# *Optimizing Charitable Gift Annuity Risk Management Part 2:*

# Reinsurance Revisited

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This article's purpose is to more deeply analyze gift annuity reinsurance within the context of comprehensive gift annuity risk management, and to build on the financial models, assumptions and methods from past research. We attempt to answer the following questions:

- 1. When, if ever, does reinsurance make sense and at what optimal level?
- 2. What are the reinsurance implications charities should understand before moving forward?
- 3. What commercial annuity purchasing process should be used and how does reinsurance affect gift annuity administration and donor relations?

To do this, we will offer analysis and recommendations on:

- selecting the optimal reinsurance level
- assessing the gift annuity pool's health
- assessing the charity's risk tolerance and setting risk retention limits
- viewing gift annuity reserves in a different investment light
- assisting with the reinsurance purchase and administration process
- identifying specialized reinsurance applications
- describing recent and future studies

# Findings and Implications of Previous Research

Our first article attempted to frame the various risks associated with charitable gift annuities and to quantify the exhaustion probabilities caused by the 2000-2002 bear market.<sup>1</sup> In addition, we described the four gift annuity risk management strategies—retention (self-insurance), reduction (reducing rates or self-insuring known sub-standard donors), transfer (reinsurance) or avoidance (referring donors to a community foundation/national charity or simply not offering gift annuities at all). The primary intent was to provide charities of various sizes enough information to develop their own comprehensive CGA risk management plan. The following summarizes the

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Abstract: The authors analyze gift annuity reinsurance within the context of comprehensive gift annuity risk management, building on research published in The Journal of Gift Planning, volume 8, number 1. They consider: occasions and optimal levels for reinsurance; implications of reinsurance that charities should understand; the commercial annuity purchasing process; and the effect of reinsurance on gift annuity administration and donor relations.

paper's findings:

- Gift annuities written between 1998 and 2002
  projected between a 20 and 45 percent exhaustion
  probability if they were allocated 45 to 65 percent in
  equities with the remainder in diversified fixed income.
  This assumed all asset classes had historical returns and
  standard deviations going forward, and that the charity
  never offered rates higher than the American Council
  on Gift Annuities (ACGA) recommended rates and
  reserved 100 percent of the gift.
- Investment risk for CGAs was greatest for donors under 75 and longevity risk became the largest risk component after 75.
- ٠ Relative to charities, the life insurance industry takes much less equity risk and uses asset-liability matching investment strategies to further reduce risk. (The largest five annuity insurers averaged 2.8 percent equity allocation. In fact, AIG has no equity exposure in its immediate annuity general account, though the state-regulated life insurance investments are generally more restrictive than gift annuity investments and are subject to risk-based capital requirements.) Further, insurers have life insurance pools which are negatively correlated with annuity pools; have teams of actuaries setting rates, monitoring surpluses and asset/liability matching strategies; and reinsure blocks of risks that exceed retention thresholds. (One of the largest commercial annuity carriers requires special approval for any annuity larger than \$1 million. Another company, which is very active in the gift annuity reinsurance business, will not issue any single annuity of \$2 million or more.) In contrast, charities do not use asset-liability matching, have very small pools relative to the insurance industry and tend to allocate 45 to 65 percent to equities. Further, most charities do not have the benefit of a true "pool," as most remove the proportional reserve at the annuitant's death-the short-lived actuarial "winners"-and then, over time, the pool is left with the long-lived actuarial

"losers." The most significant advantage of a pool is the ability to reserve early gains to off-set later losses the "cross-subsidy." On the positive side, gift annuities do have an additional 15 to 25 percent surplus over commercial annuities (i.e., the charitable gift portion).

Small gift annuity pools of one to 250 annuitants may observe highly variable mortality experience. Charities with pools greater than 1,000 annuitants are much closer to the law of large numbers required for statistical predictability. The latter assumes annuities of roughly the same size over an extended period of time. The variability of mortality experience depends on the number of annuitants rather than the number of contracts. Charities that tend, over time, to issue multiple annuity contracts to individual donors should consider the number of annuitants when assessing this risk.

The first analytical article specifically on reinsurance appeared in this journal in 1998, "An Analysis of Commercial Insurance as an Alternative Gift Annuity Financing Option."<sup>2</sup> The following summarizes the paper's findings:

- Charities with a high equity allocation (generally greater than 65 percent), pools with more than 500 annuitants, or large unrestricted endowments with a desire for ultimate investment control would not generally benefit from reinsuring the entire liability. Conversely, charities with smaller equity allocations (generally lower than 65 percent), pools with less than 250 annuitants or small unrestricted endowments with a desire to use some of the money currently tended to benefit the most from reinsuring the entire liability.
- Reinsurance provided higher life-expectancy values if the balance that remained after the annuity premium was invested in a portfolio that had an expected rate of return of 1.75 to 2.00 percent greater than the selfinsured portfolio.

- The objective analysis modeled various ages over three decades using single premium immediate life only annuities that were sold at that time, coupled with the ACGA recommended rates at that time. In approximately 65 to 75 percent of the scenarios, the reinsurance option projected a higher life expectancy balance. This assumed 100 percent of the liability was reinsured and the remainder was invested in a separate account with a 65 percent equity/35 percent fixed allocation. The average crossover point-the age at which the reinsurance "side account" passed the self-insured account-was two to three years prior to life expectancy.
- The subjective analysis included cash flow options, donor preferences, board preferences, as well as some of the inherent risks of life insurer default, which was estimated at 2/10ths of one percent. (No immediate annuity has ever defaulted.)

The 1998 research had the following limitations that this article attempts to rectify:

- All analysis assumed a constant rate of return and a fixed mortality age.
- The models assumed 100 percent of the liability was reinsured rather than testing for an optimal level.
- The models did not allocate any annuity premium to the portfolio's CGA fixed income allocation.

# Monte Carlo Reinsurance Modeling: Quantifying Expected Outcome and Exhaustion Probabilities

This analysis assumes two self-insured investment pools:

Conservative Growth (40 percent large cap stocks, 60

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percent current 10-Year Treasury bond)

Balanced Growth (65 percent large cap stocks, 35 percent current 10-Year Treasury bond)

The reinsured portfolio either assumed 100 percent of the gift annuity liability was reinsured with the entire remainder invested in large cap stocks (e.g., perhaps an annuity premium of 65 percent with the remaining 35 percent invested in large cap stocks), or only the fixed income allocation was used for reinsurance with the entire remainder also invested in large cap stocks (e.g., perhaps a fixed income allocation of 40 percent was used for the annuity premium with the remaining 60 percent invested in large cap stocks). To be consistent with previous research, we received quotes from five competitive annuity carriers and selected a life-only single premium immediate annuity, which was the third best premium-the midpoint for this selected group.

Monte Carlo projections were calculated on a \$100,000 gift annuity for a 65, 77 and 90 year-old with a genderspecific age set-back of 18 months from the Annuity 2000 table. All annuities are assumed to provide annual end-of-period payments. Table 1 further details the investment assumptions generated by our Monte Carlo software, and Table 2 further details the reinsurance premiums.

# Table 1—Investment Assumptions

| Investment Assumptions                           | Projected Returns   | Comments   |
|--|---------------------|--|
| Total Stock Index                                | 10.85 percent       | Assumes historical large cap average.  |
| Total Bond/Cash Index                            | 4.29 percent        | Uses the average 10-year Treasury bond rate from 1/1/05-3/31/05 similar to ACGA rate recommendation assumptions. This bond is selected to most closely match the life expectancy of the average annuitant. |
| Total Administration and<br>Investment Expenses  | (1.00)              | Uses ACGA rate recommendation assumptions.   |
| Assumed Net Returns                              |                     | Portfolio Characteristics for Average Annuitant  |
| Conservative Growth                              | 7.22 percent gross  | Net pessimistic return – 3.9 percent   |
|  | 6.22 percent net    | Net optimistic return – 8.59 percent   |
|  |                     | Standard deviation – 7.83 percent  |
| Balanced Growth                                  | 8.85 percent gross  | Net pessimistic return – 4.33 percent  |
|  | 7.85 percent net    | Net optimistic return – 11.50 percent  |
|  |                     | Standard deviation – 12.05 percent   |
| Reinsured Option                                 | 10.85 percent gross | Net pessimistic return – 4.56 percent  |
| *The amount remaining after the annuity premium. | 9.85 percent net    | Net optimistic return – 15.39 percent  |
|  |                     | Standard deviation – 18.38 percent   |

#### Table 2 – Reinsurance Premiums

|                    | Premium Required to Reinsure<br>100 Percent CGA Liability | Commercial Annuity Payments Provided if Charity<br>Uses the Fixed Income Allocation for the Premium  |
|--------------------|---|--|
| 90 Year-Old Female | \$52,973  | Conservative Portfolio's 60 percent Fixed Allocation – N/A as the entire liability premium is only 53 percent Balanced Portfolio's 35 percent Fixed Allocation - \$7,446/yr.     |
| 90 Year-Old Male   | \$44,136  | Conservative Portfolio's 60 percent Fixed Allocation – N/A as the entire liability premium is only 44 percent Balanced Portfolio's 35 percent Fixed Allocation - \$8,937/yr.     |
| 77 Year-Old Female | \$66,818  | Conservative Portfolio's 60 percent Fixed Allocation - \$6,767/yr.<br>Balanced Portfolio's 35 percent Fixed Allocation - \$3,894/yr.   |
| 77 Year-Old Male   | \$57,476  | Conservative Portfolio's 60 percent Fixed Allocation – N/A as the entire liability premium is only 57 percent.<br>Balanced Portfolio's 35 percent Fixed Allocation - \$4,494/yr. |
| 65 Year-Old Female | \$76,254  | Conservative Portfolio's 60 percent Fixed Allocation - \$4,708/yr.<br>Balanced Portfolio's 35 percent Fixed Allocation - \$2,746/yr.   |
| 65 Year-Old Male   | \$70,279  | Conservative Portfolio's 60 percent Fixed Allocation - \$5,109/yr.<br>Balanced Portfolio's 35 percent Fixed Allocation - \$2,979/yr.   |

Table 3 shows the projected remainder values at ACGA-assumed life expectancy for the two self-insured portfolios and the two reinsured portfolios. The exhaustion probability is the number of scenarios out of 1,000 in which the charity ended up with an ending balance of less than \$0. For example, a 13 percent exhaustion probability means that 130 of the 1000 scenarios resulted in an ending balance of \$0 or less, using the aforementioned assumptions. We calculated all

of these scenarios for males as well. However, we did not show these projections as they consistently had exhaustion ratios 0-2.00 percent lower than females with slightly higher projected ending balances. The final outcomes under each of the scenarios were entirely consistent with the female projections.

Table 3—Exhaustion Probability and Projected Remainder Values for Self-Insured and Reinsured Portfolios

| Monte Carlo Analysis<br>Summary Using Random<br>Investment and Mortality<br>Simulator            | Exhaustion<br>Probability | 25 Percent<br>Probability of This<br>Ending Balance or<br>Greater | 50 Percent Probability of<br>This Ending Balance or<br>Greater                              | 25 Percent<br>Probability of This<br>Ending Balance or<br>Lower | 10 Percent<br>Probability of This<br>Ending Balance or<br>Lower |
|--|---------------------------|---|---|---|---|
| 90 Year-Old Female<br>Conservative Growth<br>Self-Insured  | 16 percent                | \$72,371  | \$48,418  | \$16,350  | (\$17,076)  |
| 90 Year-Old Female<br>Conservative Growth<br>100 percent Reinsured                               | 0                         | \$105,784   | \$68,759<br>Crossover point is 1.9<br>years prior to ACGA-<br>assumed life expectancy.      | \$52,899  | \$41,001  |
| 90 Year-Old Female<br>Conservative Growth<br>60 percent Fixed Allocation<br>Used for Reinsurance | 0                         | \$105,784   | \$68,759<br>Crossover point is 1.9<br>years prior to ACGA-<br>assumed life expectancy.      | \$52,899  | \$41,001  |
| 90 Year-Old Female<br>Balanced Growth  | 12 percent                | \$84,609  | \$58,605  | \$25,107  | (\$10,657)  |
| 90 Year-Old Female<br>Balanced Growth<br>100 percent Reinsured                                   | 0                         | \$105,784   | \$68,759<br>Crossover point is 1.6<br>years prior to ACGA-<br>assumed life expectancy.      | \$52,899  | \$41,001  |
| 90 Year-Old Female<br>Balanced Growth<br>35 percent Fixed Allocation<br>Used for Reinsurance     | 0                         | \$101,591   | \$69,910<br>Crossover point is 1.7<br>years prior to ACGA-<br>assumed life expectancy.      | \$49,277  | \$34,561  |
| 77 Year-Old Female<br>Conservative Growth Self-<br>Insured                                       | 11 percent                | \$77,444  | \$49,912  | \$22,900  | (\$3,463)   |
| 77 Year-Old Female<br>Conservative Growth 100<br>percent Reinsured                               | 0                         | \$146,226   | \$79,316<br>Crossover point is 3.9<br>years prior to ACGA-<br>assumed life expectancy.      | \$48,232  | \$34,494  |
| 77 Year-Old Female<br>Conservative Growth<br>60 percent Fixed Allocation<br>used for Reinsurance | 0                         | \$150,216   | \$81,621<br>Crossover point is 4.0<br>years prior to ACGA-<br>assumed life expectancy.      | \$50,662  | \$35,845  |
| 77 Year-Old Female<br>Balanced Growth  | 7 percent                 | \$112,233   | \$76,576  | \$38,159  | \$7,204   |
| 77 Year-Old Female<br>Balanced Growth<br>100 percent Reinsured                                   | 0                         | \$146,226   | \$79,316<br>Crossover point is .3<br>years prior to ACGA-<br>assumed life expectancy.       | \$48,232  | \$34,494  |
| 77 Year-Old Female<br>Balanced Growth<br>35 percent Fixed Allocation<br>used for Reinsurance     | 2 percent                 | \$168,050   | \$91,155<br>Crossover point is 2.1<br>years prior to ACGA-<br>assumed life expectancy.      | \$53,772  | \$28,654  |
| 65 Year-Old Female<br>Conservative Growth Self-<br>Insured                                       | 10 percent                | \$90,307  | \$56,020  | \$24,590  | (\$808)   |
| 65 Year-Old Female<br>Conservative Growth 100<br>percent Reinsured                               | 0                         | \$244,089   | \$109,307<br>Crossover point occurs<br>4.5 years prior to ACGA-<br>assumed life expectancy. | \$58,508  | \$32,513  |
| 65 Year-Old Female<br>Conservative Growth<br>60 percent Fixed Allocation<br>used for Reinsurance | 0                         | \$283,006   | \$125,408<br>Crossover point occurs<br>5.9 years prior to ACGA-<br>assumed life expectancy. | \$63,532  | \$35,729  |
| 65 Year-Old Female<br>Balanced Growth  | 8 percent                 | \$182,804   | \$97,650  | \$52,148  | \$9,217   |
| 65 Year-Old Female<br>Balanced Growth<br>100 percent Reinsured                                   | 0                         | \$244,089   | \$109,307<br>Crossover point occurs<br>1.4 years prior to ACGA-<br>assumed life expectancy. | \$58,508  | \$32,513  |
| 65 Year-Old Female<br>Balanced Growth<br>35 percent Fixed Allocation<br>used for Reinsurance     | 2 percent                 | \$352,019   | \$153,038<br>Crossover point occurs<br>3.7 years prior to ACGA-<br>assumed life expectancy  | \$73,616  | \$34,720  |

All balances are in current dollars assuming a three percent inflation rate.

To clarify this table, here is an example of how one might read or interpret the data for a 65 year-old.

If a charity self-insures a \$100,000 gift annuity from a 65 year-old female, and invests the gift 40 percent stocks and 60 percent bonds (see the Conservative Growth portfolio above), in 100 of the 1,000 simulated lives, the gift annuity ran out of money. The median projected ending value was \$56,020 and the charity lost \$808 dollars or more in 100 of the 1,000 simulated lives. In this scenario, the self-insured account made all the gift annuity payments.

If the same charity chose to reinsure the entire liability with a \$76,254 premium (see Table 2) and invested the remaining \$23,746 in stocks, the gift annuity never ran out of money and the stock account grew to \$109,307 as the median projected value. The charity had \$32,513 or less in 100 of the 1,000 simulated lives. In this scenario, the commercial annuity made all the payments and the stock account grew to life expectancy. The stock account balance surpassed the self-insured scenario balance 4.5 years prior to ACGA-assumed life expectancy. If the donor dies before that point, the charity would receive less under reinsurance and if the donor dies after that point, the charity would receive more under reinsurance.

If the same charity chose to invest the 60 percent fixed income allocation (\$60,000) as premium for the commercial annuity and invest the remaining 40 percent in stocks (\$40,000), the commercial annuity would provide \$4,708/year and the remaining payment to match the ACGA rate recommendation would be withdrawn from the all-equity account. In this scenario, the gift annuity never ran out of money and had a projected median value of \$125,408. In 100 of the 1,000 simulated lives the charity was projected to have \$35,729 or less. The stock account balance surpassed the self-insured scenario 5.9 years prior to ACGA-assumed life expectancy.

While these projections may seem precise, they are based on historical asset returns and volatility, longevity assumptions, current annuity pricing and other assumptions which will all prove to be wrong over time. A charity should model its gift annuities or pool with assumptions that reflect its specific situation before any decision is made.

# Summarized Research Findings and Key Implications

- These calculations reconfirm the 1998 study (Newton 1. and Clontz) that reinsuring 100 percent of the liability provides a higher projected ending balance in the majority of scenarios. The beneficial aspects of reinsurance are reduced the higher the equity allocation. Reinsuring the liability for donors older than 75 to 77 years old has more of a benefit on reducing or eliminating exhaustion probabilities than increasing projected residuums, and for donors younger than 75 to 77, the opposite is true. This makes intuitive sense and is consistent with our 2004 article showing that the longevity risk becomes much greater than investment risk over 75 because of the so-called "mortality drag." As an annuity is simply a fixed-income investment with longevity insurance, the beneficial aspects are greatest when longevity risk predominates.
- This data also reconfirms an average cross-over point of 2. two to four years prior to ACGA-assumed life expectancy (cross-over being the point at which the reinsured option "catches" the self-insured option). This two- to four-year span is fairly consistent across the various ages. However, on a relative basis, it is more profound at older ages. For example, the average 90 year-old female cross-over was 1.8 years prior to life expectancy (averaged the Conservative and Balanced portfolio), but she only has an ACGA-assumed life expectancy of 5.85 years. The same average for a 65 year-old female had a cross-over point of 4.0 years, but an ACGA-assumed life expectancy of 21.17 years. The partially reinsured option had a greater ending balance in every scenario, even assuming the Annuity 2000 life expectancy table rather than the more conservative ACGA assumptions.

An important initial step of gift annuity risk management is to analyze the existing pool and any problematic annuities. Too often, charities are relying on state reserve calculations or FASB requirements to provide this information.

- This research further shows the optimum reinsurance 3. percentage in nearly every scenario is the lesser of the reinsurance amount required for the entire liability or the fixed allocation percentage. The only two cases where there was a very slight benefit to reinsuring more than the fixed income allocation was for males older than 77. This also makes intuitive sense from an investment perspective, as any dollar cannibalized from the equity allocation will have a lower projected internal rate of return with the annuity. Note that this analysis does not draw any objective or subjective conclusions related to relatively small gift annuities (when the administration of reinsuring the fixed income allocation may be unduly burdensome) or for relatively large gift annuities (when reinsuring 100 percent of the liability may be prudent given the health of the existing pool, concentration risk or overall risk tolerance of the charity).
- 4. Notice that all the projections are in current rather than future dollars (ACGA rate recommendations assume a 50 percent future value residuum). Also note that these conclusions are the same for joint annuitants as well. For deferred annuities, however, it tends to be best to self-insure the entire reserve until the time the payments must be made. At that point, it can be reassessed based on the current condition of the annuity and prevailing market rates. There is a risk, though, that the fund may not grow enough to be able to fund reinsurance in the future (e.g., if equities decline and bond interest rates rise).

# Determining the Gift Annuity Pool's Health

An important initial step of gift annuity risk management is to analyze the existing pool and any problematic annuities. Too often, charities are relying on state reserve calculations or FASB requirements to provide this information. It is estimated that 65 to 75 percent of charities calculate their FASB liabilities by using the 1990 life expectancy table (this is used as the default on most planned giving software programs, since it is the required table for computing the charitable tax deduction) and a discount rate of seven percent. By simply adjusting the assumptions to the Annuity 2000 table with a gender-specific 1.5 year setback, and using a six percent discount rate, charities will find that their asset-to-liability percentage will likely decrease between 15 and 25 percent. This does not include an additional estimated four to six percent error based on investment volatility (since the discount rate assumes a perfectly constant return) and mortality deviations (unless the charity has at least 1,000 gift annuities). Here is an example for a 77 year-old female:

- 1. FASB-compliant 1990 life expectancy is 11.1 years; annual payment of \$7,400, using a seven percent discount rate produces a liability of \$55,828.
- 2. ACGA-assumed Annuity 2000 life expectancy with a 1.5 year set-back produces a life expectancy of 14.0 years; annual payment of \$7,400, using a six percent discount rate produces a liability of \$68,782.

These two simple, and most would argue more realistic, changes produce a liability that is 23.1 percent greater for the same annuity. Said another way, if a charity's gift annuity pool showed an asset-to-liability ratio of 123 percent (i.e., a surplus of 23 percent), and 77 year-old females constituted the entire pool, then rather than having a 23 percent surplus, it would have no surplus at all. Again, this does not correct for investment or longevity variation.

Should a charity have an unhealthy pool, it should immediately revisit gift annuity policies to reduce risk. In this case, the charity should cease using any money currently, granting rate exceptions or reinsuring any gift annuity beyond a lower internal retention limit.<sup>3</sup>

# Determining Risk Tolerance and Setting Risk Retention Limits

Clearly, for risk management purposes, a pool with a very large surplus can take greater risks by increasing an equity

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allocation and/or increasing risk retention limits. Increasing the equity allocation should remain highly dependent on the life expectancy of the pool's annuitant(s). If the annuitant has a life expectancy that is at least as long as the average market cycle (roughly 13 years up and 12 down over the past 100+ years), then the use of equities might be additive. To state that the average is 10 percent +/- is not a proper use of the statistics or the statistical methodology, unless the annuitant has a 70 to 100 year life expectancy similar to the span of time involved in the data population itself. Despite its widespread use, or misuse, the historical asset class return data is not predictive when applied to short to intermediate periods.

Note that a surplus does not have to be restricted to the gift annuity pool itself, but can also be available through an unrestricted endowment. Some charities commingle their annuity pools with the endowment, or have access to the endowment's assets should an annuity ever exhaust. So some charities with a healthy pool and a high risk tolerance might select a risk retention limit of three standard deviations. For example, if the average gift annuity is \$50,000, and the standard deviation is \$25,000, then the retention limit would be \$125,000. This would provide that 99 percent of all gift annuities would be self-insured, with reinsurance potentially used for the fixed income allocation. The remaining one percent of the largest annuities representing the greatest concentration risk might have 100 percent of the liability reinsured.

A smaller pool or a charity with a lower risk tolerance threshold might select a retention limit of just one or two standard deviations, which means that it would reinsure 30 percent or five percent of the gift annuities within their pools, respectively. (For a definition of these statistical terms, please refer to the end notes.<sup>4</sup>) As the pool becomes healthier, the charity can increase the retention limit over time, or if the pool is unhealthy, it should lower its retention limit. This is simply an example of how a charity might use this information to customize its risk management plan.

Charities should be especially mindful of the concentration risk guidelines as seen in Table 4.

| Gift Annuity Pool Size | Largest Annuity as a Percentage of the Self-Insured Pool's Assets | Largest 5 Percent of Annuities<br>as a Percentage of the Self-Insured<br>Pool's Assets | Largest 10 Percent of Annuities<br>as a Percentage of the Self-Insured<br>Pool's Assets |
|------------------------|---|--|---|
| Less than 5            | 60 Percent  | N/A  | N/A   |
| 5-25                   | 40 Percent  | N/A  | N/A   |
| 25-100                 | 20 Percent  | 50 Percent   | 70 Percent  |
| 100-500                | 10 Percent  | 30 Percent   | 50 Percent  |
| 500-1000               | 8 Percent   | 20 Percent   | 30 Percent  |
| 1000+                  | 5 Percent   | 15 Percent   | 25 Percent  |

#### Table 4 - Concentration Risk Guidelines

Note that multiple gift annuities for one donor should be aggregated as one annuity. To the extent that charities exceed these thresholds, they should take additional measures to mitigate against this concentration risk either through asset allocation and/or reinsurance. Charities should not become too focused on the health of a particular annuity, as most are appropriately concerned with the "profitability" of the entire pool. Nonprofits understandably want to be confident that there is an extremely low risk that they will default on annuity payments to the donors who have established these funds. If the surplus margin in Charities should not become too focused on the health of a particular annuity, as most are appropriately concerned with the "profitability" of the entire pool. Nonprofits understandably want to be confident that there is an extremely low risk that they will default on annuity payments to the donors who have established these funds.

the annuity fund is 25 percent of the present value of the annuities, the risk of default is very low, provided that five conditions are met:

- The number of annuitants is large (1000 or more).
- The funds are not restricted.
- The charity is comfortable making donor payments from other gift annuities on a pro-rata basis, should an individual annuity exhaust.
- The funds are invested in a way that matches investment cash flow to annuity cash flow.
- The amounts payable to individual annuitants are in a narrow range, without any individual large annuities.

Most organizations do not meet these criteria. Cash flow management can be accomplished for any annuity fund, but only reinsurance can control the risks arising from a small number of annuities or a wide range of annuity amounts.

The typical annuitant, a 77 year-old woman, has a life expectancy of less than 13 years, but may live 20 years or more. The cost to provide an annuity in this case would far exceed the margin available for a single annuity, and would have to be provided for by using the margins available on other annuities. Individual lifespans far exceeding the life expectancy are not particularly unlikely, and will be increasingly common if improvements in medical care continue. With large, homogeneous pools, the overall experience tends to average out, but a pool with an annuity far above the average amount will have risk characteristics much like an individual annuity. Charities with many annuitants may incur large risks if they have a few annuities that are much larger than the rest. This risk will be exacerbated if the health improvements continue as they have in recent years. For example, the amount by which the cost to provide for a single typical annuitant would exceed the liability at various levels of probability is summarized in the table below.

| Future Lifetime | Probability | Excess Cost |  |
|-----------------|-------------|-------------|--|
| 21 years        | 0.20        | 47 Percent  |  |
| 25 years        | 0.10        | 59 Percent  |  |
| 33 years        | 0.01        | 75 Percent  |  |

The examples in the chart were chosen to illustrate the point at which there would be a one percent risk of default on one, two, or three annuities. For example, under the assumptions made, there would be a 0.8 percent risk (0.2 to the third power) that all of a group of three annuitants would live eight years beyond their life expectancy, and create a 47 percent excess cost on their entire liability. If these three annuitants represented half the total liability of the pool, a pool with a 25 percent margin would be virtually wiped out with just these three, since their cost in relation to the pool would be 47 percent, applied to half the liability.

#### Reinsurance Products and Adverse Selection

Immediate annuities are fixed-income instruments, backed by the issuing insurance company's general account, that provide payments as long as the annuitant lives. In the context of reinsurance, they have some unique beneficial attributes.

The first is asset-liability matching, as they make payments as long as the donor lives, thereby providing some insurance against the donor living too long.

The second is the guaranteed fixed income provided by the insurance company that, from an investment perspective, can generally produce higher guaranteed yields to life expectancy. As was mentioned previously, AIG's immediate annuity investment pool has no equity allocation at all, as they match their liabilities with fixed instruments with similar durations (interesting point when most charities are investing such a high equity portion in gift annuity pools). They also are able to buy fixed-income instruments on the long end of the yield curve, as life insurance and annuity buyers have holding periods in the decades. They also buy institutional blocks of corporate, government and real estate debt to diversify across fixed income asset classes.

The third reason is a form of adverse selection with charitable gift annuitants. This occurs when an insurance company sells a benefit to a person who has a set of circumstances that gives the purchaser a better deal. For example, the Annuity 2000 table is based on all annuity buyers at all age ranges. The 2001 ACGA/Hay Group longevity study showed gift annuitants living past the Annuity 2000 tables. The likely reasons are that they are wealthier than average, have better health than average, have better living and working conditions than average, and the biggest component might be that they create gift annuities at older ages. Charities purchasing reinsurance, therefore, are selecting against the insurance companies by insuring a person who is likely to live longer than the insurance company's internal annuity mortality table. (Most companies do not use the Annuity 2000 table specifically and have constructed their own internal tables based on the

company's specific annuity mortality experience.) Note that the internal rate of return for the 77 year-old female, assuming she lives exactly to ACGA-assumed life expectancy, is 6.5 percent, or more than two percent greater than the current 10-year bond rate.

# Reinsurance Purchasing Process

Fixed immediate annuities are a commodity product and benefit from extremely competitive pricing, similar to term life insurance. These annuities generally can be found in retail form (SPIAs or single premium immediate annuities) or institutional form (pension or retirement income group annuities or structured settlement contracts). For many companies, the rates change weekly or monthly, although the most competitive carriers may change daily with the prevailing fixed income market. Here are some comments on purchasing selection:

While a life insurance company's default risk is 1. extremely low, charities may wish to select companies with the highest possible ratings (e.g., A.M. Best, S&P, Moody's, Weiss, etc.). Comdex is a rating system that combines the ratings from multiple agencies to create one composite score. The maximum score is 100. Charities should be wary of selecting any company with a rating below 80, which means that company has ratings that are better than 80 percent of the other life insurance companies. Practically speaking, however, a 25 year-old purchasing life insurance must be concerned about the company's ability to pay the promised death benefit in 60 to 70 years. For gift annuities, the company only has to remain solvent for the gift annuitant's life expectancy, which is closer to 10 to 15 years, so while the ratings issue remains very important, the reduced time-frame does somewhat mitigate typical default risk. Higher rated companies can typically charge somewhat higher prices for their annuities, so there may be a cost-benefit tradeoff in selecting companies with high ratings.

Gift annuity reinsurance is allowed in every state, although many have unique approaches and requirements. Some states require true reinsurance, where the insurance company actually underwrites the charity and will continue to make payments to donors directly if the charity defaults. Most others view reinsurance as simply a gift annuity financing decision, in which the charity purchases a commercial annuity to back the liability—socalled "commercially insuring the risk."

- Design your purchase to obtain maximum protection 2. from state guarantee fund benefits. States have insurance guarantee funds that provide benefits in the event of insurance company default. The available benefits may depend on the type of product, the amount of income, the type of beneficiary (natural person or corporation), and whether the coverage extends to non-residents of the state. The conditions on availability of benefits vary by state. It may be possible, through design of the reinsurance transaction, to improve the guarantee coverage. While state guarantees do not typically apply to reinsurance, the transactions discussed here are not, in most cases, true reinsurance, but are direct purchases from insurance companies. We refer to the transactions as reinsurance following nonprofit organization terminology, which differs from insurance industry terminology.
- 3. Annuities can be purchased on a non-commission or commission basis. The standard commission is four percent, which is payable to a general agent with the agent/broker receiving about 65 to 75 percent of this amount. Surprisingly, many of the most competitive carriers are commission-based and generally have lower premiums than non-commission carriers, though this is certainly not always the case.

- 4. Select insurance companies that understand the gift annuity business, especially if they have designed specific products and administrative services for this market. Only a small handful of companies have an interest in working with charities and gift annuity programs.
- 5. Select individual annuity brokers who understand the intricacies of reinsurance placement and have access to multiple, highly-rated companies. Most brokers can do business in every state, but they should be especially knowledgeable of how the Department of Insurance handles reinsurance in the specific state. It is generally wise to select multiple annuity brokers to make the bid process as competitive as possible. Request that the broker include quotes for non-commissioned products, and also disclose exactly how much and in what form he/she is compensated—feeonly, fee-and-commission or commission only.

#### Reinsurance State-Specific Issues and Reserve Implications

Gift annuity reinsurance is allowed in every state, although many have unique approaches and requirements. Some states require true reinsurance, where the insurance company actually underwrites the charity and will continue to make payments to donors directly if the charity defaults. Most others view reinsurance as simply a gift annuity financing decision, in which the charity purchases a commercial annuity to back the liability—so-called "commercially insuring the risk." Table 5 covers some of the highlights from specific states.<sup>5</sup>

# Table 5 – State Reinsurance Requirements

| State  | Issue  |
|--|--|
| Arkansas, Florida, Hawaii,<br>Maryland, Washington,<br>and Wisconsin | Commercial insurance definition allows charity to deduct reinsured liabilities from required reserve, provided insurance is purchased from an authorized life insurance company. Wisconsin requires additional donor protection language in the reinsurance contract.  |
| California   | True reinsurance, in which insurer must make payments to donor in the event of charitable default.<br>No commissions can be paid on the annuity contract. Reinsured liabilities allow a deduction<br>against required reserves. The reinsurance contract must be approved by the Department of<br>Insurance. Until very recently, no life insurance companies offered this specialized contract. |
| Illinois   | Charities that do not meet the 20-year existence requirement and have \$2 million in unrestricted reserves must reinsure 100 percent of gift annuities. The Department of Insurance goes on to say that reinsurance is strongly encouraged for all gift annuities. It uses the true reinsurance definition and requires the insurer to make payments to the annuitant if the charity defaults.   |
| New York   | True reinsurance definition requiring a reinsurance treaty contract between the charity and the insurer, which can generally be accomplished through a group terminal funding contract. Until very recently, no insurance companies offered such a contract.   |
| New Jersey   | True reinsurance definition allows the charity to deduct reinsured liabilities from required reserve.  |
| Other States   | Generally silent on reinsurance and the effect on required reserves. Oregon is silent, but allows the charity to deduct reinsured liability by seeking permission from the Insurance Department.   |

# Administration and Donor Relations Implications

Once reinsurance is purchased, the charity must be the owner and beneficiary of the policy with the donor listed as annuitant. Further, the terms of the reinsurance contract should match the terms of the gift annuity agreement in terms of duration, and the payments must be substantially the same to comply with IRC 170(f)(10)(D). An interesting question arises as to whether reducing the reinsurance premium to the fixed income allocation—and therefore not insuring precisely 100 percent of the liability—would remain in compliance, or whether using any commercial annuity option other than a life-only would be allowed. These questions should be answered by appropriate counsel prior to moving forward, as this paper solely uses financial modeling for optimum reinsurance levels and should not be relied upon for tax or legal advice.



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Charities may also choose to have the insurer send payments directly to the donor, usually by wire transfer, or the charity can receive the payments and then forward them along to the donor. We strongly suggest the latter approach, as the gift annuity contract is specifically between the donor and the charity. Since the charity is contractually obligated to make the payments, it reinforces the relationship when the donor receives a check with the charity's name and a cover letter on the charity's letterhead. This also provides an excellent donor relations opportunity and a tangible stewardship experience.

The charity is still required to provide the annuitants with accurate 1099s, to remit payment and to properly administer the program, including fund accounting, state reserve compliance and satisfaction of FASB split-interest gift accounting standards. (Be careful not to use the 1099s from the life insurance company, as they will be incorrect and should not be provided to the donor.)

There are a number of donor relations issues that a charity should address before reinsuring any gift annuities. Most importantly, if the donor is making a contribution to a designated fund, reinsurance should be disclosed prior to the time of gift, or at the time the charity chooses to implement reinsurance on an existing annuity. Additional disclosure to unrestricted fund donors would also be strongly recommended. This disclosure language should not be included only in the gift annuity contract. It is best to summarize the choice in your gift annuity disclosure letter, which might state something to the effect of: "Charity XYZ may, at its discretion and on a case-by-case basis, choose to purchase a commercial annuity to back some or all of the liability created by a charitable gift annuity. This is simply a prudent risk management strategy to further protect your future payments and our unrestricted assets. Should we decide to purchase an annuity, this in no way changes the contractual obligation

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that we have to you. Should you have any questions or concerns, feel free to contact [appropriate staff person]."

The key components are:

- The charity may use reinsurance. This ensures the donor will get the normal tax benefits of a standard gift annuity.
- The charity may purchase reinsurance to further protect the donor and the charity. This shows thoughtful risk management.
- The donor should let the charity know if reinsurance might present a problem. This gives the donor the opportunity to ask questions and, potentially, to disclose any health problems he/she may have. (If the donor has health problems that are likely to reduce life expectancy, the charity should likely self-insure that risk.)

Another issue that frequently comes up is the concern that the donor may die early and lose the reinsurance premium. This is a valid concern. To be sure, it is natural for charities to judge a self-insurance or reinsurance decision after the fact to assess whether or not it was the right decision. This is akin to purchasing fire insurance on a house, and then assessing the prudence of the purchase based on whether a fire claim was made. The decision should be based on the probability and severity of a loss, not on whether or not the loss actually occurs.

We might suggest including a gift illustration showing the projected outcomes of reinsurance year by year. If the charity chooses to reinsure only the fixed income allocation, this takes less initial premium, and therefore will increase the early year values relative to total liability reinsurance. Most donors will realize that reinsurance protects the charity, and may generate a higher life expectancy value for charity. A subtle point is that under self-insurance, the charity gets the most the sooner the donor dies, where reinsurance provides the charity with more the longer the donor lives.

In the case of a designated fund, a fairly easy solution is to give the donor the option of maintaining the fund in the pool until the donor's original life expectancy or when it crosses the stated threshold. For example, a donor creates a \$200,000 gift annuity designating it for a scholarship fund. He expects a \$100,000 future value residuum (ACGA assumption), which is the minimum amount for a named scholarship. He has a 12-year ACGA-assumed life expectancy. Reinsurance is used for 60 percent of the original gift, and he dies one month later. Rather than immediately withdrawing the \$80,000, the charity could leave the fund in the pool until it reaches \$100,000, or it could deposit the \$80,000 into a scholarship fund and freeze grants until it reaches \$100,000, or it could leave the \$80,000 in the pool until his original life expectancy and then withdraw the full amount. Unfortunately, the 2000-2002 bear market has put self-insured charities in the same position, and even worse, they are trying to communicate the high probability of total exhaustion with donors.

Additional options to hedge the risk of the donor dying early are:

1. Use the entire remainder after reinsurance to purchase

a single premium life insurance policy. This provides a very high early value, but declines to produce about 70 to 80 percent at life expectancy.

- 2. Use some of the remainder after reinsurance to purchase a five or 10-year level term life policy. This provides a very high early value, but once the policy is dropped, there is a gap before the side-account can catch up, since those assets were used to pay the premiums. This also presumes the donor is both young and healthy enough to qualify for a policy.
- 3. Add a premium refund feature on the annuity for an additional three to five percent of premium. This feature guarantees that the charity will receive a lump sum equal to the initial annuity premium paid, less the annuity payments received.

Each of these options may work well on a case-by-case basis, but if the charity has no reason to assume a donor will die before life expectancy, and if the primary goal is to reduce risk and maximize the life expectancy ending balance, then only a life-only immediate annuity will produce those results. Conversely, if the charity wants to make sure it receives at least 70 to 80 percent of the gift, whether the donor dies early or lives well past life expectancy, then these three options may be ideal.

# Specialized Reinsurance Applications

Charities may also consider some additional reinsurance applications if they have a low risk tolerance, a pessimistic investment outlook, underwater gift annuities, or a community foundation operating structure.

Conservative Charity: If a charity or board member takes the position that, "We can never lose one dollar on any specific gift annuity under any circumstances," then reinsurance is the only option beyond not offering gift annuities at all. Recently, an investment committee chair made a strong case that the U.S. stock market is in the beginning stages of a long-term bear market and viewed reinsurance as a guaranteed investment with an average yield to ACGA-assumed life expectancy of 5.0 to 6.5 percent. Reinsurance turned out to be the only way he would recommend proceeding with a gift annuity program.

Underwater Gift Annuity: Many gift annuities issued during 1998-2002 are underwater where the current reserve is less than the current liability. Financial modeling using various levels of reinsurance can lower the projected exhaustion probability, pull up the projected downside loss and maximize the number of payments to the donor. In many cases, using just the current fixed income allocation for reinsurance becomes the optimal level.

Community Foundation Structure: Charities with a community foundation operating structure have increased gift annuity risk, as any early mortality gains inure to a specific fund, while any losses inure to the foundation itself. One community foundation in particular offered its gift annuity program to other charities. Its original policy was to assess a one percent annual fee, and then the residual would be deposited into the charity's community foundation endowment fund. The community foundation's president became increasingly concerned about the risk and chose instead to reinsure 90 percent of the pool, as well as most of the annuities going forward. The community foundation uses a payout schedule to show the charity what it will receive immediately after reinsurance. This payout schedule calculates the present value of the ACGA-assumed 50 percent residuum, and the charity can then use the money currently, or deposit the payout into its own endowment fund. This program virtually eliminates the charity's investment and longevity risk, while the community foundation receives a current fee (the remaining value after reinsurance and the immediate charitable payout), which is nearly identical to the present value of the annual administrative fee, as compensation for administering the program.



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## Recent Data and Future Studies

ACGA recently released highlights of the 2004 Survey of Charitable Gift Annuitants. Some of the key findings were:

- The average annuitant is now 78 versus the previous 77.
- The mean gift annuity contribution jumped significantly to \$59,926 while the median was only \$28,075 (very large annuities skew the average).
- Roughly half of the programs were started in the last 10 years with half of those starting in the last five years.
- The majority of charities are seeing an increase in gift annuity production and only eight percent of charities use reinsurance at all.<sup>6</sup>

Unfortunately, every one of these observations increases the risk profile for gift annuities. Larger annuities, with younger programs and a low prevalence of reinsurance means smaller pools are self-insuring larger annuities. The only factor which may not increase risk is the larger number of new annuitants, but only to the extent the annuities are not large.

The Society of Actuaries has recently commissioned us to conduct a gift annuity mortality study. The intent is to build on the previous work by the 2001 ACGA/Hay report and to broaden the research to answer the following questions:

- 1. After gathering additional gift annuitant data, will we reach the same longevity conclusions as the previous research? That is, are gift annuitants living past the Annuity 2000 table, and if so, how long?
- 2. Are there mortality differences for different sizes of annuities—are the largest annuitants living the longest?
- 3. Are there mortality differences among different charity types? Are religious gift annuitants living longer than health care gift annuitants, and if so, how much longer?

This project will clearly have implications for gift annuity risk management overall, and reinsurance specifically. As the quantitative research shows fairly conclusively, reinsurance is most effective when donors are expected to live past the Annuity 2000 table. To the extent that they are dying prior to this table, reinsurance becomes less effective. This might indicate, for example, that a national healthcare charity (which might have disease survivors as annuitants) may be wise to set a higher retention limit and to self-insure the fixed income portion rather than using reinsurance, while a religious charity (which might have cleaner living and healthier annuitants) should set a lower risk retention limit and reinsure the fixed income portion of its gift annuity allocation.

# Summary and Conclusions

Investment advisors will suggest gift annuity risk can be managed through asset allocation, while insurance advisors will suggest it can all be done through reinsuring with commercial annuities. As in most arguments, a prudent balance of an asset-liability matching investment allocation in combination with appropriate reinsurance applications will work best. As the quantitative analysis indicates, reinsurance can be a very useful tool within a comprehensive gift annuity risk management plan, though rarely should it be used for the majority or entire pool. Conversely, nearly every charity will benefit from the strategic use of some reinsurance (certainly more than the eight percent of charities currently using reinsurance). By reconsidering reinsurance as an alternative fixed income asset, or as a collar on large gift annuities that exceed risk retention limits, charities can prudently reduce exhaustion probabilities while projecting higher future remainder values.

The authors wish to thank the following reviewers for their critique and recommendations: Jim Potter, Planned Giving Resources, Inc., Frank Minton, Ph.D., Planned Giving Services and Mack Johnston, CFA, Charitable Solutions, LLC.

<sup>1</sup> Bryan K. Clontz and Donald F. Behan, "Optimizing Charitable Gift Annuity Risk Management: Collaring the Bear and the Grim Reaper," *The Journal of Gift Planning*, Vol. 8, No. 1, 1<sup>st</sup> Quarter, 2004, p. 5.

<sup>2</sup> Mark A. Newton and Bryan K. Clontz, "An Analysis of Commercial Insurance as an Alternative Gift Annuity Financing Option," *The Journal of Gift Planning*, Vol. 2, No. 4, 4<sup>th</sup> Quarter, 1998, p. 5.

<sup>3</sup> Bryan K. Clontz, "The Top 10 Charitable Gift Annuity Risks to Avoid: How Does Your Charity Stack Up?", *Planned Giving Today*, November, 2004.

<sup>4</sup> The average and median are statistical terms describing the central tendency of data. The average, or mean, is the total value of all gift annuities divided by the number. The median is the precise mid-point of a data set. For example, if you have the following gift annuities of \$25,000, \$30,000 and \$45,000, the median is \$30,000 while the average is \$33,000. The standard deviation, or variance squared, is simply a measure of dispersion and is used to identify outliers—those points that are uniquely large or small. A normal bell curve distribution is created and then, based on the number of standard deviations, you can select how much of the data you wish to capture and how much you wish to exclude. For gift annuity purposes, the primary use is to determine the largest annuities, representing the concentration risk, on the positive or right side of the normal distribution. Approximately 68 percent of the data will be captured by one standard deviation, 95 percent by two

standard deviations and 99 percent by three standard deviations.

<sup>5</sup> This section draws almost exclusively from Frank Minton's *Charitable Gift Annuities: The Complete Resource Manual*, Chapter 10: Reinsurance, 2003. Additional information was drawn from Tom Cullinan and Phil Karno, "Big Hat – No Cattle? Repositioning Your Gift Annuity Program," *Proceedings of the National Conference on Planned Giving 2004*, pg. 673-690.

<sup>6</sup> Frank Minton, "Highlights of the 2004 Survey of Charitable Gift Annuities," ACGA in Touch, Vol.5, No. 1, Winter 2005.

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