Understanding The Longevity Annuity And Its Potential Role In Retirement Income

Executive Summary

- A longevity annuity is similar in concept to an immediate annuity, where a lump sum is converted into a lifetime stream of payments. However, while an immediate annuity begins payments "immediately" (or at least, within 1 year of purchase), a longevity annuity defers the annuity starting date to years (or often decades) hence. For instance, an immediate annuity might be purchased at age 65 with payments beginning a month later, while a longevity annuity purchased at 65 might not begin payments until 85.

- Annuity payments "for life" are comprised of three underlying components: principal, interest, and "mortality credits" which accrue from those who don't survive to those who do. For those who live a very long time (i.e., well past life expectancy), the contribution of mortality credits can be significant, producing a payment stream similar to a bond ladder but with an internal rate of return far better than what comparable-risk bonds alone can purchase.

- Longevity annuities are relatively simple and straightforward products – like their immediate annuity brethren – but do have a few important choices to consider, including when payments will begin, and whether payments will have some underlying guarantee (e.g., a minimum period that payments will be made, or a guarantee that beneficiaries will receive any principal not paid out) in the event of an untimely death.

- Many longevity annuities also offer the choice of

receiving payments that will be adjusted annually for inflation to ensure payments can keep up with the purchasing power potentially lost to inflation over long periods of time. However, the inflation-adjustment guarantees of longevity annuities only begin once payments themselves begin, leaving retirees exposed during the deferral period, or needing to guess at inflation to determine future cash flow needs.

- Payments from longevity annuities are generally taxed like other immediate annuities: once payments are received, they are eligible for "exclusion ratio" treatment where a portion of each payment is principal and a portion is interest (and mortality credits), effectively amortizing principal over life expectancy. For "qualified" longevity annuities (inside retirement accounts), recent Treasury Regulations were issued to facilitate the coordination between longevity annuities (where payments might not begin until age 85) and required minimum distributions (where payments must generally begin at age 70). Under the new rules, certain "Qualified Longevity Annuity Contract" (QLAC) arrangements can be owned inside of retirement accounts with payments delayed beyond the normal required minimum distribution start period.

- As a practical application, the greatest appeal of longevity annuities is to resolve the classic retirement challenge of investing a portfolio for the unknown time horizon of retirement. Pairing a longevity annuity together with a portfolio allows retirement assets to be segmented, where a modest longevity annuity purchase covers "everything" beyond age 85, and the portfolio only has to cover a finite time period from the onset of retirement until the onset of the longevity annuity payments, allowing for a potentially more efficient allocation of retirement assets with less uncertainty.

About the Author

Michael E. Kitces, MSFS, MTAX, CFP®, CLU, ChFC, RHU, REBC, CASL, is a Partner and the Director of Research for Pinnacle Advisory Group (www.pinnacleadvisory.com), a private wealth management firm located in Columbia, Maryland. In addition, he is an active writer and speaker, and publishes The Kitces Report and his blog "Nerd's Eye View" through his website www.kitces.com.

Introduction

With a rising number of baby boomers facing retirement, and a rather volatile market over the past two decades, there has been an increasing interest in the use of annuity products to provide safe and secure income in retirement – with the unfortunate caveat that the simplest options like immediate annuities have generally been unpopular, and the more complex alternatives like variable annuities with living benefit riders have been criticized that many buyers may be misunderstanding what really is and isn't guaranteed in the first place.

In the past few years, a new type of annuity solution has emerged, dubbed the "longevity annuity", which seeks to avoid carving a large portion of a portfolio into an illiquid immediate annuity, while also avoiding the complexity of variable annuity (and more recently, equity-indexed annuity) income guarantees.

In this month's newsletter, we explore the concept of longevity annuities, what they are and how they work, and where they may fit into the retirement income puzzle (especially as a longevity hedge). In next month's newsletter, we'll continue in further depth into the analysis of longevity annuities, how they compare to other types of retirement income strategies and approaches, and the caveats that must be considered when trying to fit them into a retirement income strategy.

What Is A Longevity Annuity?

The longevity annuity is similar in concept to an immediate annuity, where a lump sum is converted into a stream of income that will be payable for the rest of the individual's (or a couple's) lifetime(s). The key distinction, however, is that while an immediate annuity – as its name implies – begins its payments immediately, the longevity annuity defers/delays those payments to some point in the future. In fact, the longevity annuity is known in some circles as a "Deferred Income Annuity" (DIA) or an "Advanced-Life Delayed Annuity" (ALDA) instead.

The virtue of choosing a starting payment date at some point in the future is that, by waiting for a period of time, the subsequent payments that occur can be larger. This is due both to the implied growth of the underlying contributions, and similar to the immediate

annuity the potential to accrue "mortality credits" from those who also purchased but didn't live as long.
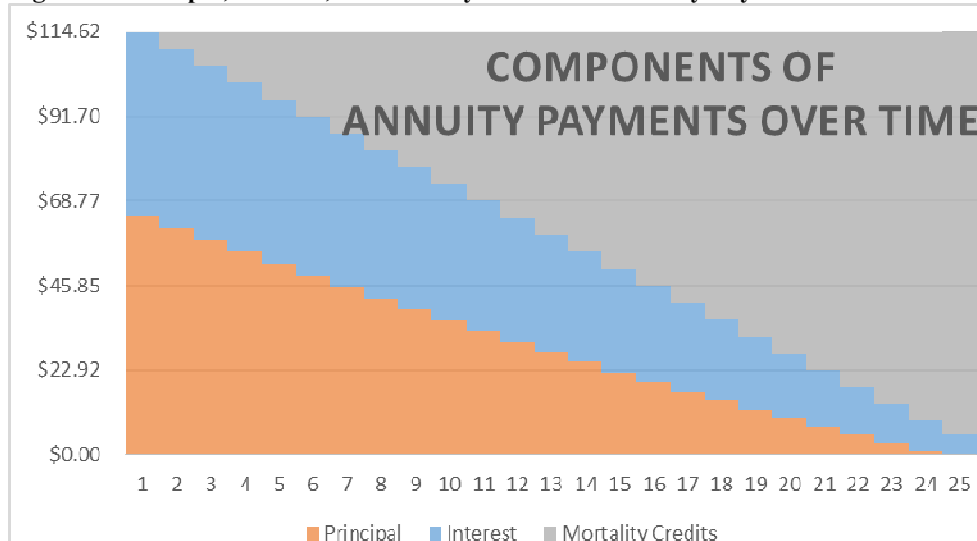
Understanding Mortality Credits

To illustrate, let's start by imagining a relatively simple single premium immediate annuity first. The annuity is purchased by 25 people, who each pay in $1,000. The mortality rate for these 25 people is such that 1 person is anticipated to pass away each year; by the end of a 25-year time horizon, the last of the group will die. Given these mortality assumptions and a 5% assumed interest rate, we can determine that the payment from this single premium immediate annuity will be $114.62/year, a rather healthy payment for a $1,000 premium, though notably by definition of our mortality assumptions, almost 1/3rd of the purchasers will pass away before they've even gotten enough payments to recover their original $1,000 principal.

Of course, the fact that many members of the purchasing group will pass away before receiving a significant number of payments is the reason why we can pay $114.62/year from a $1,000 lump sum assumed to earn only 5%; for an individual just investing and spending their own money, such a payment structure ($114.62/year from $1,000 growing at 5%) would deplete the pot of money by the 8th year. But thanks to the immediate annuity structure, those who participate can receive an 'outsized' payment – far beyond what an individual's principal and interest alone could support – because they are implicitly receiving a share of the payments from the others in the pool that have already passed away. This share of the contributions from other people who didn't survive is called the "mortality credit", and as illustrated in Figure 1 (top of next page), it becomes the dominating portion of each payment over time. *(Michael's Note: Chart is for illustrative purposes only; in the "real" world, survival rates decline and mortality rates rise over time, which means mortality credits actually tend to contribute less in the early years but even more in the later years than this chart implies.)*

Given these mechanics about how a single premium immediate annuity works with a pool of investors, we can now look at how the payments shift in the case of a longevity annuity. Continuing the above example, imagine now that the contract is a longevity annuity that does not begin payments until after the 10th year. In such a scenario, given the assumptions about mortality, 10 of the investors will not survive to receive *any* payments, and only 15 investors are anticipated to still remain alive at the point that payments begin at all. As a result, though, the payments for the survivors will be significantly larger, not only because principal will now

Figure 1. Principal, Interest, & Mortality Credits Of Annuity Payments Over Time

COMPONENTS OF ANNUITY PAYMENTS OVER TIME

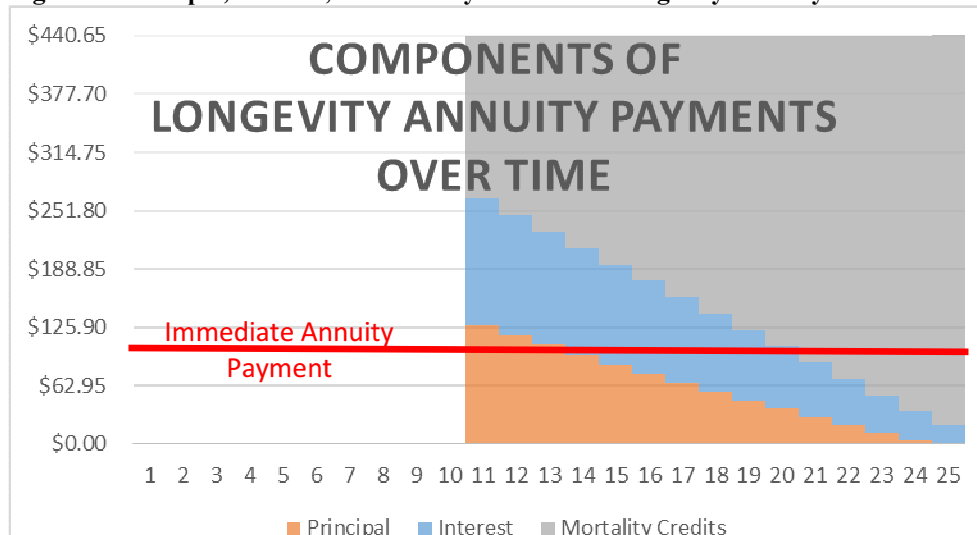Principal ■ Interest ■ Mortality Credits

growth). (Michael's Note: In this case, our simplified mortality assumptions will again somewhat overstate the increase in payments realistically available for the survivors, as in the real world 40% of retirees don't pass away in the first 10 years of retirement! These charts are for illustrative purposes only!)

be amortized over the last 15 years (instead of all 25) and because there has been 10 years of growth before beginning their payments (allowing the pot of money to compound before paying out), but also because the survivors who get payments will participate in the principal-and-interest of the 10 investors who will have passed away at that point. In fact, the shift from an immediate annuity to one where payments begin in the future *substantially* increases the payments (given our mortality assumptions), from $114.62/year to $440.68/year instead, and as shown in Figure 2 below, much of the increased payment is associated with the mortality credits that apply as soon as payments do begin (attributable to the 40% of purchasers who will not have survived to the point that payments begin and will have forfeited their principal-plus-10-years-of-

This potential for 'magnified' payments by deferring their onset specifically to accrue greater mortality credits (for the survivors) is the raison d'etre of the longevity annuity. And notably, as the charts show, it's *not* simply the same as investing the money for a period of time and *then* annuitizing it, because doing so fails to account for the mortality credits that can be accrued in the meantime.

For instance, imagine a 75-year-old client who plans to annuitize a lump sum of $100,000 for a period of one year. If the individual simply invested the money and earned a 6% return, he would have $106,000 at the end of the year. However, if he annuitizes the funds for a year with a large group of other 75-year-olds, the reality is that not everyone will live out the year. In fact, we know from the Annuity 2000 mortality tables (from the Society of Actuaries), about 2.19% of 75-year-olds are expected to pass away. Which means if a large group of 75-year-olds all contribute to the annuity, their combined pool of money can grow by the same 6% investment return, but less than 98% of them will live to

Figure 2. Principal, Interest, & Mortality Credits Of Longevity Annuity Over Time

COMPONENTS OF LONGEVITY ANNUITY PAYMENTS OVER TIME

Immediate Annuity Payment

Principal ■ Interest ■ Mortality Credits

divvy up the proceeds, which provides them an effective return of about 8.37% (calculated as $(1 + r) / p,$ where r is the rate of return and p is the probability of surviving). In essence, this means the non-annuitant would have to earn more than 8.37% *just to break even with the financial position of the 75-year-old who bought the annuity and survived the year.*

Figure 3, below, (from a paper by Moshe Milevsky analyzing the benefits of longevity annuities) illustrates the excess contribution from mortality credits over time; these charts do not include the underlying costs for the annuity company to issue the annuity and an allowance for their profit margins – which might trump the benefits in the early years – but as illustrated, in the later years the effective contribution of mortality credits is tremendous.

In the context of a longevity annuity, the potential for mortality credits is magnified further, due to the fact that it may be a decade or more before payments begin, which allows time for a significant accrual and compounding of investment returns and mortality credits. As a result, the investor who waits to buy an annuity until later may potentially require a *significantly* higher rate of return to make up for the mortality credits that will not be accruing, just to achieve the payout equivalent that the (longevity) annuity buyer can generate, especially at an advanced age. In other words, buying a longevity annuity at 65 that pays out at 85 may produce more income than just investing the money from 65 to 85 and then buying an immediate annuity (without accruing mortality credits in the meantime).

Obviously, this long-deferral-period longevity annuity approach entails a risk – that the buyer will be one of the participants who does not survive

Figure 3. Equivalent Investment Benefit For Survivor Of 1-Year Annuity

Age	Mortality Credits (basis points)
55	35
60	52
65	83
70	138
75	237
80	414
85	725
90	1256

Source: Investment Benefits From Annuitization Assuming 40/60 Male/Female Split For Annuity 2000 Table Under 6% Interest, by Moshe Milevsky, "Real Longevity Insurance With A Deductible: Introduction To Advanced-Life Delayed Annuities" North American Actuarial Journal, 2005.

the year(s) or decade(s) until the annuity payments begin – but that is part of the mortality trade-off of getting what was shown earlier to be a *significant* potential increase in payments by being one of the survivors! (Notably, longevity annuities don't have to be all-or-none, and are available with various forms of payment guarantees at death, similar to the refund and period certain features available on immediate annuities; however, as with immediate annuities, obtaining such guarantees will reduce the size of the payments from the longevity annuity in the first place, as they undermine, or potentially eliminate, any mortality credits.)

Costs, Payments, & Structures For Longevity Annuities

Costs And Payments

The earlier example of a longevity annuity was intended for illustrative purposes only; as noted earlier, in the real world the mortality of early retirees is not so high that 40% of them pass away in the first decade. Accordingly, the chart below shows some of the payment trade-offs actually available in the longevity annuity marketplace today. The charts assume a 65-year-old *couple*, making a $100,000 single lump sum purchase, and illustrates various "annuity starting dates" (the point at which annuity payouts actually begin). (Quotes are from Cannex, as of 7/8/2014.)
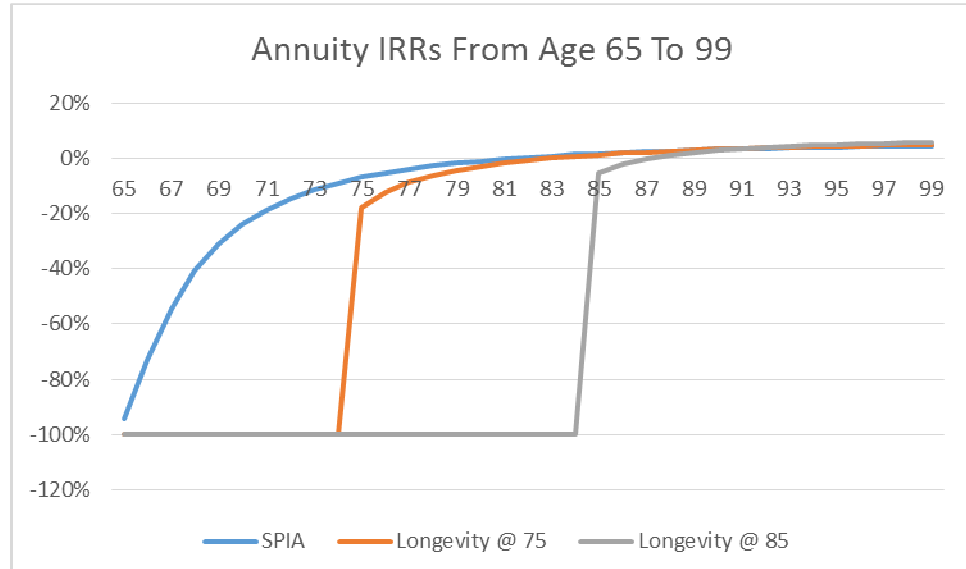
Purchase Age	Starting Payment Age	Monthly Payment
65	65	$478.91
65	75	$934.18
65	85	$2,656.20

As the chart reveals, the "payoff" for delaying the onset of payments from a longevity annuity using real world pricing is significant – by waiting a decade, the payment size is still almost doubled, and waiting another decade more than doubles it again. And the payment terms – including the fact that payments will be larger by waiting with a deferred starting date to the annuity payments – are guaranteed contractually, and are not contingent on generating actual market returns that (more than) double money every decade.

Of course, while a compounding return of about 7.2% can double money in a decade, the value of increasing payments from a longevity annuity is not truly 7.2%. As noted earlier, a portion of the payment increase is

simply attributable to amortizing principal over a shorter time period (since there was a waiting period to get payments in the first place), and a portion of merely growth on the underlying principal that would have occurred anyway; only a portion of the payment increase is really due to the accrual of mortality credits uniquely provided by the annuity (which could not have been replicated elsewhere).

Figure 4. Longevity Annuity Internal Rates of Return (IRRs) At Various Start Points

Annuity IRRs From Age 65 To 99

Unfortunately, the buyer is not privy to the underlying pricing assumptions used to break down the principal, interest, and mortality credit components of a longevity annuity payment. On the other hand, the potential buyer can still evaluate the benefits of the longevity annuity by simply determining what return is implied by the guaranteed payment stream, and then comparing it to available investment alternatives. To the extent the payments are higher than what a comparable-risk bond alone would have given, that is the implicit value of mortality credits.

In other words, there's some growth rate at which an investor could simply turn $478.91/month now into $934.18/month starting in 10 years, achieved just through investing alone. Mathematically, this can be measured by comparing the internal rates of return that would be required to replicate the cash flows from an investment portfolio alone, and comparing them across scenarios and to actual investment alternatives.

Accordingly, Figure 4 (above) shows the internal rate of return on the series of cash flows from the three annuity options – an immediate annuity beginning at age 65, a longevity annuity that starts at 75, and a longevity annuity that begins at 85. Not surprisingly, in the early years, the outcomes are dominated by the consequences of an early death – a significant loss if both members of the couple both pass away before enough payments have been received to recover the original principal (or in the case of the longevity annuity, the risk of a 100% loss if both members of

the couple pass away before *any* payments have begun).

Longevity Annuity Principal/Refund Guarantees

To at least partially mitigate this risk of early death, annuities – both immediate and longevity – do typically have guarantees available to provide a certain minimum period that payments will be made (e.g., even if death occurs early, a minimum of 5- or 10-years' worth of payments will be made). Alternatively, some annuities offer a provision that pays a cash refund to the beneficiaries for any portion of the principal not recovered by ongoing payments (e.g., if the premium was $100,000 but only $42,000 of payments have been received before death occurs, the beneficiaries will receive a lump sum of the remaining $58,000 to make them whole). Accordingly, the chart below shows how payments are adjusted for a (cash refund) guarantee against early death, assuming a $100,000 upfront premium contribution.

Purchase Age	Starting Payment Age	Monthly Payment	With Cash Refund Guarantee
65	65	$478.91	$471.45
65	75	$934.18	$929.46
65	85	$2,656.20	$2,373.19

Notably, the results reveal that the impact to payments for a cash refund guarantee is quite minimal for the

immediate annuity and the longevity annuity that begins at age 75 – for the simple reason that the odds really are quite low that both members of a 65-year-old couple would pass away before most/all of the principal was recovered in the first place; i.e., the guarantee is just guaranteeing something that was *highly* likely to happen anyway, so the "cost" of the guarantee (in the form of reduced payments) is fairly modest.

For the longevity annuity that begins at age 85, though – which is somewhat closer to the joint life expectancy of a married couple – the payment adjustment for the guarantee is a bit more significant, representing a reduction of just over 10% to eliminate the "downside" risk of an early joint death.

When re-evaluated on this basis, Figure 5 (below) shows the internal rates of return (IRRs) of the three types of lifetime income payment structures, where the "worst case" scenario is simply to receive an IRR of 0% (i.e., a return of any remaining unrepaid principal, albeit with a loss of liquidity in the meantime), and the "best case" scenario is to continue receiving payments as long as the couple remains alive, leading to a growing IRR over time as more cumulative payments are received for the given original lump sum.

As the results show, waiting a longer period of time for longevity annuity payments to begin results in a longer waiting period for payments to exceed the original contribution in the first place (i.e., the point at which the IRR rises above just a 0% return of principal). On the other hand, the longer the starting payments have been deferred, the greater the IRRs turn out to be for the (small) subset of couples who live a very long time. While the immediate annuity has an IRR of 4.4% by age 99 (after 35 cumulative years of payments), the longevity annuity starting at 75 has an IRR of 4.8%, and the longevity annuity starting at age 85 has an IRR of 5.4%. In other words, for those who actually *do* live to see their 100th birthday, the decision to purchase a longevity annuity

starting at age 85 was the equivalent of selecting an investment that generated another 1% returns (the difference between 5.4% and 4.4%), cumulatively, for 35 years – a rather material difference in long-term wealth!
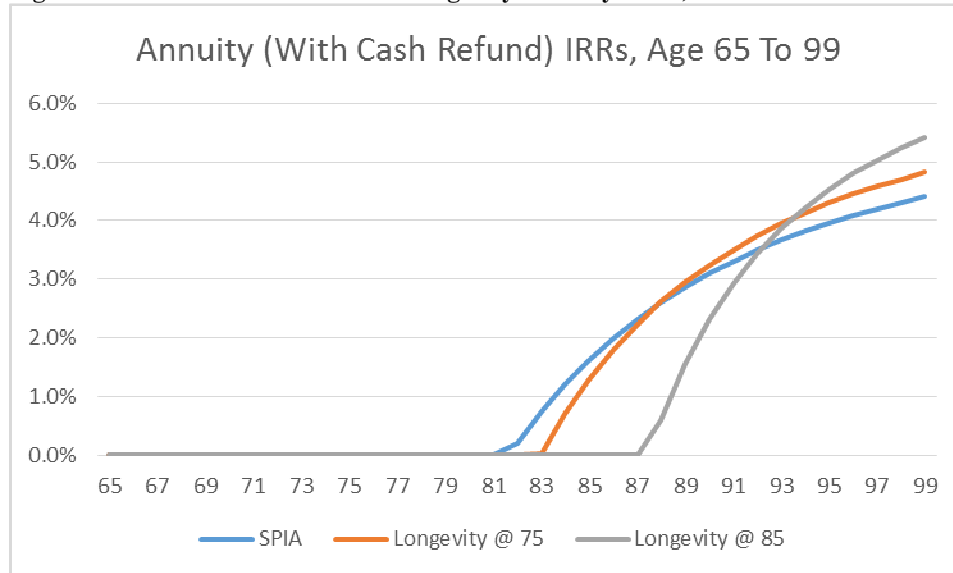
Longevity Annuity Inflation Protection

Beyond the risk of passing away before any/most payments have been received from a longevity annuity, another significant caveat of longevity annuity contracts is the long-term impact of inflation. After all, a fixed payment stream can lose significant purchasing power over multi-decade time spans, even at a relatively modest inflation rate.

Fortunately, though, longevity (and immediate) annuities do have options for rising payment streams to help maintain purchasing power, including both flat fixed-percentage increases (e.g., payments rise at a fixed 2% or 3% per year, regardless of what inflation turns out to be), or more genuine "inflation-adjusted" payment increases (that raise the payment each year by actual CPI as a form of cost-of-living adjustment). The chart below shows a sample of CPI-inflation-adjusted annuity payments (with and without a cash refund guarantee also attached in the event of early death).

Purchase Age	Starting Payment Age	Monthly Payment	With Cash Refund Guarantee
65	65	$318.18	$308.37
65	75	$710.39	$688.94
65	85	$2,170.43	$2,005.07

Figure 5. Cash Refund Guarantee Longevity Annuity IRRs, Various Start Points

Annuity (With Cash Refund) IRRs, Age 65 To 99

SPIA — Longevity @ 75 — Longevity @ 85

Notably, the CPI-U adjustments begin *only once payments themselves begin*; thus, the immediate annuity starts with payments of $308.37/month that adjust every year thereafter, while the longevity annuity at 85 will start with payments of $2,005.07 in 20 years (*fixed* at that point regardless of what inflation is between now and then), and will only *subsequently* increase for inflation beyond age 85.

Taxation Of Longevity Annuities

Non-Qualified Longevity Annuities

From an income tax perspective, longevity annuities purchased with after-tax dollars (i.e., "non-qualified" annuities) are taxed in a similar manner to immediate annuities – applying the "exclusion ratio" rules where a portion of each payment is taxable (as ordinary income), and the remainder is treated as a return of principal.

The basic structure of an exclusion ratio is simply to divide the cost basis (known as the "investment in the contract" for annuities) into the total expected payments, to determine the portion of each payment that will be tax exempt. For instance, imagine a 65-year-old couple that purchases an annuity for $100,000 which is expected to make $500/month joint and survivorship payments as long as either is alive. Their joint life expectancy is approximately 22.2 years, until just past age 87 (266 months of payments). Accordingly, the total expected payments are $500/month x 266 months = $133,000, the total contributions are $100,000, which means the $100,000 / $133,000 = 75.2% of each payment will be return of principal. Thus, $500 x 75.2% = $376 of each payment will be non-taxable, and the other $124 of each payment will be taxable as ordinary income.

The exclusion ratio may be further adjusted for various period certain or cash refund guarantees, but the basic structure simply ensures that cost basis is received pro-rata over the time period, and the time period itself (life expectancy) for calculating the exclusion ratio is based on IRS life expectancy tables from Treasury Regulation 1.72-9. In fact, in the context of the earlier example, when there are no other guarantees associated with the contract, the $376/month of non-taxable payments is simply the $100,000 cost basis

divided by the 266 months (based on the applicable IRS life expectancy tables) that payments will be made (with some rounding).

In the case of a longevity annuity, the basic structure for determining the exclusion ratio is the same, although the life expectancy and payment factors will be adjusted given that the fact that the annuity starting date for payments is delayed to some point in the future.

For instance, if the $100,000 longevity annuity purchase provides payments of $2,656.72/month starting at age 85, and the joint life expectancy of an 85-year-old couple is 9.3 years (or 112 months), then the total expected payments will be $2,656.72/month x 112 months = $297,552.60, and the exclusion ratio will be $100,000 / $297,552.60 = 33.6%. As a result, when payments finally begin at age 85, $892.66 of each payment will be nontaxable, and the other $1,764.06 will be taxable as ordinary income. Again, this is simply the equivalent of recovering the original annuity cost of $100,000 evenly across the 112 months of anticipated payments.

To the extent that payments continue beyond life expectancy, any additional annuity payments – whether from an immediate annuity or a longevity annuity – become 100% taxable as ordinary income, as all principal will have been recovered at that point. Conversely, if the annuitant(s) die before fully recovering the original principal, the unrecovered principal is deductible *on the annuity owner's final income tax return* as a miscellaneous itemized deduction *not* subject to the 2%-of-AGI floor.

Qualified Longevity Annuities

In the case of qualified (pre-tax retirement) accounts – e.g., IRAs and employer retirement plans – the situation for longevity annuities is more complex.

The tax treatment of the longevity annuity payment itself is relatively straightforward – the taxation of each longevity annuity payment will be based on the tax treatment of the underlying retirement account itself, such that payments from a pre-tax retirement account will be fully taxable as is normal for any distributions from traditional IRAs and the like (and longevity annuity payments from a Roth will be tax-free as is standard for Roth accounts). However, the complexity arises because pre-tax traditional retirement accounts in particular have

required minimum distributions that must begin once the account owner reaches age 70 ½, which may not be possible in situations where a longevity annuity is contractually obligated not to begin payments until age 85 and is otherwise illiquid!

To address this, the Treasury recently finalized Regulations that will allow for the coordination between longevity annuities and required minimum distribution (RMD) obligations for traditional retirement accounts. Under the new Treasury Regulation 1.401(a)(9)-6, a longevity annuity can be held inside of a retirement account and still make no payments until as late as 85, without running afoul of the RMD rules, as long as it meets certain requirements to be a "Qualified" Longevity Annuity Contract (QLAC).

The requirements for QLACs are as follows:

- Only 25% of any employment retirement plan (or 25% across all pre-tax IRAs aggregated together) can be invested into a QLAC.

- The cumulative dollar amount invested into ALL QLACs across *all* retirement accounts may NOT exceed the LESSER of $125,000 (original regulations were only $100,000), or the aforementioned 25% threshold. The $125,000 dollar amount will be indexed for inflation, adjusted in $10,000 increments.

- The limitations will apply separately for each spouse with their own retirement accounts.

- The QLAC must begin its payouts by age 85 (or earlier)

- The QLAC must provide fixed payouts (not variable or equity-indexed), though it may have a cost-of-living adjustment (COLA)

- The QLAC cannot have a cash surrender value once purchased (i.e., it must be irrevocable and illiquid), but it can have a cash refund (return-of-premium) death benefit payable to heirs as a lump sum or a stream of income after death of the annuitant

If the longevity annuity meets the above requirements to be deemed a QLAC, then the value of the QLAC is excluded when calculating RMDs (for other retirement assets), and the payments from the QLAC (whenever they begin) are implicitly assumed to satisfy their RMD obligation (though the QLAC

payments will not satisfy RMDs for any *other* retirement accounts).

> *Example.* Jeremy purchased a $50,000 QLAC at age 65 that will begin payments of $15,937 at age 85. In addition, he has $400,000 of other IRA assets. By age 70 ½, his IRA has grown to $600,000, and he must begin to take RMDs from the account. His RMDs will be calculated only on the $600,000 account balance, and not include any implied value from the QLAC. Moreover, when Jeremy turns 85 (and we'll assume his IRA is up to $900,000), he will begin to receive his $15,937/year payments from the QLAC, and he will *still* have to take RMDs from his $900,000 IRA (and cannot count any of the $15,937/year QLAC payments towards his IRA's RMD). The $15,937/year payments from the QLAC itself will automatically (because the QLAC was qualified in the first place) be deemed to meet the RMD rules for that portion of Jeremy's assets.

Notably, longevity annuities purchased in Roth accounts *are not* considered QLACs, for the simple reason that Roth IRAs do not have RMDs to comply with in the first place; as a result, an unlimited amount of longevity annuities could be purchased within a Roth IRA (if desired), and the account balances and longevity annuities inside Roth IRAs are not counted towards the $125,000 and 25% limits.

For contracts purchased in traditional retirement accounts (IRAs or employer retirement plans), the dollar and percentage limits do apply. In practice, most retirees will be limited to 25% of retirement accounts, as until they have at least $500,000 of retirement accounts the 25% limit will hold (only with accounts greater than $500,000 would the $125,000 dollar limit be the lesser of $125,000-or-25%). On the other hand, *each* spouse could invest this much into a QLAC, effectively doubling the longevity annuity amount for a couple (if desired).

Notably, a retiree could theoretically purchase a "regular" longevity annuity that is NOT a QLAC inside of a pre-tax retirement account as well. However, the annuity will need to be valued annually – just like any other retirement asset – to determine the associated required minimum distribution. Notably, this may be problematic for a retiree if the longevity annuity does *not* have any kind of commutation or other liquidity provision, though in the case of IRAs any other retirement account can be tapped to satisfy the RMD obligation associated with the longevity-annuity-IRA; if all other retirement account assets are depleted, though, the retiree could face an RMD without the liquidity to

make the withdrawal (a situation that can be averted by specifically using a QLAC form of longevity annuity).

Planning Applications Of Longevity Annuities

So given the unique payout arrangement of a longevity annuity – with no payments for years or even decades, followed by "very large" payments in later life – where exactly can a longevity annuity potentially fit in the context of a retirement plan?

Longevity Annuities Vs Immediate Annuities

A starting point is to look at the research and uses of immediate annuities that pay income for life. Immediate annuities have long been a staple of the lifecycle finance academic literature, and have been advocated in several financial planning contexts, including their use as a guaranteed base of income for life (e.g., to cover "essential" spending needs that then cannot be outlived), or as a liquidation strategy to manage sequence-of-return risk. For instance, by partially annuitizing a portion of the portfolio, and drawing spending from the annuitized payments, the retiree reduces the need to take withdrawals from the portfolio until years later when inflation adjustments eventually require greater spending withdrawals than just the annuity payments alone – but by that time, the portfolio will have recovered from any early years' declines.
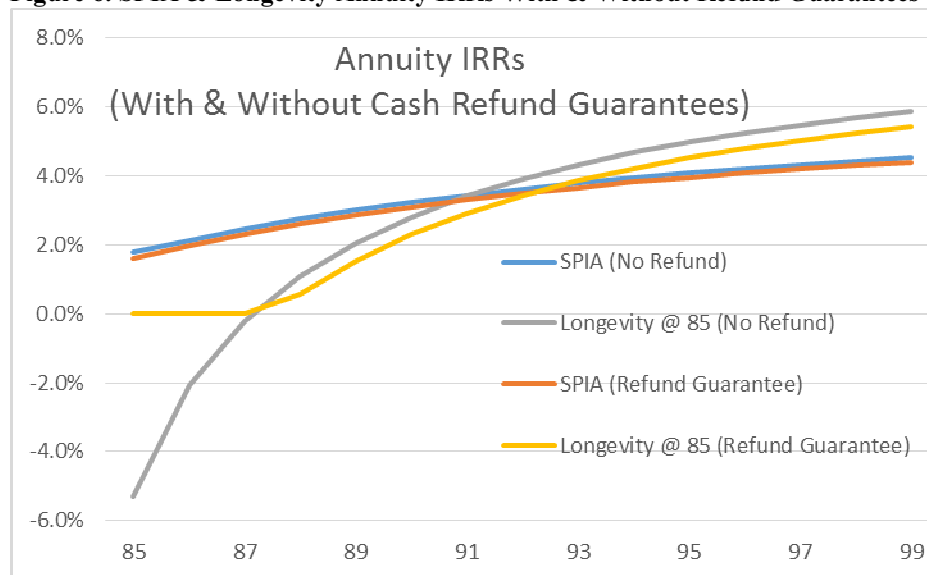
On the other hand, recent research has shown that much of the "liquidation" benefits of annuities to protect against sequence-of-return risk can be reproduced with portfolio bucket spending strategies that avoid the actual annuity itself, and simply hold an allocation of stocks and bonds where the bonds are liquidated first and the stocks are left alone (and even

allowed to glide higher). In this context, the primary benefit of immediate annuitization for improving retirement success is not actually its liquidation feature – that can be mostly replicated by a portfolio – but specifically the potential for mortality credits for those who materially outlive life expectancy, and generate a far greater return for what amounts to a "fixed income" investment (for those who live long enough to reap its rewards).

Yet the reality is that for those who *do* wish to utilize lifetime annuity payments because they *do* anticipate outliving life expectancy and want to maximize mortality credits, arguably a longevity annuity is an *even better* means of doing so. As shown earlier, the internal rate of return on an immediate annuity at the later stages of life becomes superior to most other fixed income investments over a long time horizon – i.e., the immediate annuity had an internal rate of return of 4.4% after 35 years, while the longevity annuity that began payments at age 85 had an IRR of 5.4%.

In other words, for those who are trying to hedge against really living far past life expectancy, the longevity annuity provides a bigger bang for the buck in the long run than an immediate annuity (or alternatively, requires the lowest investment to make it work for a given target spending amount). And the effect is even more magnified without any cash refund guarantees; while the risk of financial loss is greater in the event of an early death (potentially a 100% loss for death before age 85, albeit closing the gap quickly once payments begin!), the IRR after 35 years for a straight joint survivorship immediate annuity is 4.5%, while with the longevity annuity it's all the way up to 5.9%, as shown in Figure 6 (below)!

Figure 6. SPIA & Longevity Annuity IRRs With & Without Refund Guarantees
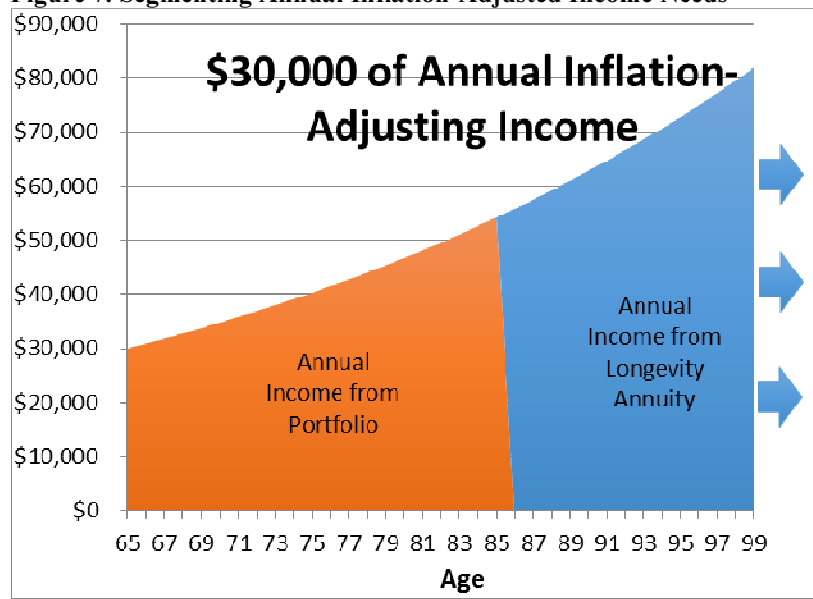
Segmenting (or "Bucketing") Retirement Needs

One of the most intriguing aspects of fitting a longevity annuity into the retirement picture is the potential for a longevity annuity to cover spending needs in the later years of retirement, while a portfolio covers the early years, a unique form of a "bucketing" strategy that segments retirement assets in a potentially very efficient manner.

For instance, imagine a 65-year-old couple that purchases a longevity annuity that will begin to make significant payments at age 85 to cover *all* their (inflation-adjusted) needs later in life. This couple's retirement investment puzzle is now greatly simplified: they just need to cover the fixed time horizon of the next 20 years, because the longevity annuity will take care of "everything thereafter" if they are still alive, as shown in Figure 7 (above). In other words, the couple has just turned one of the biggest retirement challenges – investing for an unknown retirement time horizon due to the uncertainty of mortality/longevity – into a much more manageable problem over a known time horizon of investing from the start of retirement until the annuity starting date when the longevity annuity payments kick in. From that point forward, the longevity annuity covers everything, regardless of how long the retiree lives. In essence, the longevity annuity gives the retirement portfolio investment problem an "end point" (when the longevity annuity payments begin) that most retirement plans don't have when the retiree otherwise doesn't know how long he/she will live.

Thus for example, imagine a scenario where a 65-year-old couple with $1,000,000 wants to spend $30,000/year from their

Figure 7. Segmenting Annual Inflation-Adjusted Income Needs

portfolio (adjusted for inflation) for the rest of their lives, to supplement available Social Security income. At 3% inflation, $30,000/year will be $54,183/year in 20 years (at their age 85), and per the earlier pricing charts, this couple can buy a longevity annuity that makes inflation-adjusted payments (straight joint survivorship payments, no cash refund guaranteed) of $54,183/year (which is $4,515.28/month) beginning at age 85 for a longevity annuity cost of about $208,000. This purchase will leave the remaining $792,000 of the portfolio available to cover *just* the next 20 years. Now, instead of trying to invest $1,000,000 for a $30,000/year inflation-adjusted income for an *unknown* time horizon, the couple can invest $792,000 for a $30,000/year inflation-adjusted income for exactly 20 years, secure in knowing that all payments beyond that point will be covered by the longevity annuity.

The 20-year time period could then be covered with a diversified portfolio, or simply by something like a ladder of TIPS bonds, providing the exact amount of inflation-adjusted income for each of the 20 years, and entirely securing the couple's

lifetime income! In fact, it would only take about $577,000 to buy a ladder of TIPS to cover the payments for the next 20 years, leaving almost $215,000 left over as well, as shown in Figure 8 (right)! And whether the couple lives to age 85, 95, or 105, they will have inflation-adjusted income for life.

Of course, the reality is that this 65-year-old couple could have simply purchased a lifetime inflation-adjusted *immediate* annuity to cover their lifetime guaranteed income goal as well, simply starting at age 65 when they retired. But using the aforementioned costs (again with no refund guarantees), the purchase of an *immediate* annuity would require about $786,000 of their capital, leaving only $214,000 over for 'emergencies' and contingencies – which is similar to the $215,000 left over from the longevity annuity scenario, except remember that the $577,000 in TIPS bonds would still be a liquid portfolio that *could* be adjusted if desired (differences in allocation and liquidity shown below in Figure 9)!

While it may be appealing to use the longevity annuity in this context, as it obtains similar longevity guarantees but at a lower upfront cost, it's notable that whether buying a TIPS portfolio plus an inflation-adjusted *longevity* annuity, or an inflation-adjusted *immediate* annuity to cover the same time period, the *total* "cost" in required dollars is similar, as both the investor and the insurance company are ultimately investing in the same capital markets for the same time horizon and the same available bond yields! The only difference is the liquidity of the capital in the meantime, which arguably would be more appealing in the longevity annuity scenario (similar income, similar costs, and more liquidity in the meantime).

Figure 8. Segmenting $1M of Retirement Assets

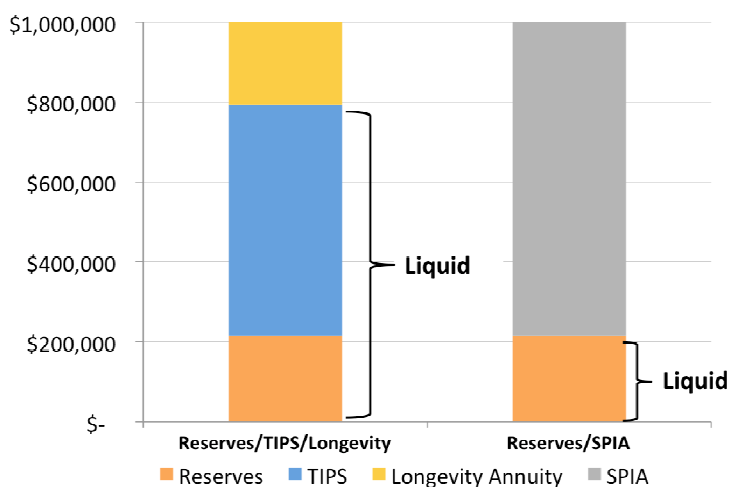| TIPS Length (Years to Maturity - N)	Real Yield (I/Y)	Real Maturity Value (FV)	Req'd Lump Sum Payment (PV)
1	-0.50%	$30,000	($30,150.15)
2	-0.44%	$30,000	($30,263.32)
3	-0.37%	$30,000	($30,339.13)
4	-0.31%	$30,000	($30,377.34)
5	-0.25%	$30,000	($30,377.83)
6	-0.04%	$30,000	($30,063.08)
7	0.18%	$30,000	($29,624.71)
8	0.20%	$30,000	($29,516.44)
9	0.23%	$30,000	($29,394.88)
10	0.25%	$30,000	($29,260.21)
11	0.29%	$30,000	($29,049.88)
12	0.34%	$30,000	($28,816.41)
13	0.38%	$30,000	($28,560.38)
14	0.42%	$30,000	($28,282.46)
15	0.47%	$30,000	($27,983.33)
16	0.51%	$30,000	($27,663.76)
17	0.55%	$30,000	($27,324.52)
18	0.59%	$30,000	($26,966.45)
19	0.64%	$30,000	($26,590.43)
20	0.68%	$30,000	($26,197.34)
Total Cost of 20-Year Tips Ladder:			**$576,802.04**
Cost Of Longevity Annuity:			**$208,000.00**
Remaining Portfolio Reserves:			**$215,197.96**

On the other hand, while this approach may be appealing when the income goal is "just" $30,000/year, if the target spending goal was an inflation-adjusted $40,000/year (e.g., a "4% withdrawal rate"), the outcome is different. Now the longevity annuity would require about $277,000 while the TIPS ladder would require over $770,000 – a total of $1,047,000, which is slightly more than the total portfolio of only $1,000,000 to begin with! Using an immediate annuity instead, the required payment would be a very similar lump sum of $1,048,000, which again is more than the retiree has available to invest in the first place!! This challenge highlights the fact that the retiree with the longevity-annuity-with-TIPS strategy might maintain more liquidity than the immediate annuity, but doesn't necessarily improve the "cost" of retirement. In either scenario, it would take "everything" the retiree has – or maybe even a little more – just to satisfy $40,000/year of inflation-adjusted lifetime spending.

Figure 9. Allocation of Retirement Assets with Longevity vs Immediate Annuity for $1M Portfolio

Of course, at a 4% initial withdrawal rate (of $40,000/year of inflation-adjusted income on a $1,000,000 portfolio), the retirement could ostensibly also be funded by simply following a 4% "safe withdrawal rate approach", which results in similar income and no annuitization at all (immediate or deferred with a longevity annuity!). However, the caveat between the 4% rule and using an immediate or longevity annuity is time horizon; while the 4% rule has worked for all historical 30-year time periods in US history, it does not necessarily leave anything over *after 30 years* (at least in the worst case scenario), which means there is a risk of outliving the 4% rule if the retiree(s) outlive the 30-year time span. By contrast, the annuity-based solutions require a roughly similar amount of capital, but eliminate the risk of the unknown time horizon in exchange for the loss of some upside potential (in the majority of scenarios where growth outpaces the 4% initial withdrawal rate) and some liquidity (to the extent funds are tied up in annuities).

This potential to remove the uncertainty of time horizon with an annuity – and in particular, *without* committing large amounts of capital in the case of a longevity annuity – accentuates the purpose and appealing trade-off of using a longevity annuity. Especially in a world where few consumers seem interested in annuitizing a significant portion of their wealth, the longevity annuity approach consumes *only* a moderate portion of the portfolio and *leaves* the majority of the portfolio liquid and available to invest for upside or keep available for contingencies *and* takes the time horizon longevity risk itself off the table.

Nonetheless, as the examples highlight, the annuity-based solutions don't necessarily result in *more* income, they just manage the risk of outliving an (admittedly already conservative) 30-year time horizon. (Notably, the earlier examples have no cash refund feature to return any principal at death if it wasn't received as an annuity payout while the couple was alive. If an annuity with refund guarantees was purchased instead, the required allocation to the annuities would be even higher and lag the 4% initial withdrawal rate further.)

Pre-Retirement Longevity Annuity Purchases

While much of the focus thus far has been on the decision of whether to purchase a longevity annuity, an immediate annuity, or no annuity at all at the time of retirement, the reality is that the decision does not have to be made solely at the moment of the retirement transition.

With an *immediate* annuity, the moment of retirement is the common decision point – as once purchased, payments begin immediately, and there's little reason to buy an immediate annuity and begin payments before retirement when someone doesn't need the cash flow anyway (i.e., you don't need to purchase an immediate annuity at age 55 that starts payouts right away when you don't plan to retire until 65!).

However, with a longevity annuity, the situation is different, because the whole *point* is that contributions will occur earlier and payments will not begin until much later (i.e., you really could purchase a longevity annuity at 55 since payments won't begin until long after retirement starts anyway!). Thus in the context of longevity annuities, the retirement date is not nearly as relevant a marker for when to purchase the contract and make contributions, and in fact it may be quite reasonable to consider contributions earlier.

The first advantage of earlier contributions is, as discussed previously, the longer the funds are in the longevity annuity, the greater the potential to accrue mortality credits. To be fair, the reality is that since mortality is low in the earlier years anyway – i.e., not very many people pass away – there isn't necessarily a *huge* difference in the gains of mortality credits by buying at age 55 instead of 65. But there is still some benefit. In the "extreme", prospective retirees could even start buying at age 45 or 35, to further leverage the time horizon to accrue mortality credits until payouts begin at what might still be (a distant future) age 85. Notably, though, to maximize the value of mortality credits, it would be necessary to purchase a longevity annuity that does *not* offer any kind of death benefit guarantees (as the guarantees undermine the mortality credits in the first place).

Of course, at those much earlier purchase ages, there might not necessarily be as much available to contribute in the first place; many younger accumulators still don't have a lot available to invest towards retirement, and/or wish to keep their funds more liquid, and/or may have all their money tied up in accounts that aren't able to purchase longevity annuities anyway (e.g., a 401(k) plan that doesn't currently offer such contracts, and from which the worker cannot currently complete a rollover due to still being employed there!).

However, a longevity annuity doesn't necessarily have to be purchased with a lump sum, either. In fact,

retirement researcher Moshe Milevsky suggests that it may be especially effective to utilize longevity annuities by having workers make small, periodic, ongoing contributions over time. For instance, a worker might save $100/month into a longevity annuity over time, as a part of their overall retirement savings (e.g., $100/month into a longevity annuity, and $400/month into a 401(k) plan), slowly accumulating their "hedge" for longevity in their later years, while building 401(k) savings to handle the first part of retirement (and keep the bulk of their retirement assets more liquid). The upside of this approach over the alternative of a larger lump sum longevity annuity purchase at or near retirement is that it may feel like there is less "at risk" and a less severe loss of liquidity by not writing a large check all at once.

How Much To Purchase

While there's a lot of flexibility over the timing of *when* a longevity annuity might be purchased – recognizing that in general, the earlier the better for accumulating mortality credits – it still raises the question of *how much* to aim to purchase as part of an integrated retirement plan.

On the one hand, the goal may simply be "enough to cover 100% of future inflation-adjusted spending needs" to synchronize a portfolio covering the early years and the longevity annuity covering the later years. The advisor can make projections of spending needs given an inflation assumption, determine what the spending goal would be at age 85, and purchase a longevity annuity that matches the desired spending amount.

On the other hand, the caveat is that there is a notable challenge to the aforementioned longevity annuity scenario: *the advisor* (or the retiree on his/her own behalf) has to estimate how much inflation-adjusted dollars need to be paid, beginning 20 (or however many) years from now. Because while there are some available longevity annuity contracts that provide inflation-adjustments to payments *once they begin*, the

contracts *do not* guarantee the inflation adjustments *between the time of purchase and the time that payments begin*. In other words, while $30,000/year today might be the equivalent of $54,183/year in 20 years assuming 3% inflation, there's no certainty that inflation will actually *be* 3% over the next 20 years. It could be higher or lower, and that *uncertainty* and risk is still borne by the longevity annuity purchaser, as shown in Figure 10.

Thus, for instance, if the retiree buys $54,183/year of payments in 20 years – equal to $30,000/year in today's dollars – but inflation turns out to be 4% for the next two decades instead, the $54,183/year will have a purchasing power of less than $25,000 in today's dollars. The couple will have a "gap of almost 20% of their purchasing power with the longevity annuity scenario, because they "guessed wrong" on inflation during the deferral period. Conversely, if inflation turns out to be only 2% for the next two decades, it will turn out that the couple bought almost 20% "excess" longevity annuity they didn't actually need (and/or the annuity owner could have bought less of an annuity in the first place!). These income gap and excess results, due to the challenge in guessing inflation during the deferral period, are shown in Figure 11 (top of next page).

Notably, this is actually a unique risk of a longevity annuity that is *not* present in an (inflation-adjusted) immediate annuity; when the payments begin today with an immediate annuity, so too can the inflation adjustments begin immediately, which removes this

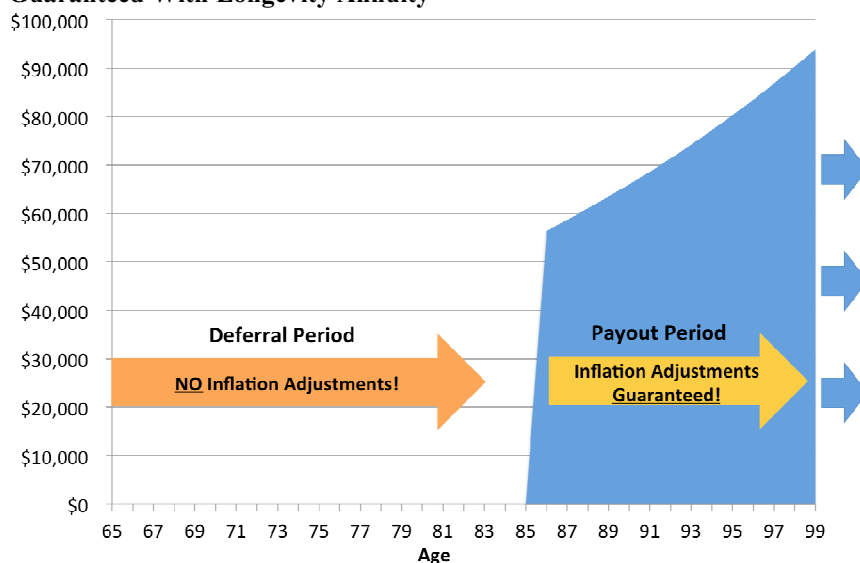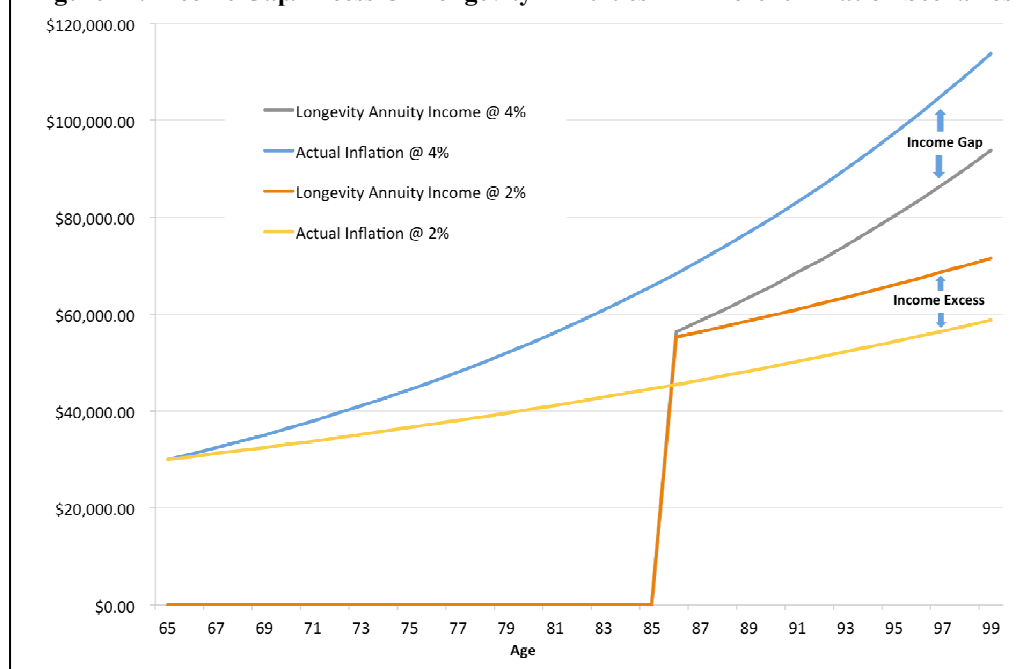**Figure 10. Where Inflation Adjustments Are/Aren't Guaranteed With Longevity Annuity**

Figure 11. Income Gap/Excess Of Longevity Annuities In Different Inflation Scenarios

Legend:
- Longevity Annuity Income @ 4%
- Actual Inflation @ 4%
- Longevity Annuity Income @ 2%
- Actual Inflation @ 2%

Income Gap

Income Excess

spending needs (due to inflation) and time horizon (as we don't know when we will die) are *already* challenges in today's retiree marketplace, but their presence in this scenario means the longevity annuity doesn't actually fully solve the problem, either.

Nonetheless, the fact remains that for clients who wish to do *some* longevity hedging, and maximize the leverage of their annuity dollar payouts in the event of an especially long life, the longevity annuity still provides greater payments with a higher IRR in the long run than "traditional" immediate annuities, leaving immediate annuities in particular in a strange no-man's land where investors in the short run don't want an annuity for life and in the long run may be better served by a longevity annuity instead!

Availability Of Longevity Annuities In Current Marketplace

Thus far, the longevity annuity "marketplace" is still very small, at least relative to the rest of the annuity marketplace. Statistics from LIMRA indicate that in 2014, longevity annuities are on pace for $2.5B worth of premium contributions, up from only $1B of purchases in 2012; however, the "rather unpopular" immediate annuity is on pace for $10B of purchases in 2014, and total annuity purchases of all types may be close to $250B for 2014, which means even with their "150% growth" since 2012, longevity annuities are still barely 1% of the annuity marketplace (which in turn is just a small fraction of the total market for retirement savings).

Nonetheless, given the recent uptick in purchases, several major insurers have been getting involved, including New York Life (which has been driving much

inflation uncertainty risk. When the payments are delayed with the longevity annuity, so too is the onset of inflation adjustments, which shifts the risk back to the retiree that the longevity annuity could turn out to pay too little or too much when the time comes.

While the "risk" that the longevity annuity will provide *more* income than was needed at age 85 due to modest inflation (lower than projected) in the coming decades may not be the worst problem, the reverse scenario is clearly more concerning. To bridge the gap, the client could set aside additional funds to the portfolio as an "additional inflation hedge" in case the longevity annuity at 85 isn't enough to cover the necessary purchasing power – and as noted earlier, there may be some money left over for contingencies even after purchasing a longevity annuity and a TIPS ladder.

However, once the strategy necessitates that a portion of the portfolio *must* be set aside for this purpose, the original challenge of planning for retirement is *un*solved. Once again, a portion of the funds must be set aside to fund an unknown-magnitude spending goal (as it depends on inflation for the next 20 years) for an unknown time period (as no one knows how long the client will live past age 85), which means the longevity annuity hasn't necessarily solved much beyond being a fixed-income-like investment with an appealing "return" for those who live to advanced ages. Granted, dealing with the uncertainty of future

of the growth and is estimated to be responsible for more than half of all current longevity annuity sales), Mass Mutual, Metlife, Northwestern Mutual, Guardian, American General, Lincoln National, Principal, and Symetra. Notably, most companies offering longevity annuities are doing it as a part of a broad, diversified line of insurance and annuity products, and are some of the most secure companies in the marketplace (which is important, given a potential multi-decade deferral period before payments even *begin*!).

It is also notable that because longevity annuities are all being offered by somewhat comparable companies (at least in terms of financial strength), and the products are already heavily commoditized – there are few moving parts, and it's fairly straightforward to compare rates from one company to the next – the contracts are often shopped on price/payment terms alone, and the commission rates tend to be much lower than many other types of annuities (often no more than a 2% - 4% commission, with most towards the lower end, payable once up front with no other ongoing fee drag beyond whatever spread is priced into the annuity when crafting the guaranteed payout rate in the first place).

Conclusion

In the end, the longevity annuity presents a unique opportunity in retirement planning – a way to purchase longevity insurance against the risk of living significantly beyond life expectancy, at a fraction of its "typical" cost vis-à-vis the immediate annuity. And with a longevity annuity, the cost is not only cheaper up front, but the implicit internal rate of return is better for those who really do live far past their life expectancy and receive a large number of payments that start in the distant future. In practice, this means the longevity annuity is both a "cheaper" hedge against longevity, and a more leveraged one (i.e., greater payments for smaller upfront investment) for those who actually need to make a "claim" against it.

On the other hand, the fact that a longevity annuity's payments don't begin for many years or decades means that a prospective retiree must still fund the first part of retirement before the longevity annuity will kick in its payments in the second half of retirement. Yet in practice, that may actually be a remarkably efficient way *to* allocate capital in retirement, where a large portion of the portfolio can cover the bulk of retirement and a smaller allocation to a longevity annuity can cover the "tail risk" danger of living long past life expectancy, a scenario that may

be unlikely but is very costly if it does occur (which is the exact type of risk that risk management products are best suited to protect against!).

However, for a longevity annuity to be compelling as a guarantee over a portfolio alternative, it should really be able to take risks off the table entirely – and the uncertainty about how much to buy, due to the lack of any inflation hedging during the deferral period between the time of purchase and the time that payments begin, presents a significant challenge to the use of longevity annuities. If the retiree always has to leave a portion of the portfolio liquid and available to protect against inflation that's higher than was projected during the deferral period, then the longevity annuity isn't really a hedge against longevity anymore, it's just a fixed income substitute that happens to have a compelling longevity-dependent internal rate of return compared to fixed income alternatives at longer survival time horizons (thanks to the mortality credits).

And in the end, if the longevity annuity doesn't function as a full guarantee and instead is more like a life-contingent fixed income investment, then it ultimately must be compared to other investment alternatives to determine whether it really is capable of generating more retirement income (or generating income more securely) than simply investing in a comparable-risk portfolio. In next month's newsletter issue, we'll delve into this exact issue, evaluating whether/where the longevity annuity trade-offs make sense or not in today's environment, how future changes in the marketplace could impact their value for better or for worse, and some other real-world risks and challenges to consider in implementing longevity annuities.