be invested in a potentially more aggressive investment portfolio. This is important because a retiree (or couple) could be receiving income for up to 30 years and this is a long period of time to invest all of one's funds conservatively and forego the potential for higher investment returns. For each 1% increase in the annual investment return during retirement, a retiree's income will increase by about 10%. And, finally, any investment earnings above the assumed interest rate of 4% will be used to increase future income payments. This increase in future income payments can offset the decline that could otherwise occur in the purchasing power of a retiree's income because of inflation. Many would argue that there is a fourth advantage. The projected retirement income under a variable annuity (with a 4% AIR) provides a person considering retirement with a better assessment of income available to support a specific standard of living as the first year payment is not inflated and, if history is a guide, stands a good chance of increasing to offset the effects of inflation. This allows its purchasing power to be maintained during retirement.

The price for these advantages is a lower initial income than the retiree could receive under a fixed or guaranteed annuity. Also, the retiree with a variable annuity will be asked to reduce his expenditures somewhat in any year when income payments decrease because of poor investment performance in the prior year<sup>5</sup>. This latter problem could be alleviated somewhat if the retiree accumulates some income in a side fund to be used to help cover expenses when, and if, income drops because of poorer than expected investment performance in any year. The side fund could accumulate increases in income payments that occur when performance is good and where such increases exceed the increases needed to offset inflation. There is also the possibility of the retiree working part-time for a period to make up for any shortfall that would seriously depress his standard of living. All of this requires that a retiree be educated about these possibilities in advance by his financial advisor.

### **Principal and Interest Take Down of Funds vs. a Variable Annuity**

If a retiree uses a principal and interest take down approach from a retirement savings fund instead of purchasing an annuity, he or she should adopt an income change technique similar to the variable annuity technique described above to avoid insolvency of the fund prior to the end of the retiree's expected take down period. If a retiree were to take a principal return over a specified period plus 4% interest in the first year and increase this amount by cumulative changes in the CPI each year, he or she will significantly increase the risk of insolvency prior to the expected take down period when compared to a take down approach that modified the income payments to reflect the prior year's investment performance. This occurs because a greater percentage of the account will be dissipated when investment experience is bad and a smaller percentage of the account will be dissipated when investment experience is good. In effect, more units or shares will be sold when market performance is poor.

This is not a good strategy, as we illustrate in Table A below. Instead, a retiree should reduce the take down when share prices are low and increase the take down when share prices rise in a manner similar to the one described above for variable annuities and which we also illustrate in Table A. If a financial advisor wants to align a retiree's income payments more closely with cumulative changes in the CPI, he can achieve this through a side fund that might accumulate benefit increases in excess of the CPI whenever this occurs and release some of them to the retiree during periods of poor investment performance. However, in no case can there be a guarantee that the retiree's income will increase by cumulative changes in the CPI each year.

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<sup>5</sup>Because some spending during retirement is discretionary and has been correlated with stock market returns, a reduction in spending during these periods may be acceptable to the retiree, especially given the alternative which could be running out of money altogether at some later date.

The procedure for a principal and interest take down of funds over a fixed period from a retirement fund with a variable investment return is similar to the variable annuity approach just described. If we assume that the take down period is 20 years, the first payout from the fund would be calculated as a 20-year principal and interest payout assuming the fund earns exactly 4% over the 20-year period. After the first payment is deducted from the fund, the fund is then increased or decreased by the actual investment experience during the year. Since there is no insurance pool or sharing of longevity risk with others, the portfolio take down approach does not include any survivorship return. At the beginning of the next year, the second payment from the fund would be calculated as a 19-year principal and interest payout assuming the fund earns exactly 4% over the remaining 19-year period.

This process is repeated each year until the end of the 20-year period. It will produce a payout pattern where subsequent payments will increase if investment performance exceeds 4% and decrease if investment performance is less than 4% in a manner identical to the changes outlined in our variable annuity discussion. It will also guarantee that income payments will last 20 years, but it cannot guarantee the level of payments in any year. However, payments stand a good chance of increasing over time as most common stock based investment portfolios have earned more than 4% per year on average. Because we are dealing with only one individual account value in the calculation just described, it is not necessary to convert the first year payment into a unit value and a number of units and go through the more complicated variable annuity calculation described earlier. However, one could do this by establishing a unit value and having the unit value change according to investment performance as described in the variable annuity discussion. The results would be identical to the results obtained under the method just described.

To illustrate the differences in payouts to individuals under the two approaches we have been discussing, let us compare the results for a 5-year payout of principal and interest from a \$100,000 account when investment earnings are (-20%) in the first year, (-10%) in the second year, (+20%) in the third year and (+10%) in the fourth year under the following two approaches:

- Approach I: Calculates the first year payment as a return of a principal plus 4% interest and maintains that payment until the fund is dissipated.
- Approach II: Calculates the first year payment as a return of principal plus 4% interest with subsequent payments changing to reflect the prior year's investment experience as described for variable annuities.

Table A shows the payments under each of these approaches over the five-year period.

<u>Year</u>	<u>Approach I</u>	<u>Approach II</u>
1	21,598	21,598
2	21,598	16,614
3	21,598	14,378
4	18,496	16,590
5	0	17,547

The results shown for Approach I illustrate how a retiree can run out of money prior to the end of an expected payment period if the income paid to a retiree is not related to the fund's actual investment experience. It illustrates the weakness of Approach I as a distribution mechanism for retirees. While the benefit payments in years two through five under Approach II are less than the initial payment, the fund is able to make benefit payments at a reduced level for the entire expected benefit payment period. This is a distinct advantage for Approach II. Approach II does require the retiree to reduce his standard of living somewhat when investment experience is poor and a retiree must be educated to understand this possibility. However, it will not leave him penniless and it will also afford him the ability to recover and have benefit payments increase in the future if investment performance improves subsequently. This latter characteristic is especially important when the projected payout period is long (e.g. greater than 10 years). It gives the retiree time to recoup earlier losses if investment performance improves in later years<sup>6</sup>.

The figures shown in Table A were chosen to illustrate a point only. A five-year payout kept the illustration simple while, at the same time, it showed the weakness of Approach I as a distribution mechanism for retirees. In reality, a five-year time horizon would not be chosen for a retiree. And anyone choosing a five-year time horizon should not be heavily invested in an investment portfolio that could be subject to large negative returns for a few years. In addition, a retiree that was dependent solely on a payout from one investment portfolio for all his retirement income would not be so heavily invested in a volatile investment portfolio.

### **The Graded Benefit Payment Method**

The graded benefit payment annuity option was introduced by TIAA in 1982 as another option to help protect a retiree's income from a loss of purchasing power due to inflation. The investments backing the graded benefit are the same fixed dollar investments that back traditional annuities, and, like traditional annuities, income payments are not subject to fluctuations because of changes in the market value of its investment portfolio. However, the graded benefit payout differs from the traditional annuity in one very important way. Under the traditional annuity, the annuity payout is based on the full interest earnings of the underlying investment portfolio and income payouts would not be expected to change much, if at all, in subsequent years. Under the graded benefit method, the initial (first year) annuity payout would be based on an interest rate that is 4%, regardless of the actual interest earnings of the underlying investment portfolio. And income payments in each subsequent year would increase by a percentage that depends on how much actual investment earnings exceed the 4% interest assumption. Let's look at an example.

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<sup>6</sup>Under the variable annuity structure, the level of income payments will return to the initial level when the cumulative investment experience is exactly 4% per year (assuming the AIR is 4%) and be greater than the initial value to the extent that cumulative investment experience exceeds 4% per year. This will not happen under alternative distribution methods where the retirement fund may be exhausted while the retiree is still alive.

Suppose the underlying investment portfolio is currently earning 8% interest. Under the traditional annuity, the initial income payment would be calculated using an 8% interest assumption and that income would be expected to remain level in subsequent years. Under this approach, an age 65 retiree electing the SLA option would receive \$10,362 lifetime income for each \$100,000 settled as an annuity.

In contrast, an age 65 retiree electing a graded benefit SLA option would receive \$7,199 the first year for each \$100,000 settled as an annuity because the income calculations would be based on a 4% interest assumption instead of an 8% interest assumption (about a 30% reduction from the traditional fixed dollar annuity). However, in each subsequent year, the graded benefit income payment would increase by the ratio of 1.08 divided by 1.04, or almost 4%, and overtake the payout under the traditional annuity at about one-half the retiree's expectation of life, as shown in Exhibit II. This approximate 4% annual increase is intended to offset the decline that might otherwise occur in the purchasing power of the retiree's income because of inflation.

Like the variable annuity, the reasoning behind the graded benefit payment structure is quite simple. We all know that a portion of interest earnings are attributable to inflation. The graded payment annuity structure sets aside most of the interest earnings that are attributable to inflation and uses them to increase subsequent benefit payments as an offset to inflation instead of using them to produce a high initial annuity payment that could be eroded over time by inflation. As stated earlier, the price for these advantages is a significant reduction in the starting income for a retiree.

From a valuation perspective, the traditional annuity and the graded payment method are the same. The present value of each at the starting date of the annuity is the same. It is only the slope of the payout stream that is different. Some advantages for a retiree electing the graded benefit are that: (1) he will have made his retirement decision based on an assessment of the purchasing power of his annuity payout instead of looking at an unrealistically high payout because that portion of investment earnings attributable to inflation is used to boost the first-year payout, and (2) his retirement income should increase each year to help offset a reduction in the purchasing power of money because of inflation.

The graded benefit payment option has done a good job in protecting a retiree's purchasing power since its inception in 1982, as shown in Exhibit III. A retiree electing it in 1983 would have seen his retirement income increase by over 200%, while CPI increases would have been less than 100%. The other nice feature of the graded benefit is that the volatility of income payments that occurs under variable annuities with common stock investment bases does not occur under the graded payment method. Instead, the income payments should increase fairly uniformly from year to year. This is because the investments backing the grading benefit are the traditional fixed income investment (mostly bonds and mortgages) that also support the traditional fixed income annuity payout and are not marked to market each year<sup>7</sup>.

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<sup>7</sup>The advantage of the variable annuity over the graded payment annuity, of course, is that the variable annuity allows for greater investment choice, which, if history is a guide, should produce a higher investment return over time.

## Changing the Investment Mix After Retirement

Until recently, retirees who elected a payout annuity (either fixed or variable) could not change the investment mix once annuity payments began. This inflexibility made a retiree (or his financial advisor) hesitate before electing an annuity because a one-time investment decision might not be appropriate for a 25 or more year lifespan. Instead of making a very safe but very conservative decision that might reduce a retiree's earnings, financial advisors avoided annuities.

This inflexibility with payout annuity elections and, therefore, reason to avoid them has changed in recent years because some companies now permit retirees to switch among investment funds after retirement. This means that retirees can avoid making once-in-a-lifetime investment decisions at retirement and that a financial advisor can still provide the valuable service of allocating a retiree's funds among different investment vehicles, even after annuity income begins. It allows retirees who have a long investment horizon to stay with a more aggressive investment portfolio during most of their retired years, which should enhance their retirement benefits over time.

As discussed in our first paper, the election of a lifetime annuity that includes a 20-year guarantee period along with this investment transfer option will permit a financial advisor to self manage and distribute about 90% of a retiree's account outside of the insurance company's mortality pool. The remaining 10% of the retirement account will be placed in the mortality pool and used to guarantee lifetime income after the 20-year period, and even this amount can be transferred among investment funds after income payments have begun. In summary, variable payout annuities and graded benefit annuities offer retirees the opportunity for inflation protection throughout retirement, in addition to most of the benefits of fixed-income payout annuities.<sup>8</sup>

*Thomas G. Walsh is past President and CEO of TIAA-CREF Life, and past chief actuary and CFO of TIAA-CREF. He is currently a visiting scholar of the TIAA-CREF Institute. For more complete information on TIAA-CREF variable annuities, call 800-842-2733 for prospectuses. Read them carefully before you invest.*

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<sup>8</sup>Lifetime income is backed by the claims-paying ability of the insurer.

**Exhibit I**

**CREF Income Payments for Age 65 Retirees Settling \$100,000 Under the SLA Option at Dates Shown Versus the Income Increases that Would Occur If the Initial Income Was Increased by CPI Changes**

<u>Year</u>	<b>Retirement Dates</b>			
	<u>1980</u> CREF <u>Annuity</u>	CPI <u>Annuity</u>	<u>1990</u> CREF <u>Annuity</u>	CPI <u>Annuity</u>
1980	8,163	8,163		
1981	11,143	9,005		
1982	9,496	9,560		
1983	13,213	9,867		
1984	14,338	10,293		
1985	15,450	10,660		
1986	20,929	10,858		
1987	25,748	11,254		
1988	22,865	11,720		
1989	25,624	12,285		
1990	28,638	12,948	7,159	7,159
1991	30,900	13,493	7,724	7,460
1992	32,780	13,899	8,194	7,684
1993	35,891	14,315	8,972	7,915
1994	36,441	14,682	9,109	8,117
1995	38,514	15,098	9,627	8,347
1996	48,013	15,544	12,002	8,594
1997	52,690	15,901	13,171	8,791
1998	72,982	16,148	18,243	8,928
1999	78,001	16,505	19,498	9,125
2000	93,560	17,060	23,387	9,432

*For illustration purposes only. Past performance is no guarantee of future results.*

**Exhibit II**

**Hypothetical Graded Benefit Payout for an Age 65 Retiree Settling \$100,000 Under the SLA option Versus a Fixed Payout, assuming 8% interest.**

<b><u>Year</u></b>	<b><u>Graded</u></b>	<b><u>Fixed (Traditional)</u></b>
1	7,199	10,362
2	7,476	10,362
3	7,764	10,362
4	8,063	10,362
5	8,373	10,362
6	8,695	10,362
7	9,030	10,362
8	9,378	10,362
9	9,739	10,362
10	10,114	10,362
11	10,503	10,362
12	10,908	10,362
13	11,328	10,362
14	11,764	10,362
15	12,217	10,362
16	12,687	10,362
17	13,175	10,362
18	13,683	10,362
19	14,209	10,362
20	14,756	10,362
21	15,324	10,362
22	15,912	10,362

*The table above assumes constant 8% returns throughout the period. TIAA payout annuities guarantee 3% interest per year; additional earnings are credited as dividends.*

### Exhibit III

#### **Annual Income for Graded Payment Method Versus CPI Related Annuity since its Inception for an Age 65 Retiree Settling \$100,000 Under the SLA Option**

<u>Year</u>	<u>Graded Payment</u>	<u>CPI Annuity</u>
1983	7,353	7,353
1984	7,918	7,589
1985	8,528	7,917
1986	9,183	8,199
1987	9,890	8,351
1988	10,651	8,656
1989	11,470	9,014
1990	12,352	9,448
1991	13,243	9,959
1992	14,198	10,378
1993	15,154	10,690
1994	15,992	11,010
1995	16,837	11,292
1996	17,728	11,612
1997	18,665	11,955
1998	19,697	12,229
1999	20,786	12,420
2000	21,885	12,694
2001	23,043	13,121

*Past performance is no guarantee of future results. TIAA payout annuities guarantee 3% interest per year; additional earnings are credited as dividends.*