How to Use Reverse Mortgages to Secure Your Retirement
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The following is excerpted from Wade Pfau’s new book, Reverse Mortgages: How to use Reverse Mortgages to Secure Your Retirement (The Retirement Researcher’s Guide Series) (Volume 1), available from the link above. This is taken from Chapter 8: The tenure payment as an annuity alternative.

When comparing strategies for coordinating home equity with portfolio distributions to generate retirement income, the tenure option fairs well and is an appealing option. As a way to fund retirement efficiency improvements, using the tenure payment option from the line of credit as an alternative to purchasing an income annuity (such as a single-premium immediate annuity – SPIA – or a deferred-income annuity – DIA) is worth exploring further.

The tenure option annuitizes home equity as an alternative to annuitizing financial assets. If you are considering income annuities as your clients approach retirement, what could be a more effective way to building an income stream: purchasing an income annuity, or using a tenure-payment option on a reverse mortgage? A tenure payment behaves similarly to an income annuity, though they are not the same.

First, to be clear, a tenure payment does not necessarily provide a guaranteed monthly cash flow for life as an income annuity would. Guaranteed cash flow continues only as long as the borrower remains eligible by staying in the home and meeting homeowner obligations. Moving away from the home for more than a year would end the payments. While a non-borrowing spouse may remain in the home if the borrower is no longer eligible, tenure payments would stop once the borrower has become ineligible. Only when both spouses are eligible would the tenure payment behave like a joint-life annuity.

Another difference is that no lump-sum payment (other than any upfront reverse mortgage costs) must be made from the portfolio to initiate the tenure payments. Each tenure payment is taken from the line of credit and moved to the loan balance. In the event that the retiree dies early, the loan balance may be substantially less than an annuity premium would have been. Conceptually, the tenure payment behaves more like an income annuity with a cash-refund provision, in terms of whether any assets would be available at the end of the contracted period. Still, there is no upfront lump sum to initiate these payments with the tenure option. This is an important distinction.

The tenure payment also does not provide mortality credits in a conventional sense. Its pricing is based on an assumption that the borrower or borrowers live to age 100. Despite the lack of traditional mortality credits, tenure payments provide a degree of longevity protection, assuming the borrower remains eligible. Cumulative cash flow received from the line of credit through the tenure payment can exceed the value of the principal limit and can even exceed the value of the home. Once this happens, the non-recourse aspects of the loan provide spending power without a tradeoff to legacy in a way philosophically similar to an income annuity. That non-recourse aspect could be interpreted as a type of “mortality credit.”

A final difference is that the formulas to calculate tenure payout rates and income annuity payout rates are different. The tenure payout rate depends on the 10-year LIBOR swap rate plus a lender’s margin and mortgage insurance premium rate of 1.25%. It also depends on an assumed time horizon or “life expectancy” of age 100. It does not vary by gender or whether payments are for one or two eligible borrowers.

Meanwhile, income annuity payment rates depend on actual mortality data for the age and gender of the individual or couple, as well as on a lower interest rate, which may be a bit higher than a 10-year LIBOR swap rate but doesn’t include a lender’s margin or mortgage insurance premium.

For the tenure payment, the higher interest rate supports higher payments than an income annuity. But the assumption that “life expectancy” is age 100 supports lower payments, relative to the income annuity. However, the higher interest rate assumption should more than counterbalance the age-100 assumption in most cases, so the tenure payments will be greater than from an income annuity.
For example, as I write, the 10-year LIBOR swap rate is about 2.1%. For a 65-year-old with a lender’s margin of 3%, the payout rate for the tenure payment option is 7.1%. We can compare this rate to annuity quotes with cash refunds offered through ImmediateAnnuities.com for 65-year-olds. The payout is 6.15% for a single male, 6.07% for a female and 5.61% for couples. Women and couples especially benefit from the tenure payment, as it does not penalize them for their longer relative life expectancies.

Another interesting aspect to consider for tenure payments is that, surprisingly, the monthly tenure payment amount for a given home value is actually higher when interest rates are low. Naturally, higher interest rates allow for a higher payout rate from the principal limit amount as just discussed. This is documented at the top of Exhibit 1 for expected rates between 5% and 10%, in the case of a 65-year-old borrower with a $300,000 home. The payout rate from the principal limit increases from 7.01% when the expected rate is 5%, to 11.37% when the expected rate is 10%. However, the initial principal limit that the payout rate is applied to decreases as rates rise, creating a much stronger counter-effect. For a 65-year-old borrower, an expected rate of 5% supports a principal limit factor of 54.2%. The principal limit factor falls to 14.8% when the expected rate is 10%.

Exhibit 1 The Relationship between Expected Rates and Tenure Payments, $300,000 home value, sixty-five-year-old borrower

The combined impact of the higher payout rate applied to a smaller principal limit is shown in the bottom of the figure. The monthly available tenure payment decreases as interest rates rise. It was $950 per month with a 5% expected rate, falling to just $421 per month with a 10% expected rate. The surprising implication is that tenure payments will represent a higher percentage of the home’s value when interest rates are low. With income annuities, a given lump-sum premium would support a larger monthly payment when interest rates are higher. Of course, the principal limit, not the home value, would provide an equivalent amount to annuitize, but the interesting point is that low interest rates allow for more annuitized spending for a household with a given ratio of home value to portfolio size.

Exhibit 2 illustrates the circumstances that would favor tenure payments or income annuities. First, as noted, couples and single females would experience lower payout rates from income annuities, as their pricing considers their increased longevity relative to single males. Single males can receive the highest relative payout rates from income annuities and would have a stronger reason to consider them, relatively speaking. Second, tenure payments make more sense for those planning to remain in their homes, as they have more opportunity to spread out any upfront costs and potentially receive a windfall from the non-recourse aspect of tenure payments. For those likely to move, or who otherwise do not live in an eligible home, income annuities have an edge.

Next, for those with less risk aversion, tenure payments are worth considering as a way to obtain more guaranteed cash flows without having to take dollars out of the stock market. For income annuities, I suggest treating the annuitized assets as part of your bond holdings. In practice, this can be difficult because the remaining investment portfolio would become more stock-heavy and volatile.
In practice, real-world considerations will probably mean partial annuitization will reduce stock holdings for most retirees, but the full portfolio and original asset allocation can remain intact more easily with the tenure payment option. Finally, as noted, in a low-interest-rate environment, a given home value can support a higher tenure payment than otherwise. This gives tenure payments an edge to provide more spending power for a given home value to financial portfolio ratio, relative to income annuities.

**Exhibit 2 Circumstances Favoring Tenure Payments or Income Annuities**

<table>
<thead>
<tr>
<th>Tenure Payment</th>
<th>Income Annuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Couples</td>
<td>Single Male</td>
</tr>
<tr>
<td>Plan to remain in eligible home</td>
<td>Likely to Move; Live in ineligible home</td>
</tr>
<tr>
<td>Less risk averse</td>
<td>More risk averse</td>
</tr>
<tr>
<td>Shorter life expectancy</td>
<td>Longer life expectancy</td>
</tr>
<tr>
<td>Low-interest-rate environment</td>
<td>High-interest-rate environment</td>
</tr>
</tbody>
</table>

Tenure payments have many favorable characteristics. A tenure payment allows for an annuitized spending stream generated by home equity, subject to the caveat that it may not last for life if the borrower moves or cannot maintain the home. It does not require assets to be extracted as a large lump-sum annuity premium.

For individuals uncomfortable with increasing their stock allocation for remaining assets after partial annuitization, the tenure payment option would allow more assets to remain in the stock market and focused on growth. It offers a higher payout rate, which in turn would require more annuitization with income annuities to receive the same amount of spending as the tenure payments. The tenure payments are not added to adjustable gross income, whereas the annuity income would be subject to taxes when initiated from either tax-deferred or taxable resources.

**Simulating tenure payment and income annuity options**

In terms of research providing simulations to quantify these comparisons, Joe Tomlinson, a financial planner in Maine, initiated work on comparing reverse mortgage options and income annuities with an article he wrote for Advisor Perspectives in April 2015. He followed up on that article with more detailed joint research with John Salter and Shaun Pfeiffer for an article published in the Spring 2016 issue of the Journal of Personal Finance. Two of the options compared are relevant for our discussion: initiating tenure payments with a reverse mortgage and purchasing enough income annuity to obtain the same payments as the tenure option could provide while also opening a line of credit on the reverse mortgage and only using it if needed later in life.

Tomlinson, Salter and Pfeiffer found that longevity-protected cash flows can enhance retirement spending, even compared to a strategy of opening a line of credit and delaying its use. The researchers further found evidence that using home equity can provide greater spending support than carving out a portion of assets to purchase an income annuity. They considered scenarios when interest rates remain low and when interest rates rise shortly after retirement begins, after the reverse mortgage and income annuity decisions have already been made.

Compared to buying an income annuity and opening a line of credit, the tenure payment option supports more spending on average as well as a greater average legacy. These outcomes also hold if interest rates subsequently rise, though the differences are smaller as the line of credit is able to grow faster and support more spending later in the case that an income annuity is combined with opening a line of credit. The tenure payment option allows more dollars to remain in the stock market, which helps on average.

On the downside, the income annuity strategy provided more income at the fifth percentile of the distribution, especially if interest rates rise in the future. This finding is contingent upon opening the line of credit at the start of retirement when also annuitizing, and then delaying the line of credit use until the portfolio is depleted.

The research approach used by Tomlinson’s team differs a bit from my usual approach. They tracked the amount of spending that could be generated by different strategies, while I tend to focus on how well different strategies are able to meet a fixed spending objective and what sorts of shortfalls may arise in the effort to meet that spending objective. I have created an analysis along these lines and can confirm their general findings that the tenure option provides an attractive alternative to partial annuitization.
Consider a simple scenario. A couple reaches age 65 with a $500,000 home and $1 million in tax-deferred retirement plans. In addition to income from Social Security and other sources, they would like to fund another $40,000 from their assets in inflation-adjusted, after-tax terms. They are in the 25% marginal tax bracket (this is the tax rate they pay on distributions from their investment assets). To meet their $40,000 spending objective, they need to withdraw enough to also cover taxes. They would need $53,333 from their retirement plan to have $40,000 left after taxes. But since reverse mortgage distributions are not taxable income, a $40,000 distribution would cover their need.

I consider a home equity conversion mortgage (HECM) when the 10-year LIBOR swap rate is 2.125% and with a margin rate of 3%. This leads to a principal limit factor (PLF) of 52.6%, and a principal limit of $263,000. With upfront costs totaling $5,000 paid from their investments, the available tenure payment for this HECM loan is $18,698. For income annuities, using ImmediateAnnuities.com, a joint-life annuity with fixed lifetime payments and a cash refund provision has a payout rate of 5.54%. A life-only version has a payout of 5.65%, but the cash refund provision makes the income more comparable to how the legacy cost of tenure payments would be determined, with each tenure payment added to the loan balance as it happens. The couple is also comfortable with an asset allocation of 50% stocks and 50% bonds for their investment portfolio.

I consider four scenarios for using reverse mortgages and income annuities as part of the retirement income plan:

1. Investments-only: The couple does not purchase an income annuity, and they only open a reverse mortgage as a last resort option in the event that their portfolio is depleted.

2. Tenure payment: The couple uses the tenure payment for a HECM, which provides $18,698 annually without inflation adjustments. This represents 7.1% of the principal limit. Any remaining distributions needed to meet their spending objectives are taken from their investment portfolio.

3. Income annuity purchased proportionately from investments: The couple takes $263,000 (the equivalent principal amount) from their retirement account and purchases a joint-life income annuity with a payout rate of 5.54%. This supports $14,570 of annual income before taxes or $10,928 after taxes are paid. For assets remaining in their investment portfolio, they maintain an allocation of 50% stocks and 50% bonds. A HECM line of credit is only opened as a last resort option later in retirement if the portfolio is depleted.

4. Income annuity purchased as bond alternative: The couple takes $263,000 from their retirement account and purchases a joint-life income annuity. This is the same as the previous scenario. The difference is that this purchase is made with only bonds, so the stock allocation for the remaining investment portfolio increases to keep the same amount of stocks as before. The new asset allocation for remaining investments is 67% stocks and 33% bonds. A HECM line of credit is only opened as a last resort option later in retirement if the portfolio is depleted.

The next exhibits provide the results for these four strategies, beginning with the probability of success in Exhibit 3. Because the withdrawal rate from the portfolio needed to generate $40,000 after tax is 5.33%, and the initial payout rate from the income annuity is 5.54%, the income annuity does not have much impact on the probability of success if the same asset allocation is maintained after annuitization. The annuity slightly reduces portfolio withdrawal needs at the start of retirement, but inflation will erode this benefit quickly and then portfolio withdrawals eventually must be greater. Nonetheless, the probability of success for option three (partial annuitization with the same asset allocation) closely matches that of the no income annuity case. Both cases open a reverse mortgage only as a last resort option, which I have shown before is the worst possible way to use home equity to support retirement spending.

*Exhibit 3 Probability of Success for a 4% Post-Tax Initial Withdrawal Rate, $1 million portfolio, $500,000 home value, 25% Marginal Tax Rate*
After 30 years, the income annuity with a modified asset allocation provides about a 73% chance of success, compared to about 68% for the previously described strategies. Probability of success is improved when an income annuity is purchased using bonds. Income annuities provide similar investment returns as bonds, and after life expectancy, they provide a unique source of additional returns in the form of mortality credits. These mortality credits explain the improved performance when the amount of stocks held is allowed to remain the same at retirement.

Exhibit 3 also reveals that the tenure payment option is the big winner among these choices. It consistently supports a higher probability of success than the income annuity by leaving more in the investment portfolio, by supporting spending without adding to adjusted gross income, and by reducing portfolio distributions and sequence of returns risk. With the tenure payment, the probability of success is about 80% after thirty years.

In Exhibit 4, I track median inflation-adjusted legacy wealth over time. Legacy wealth consists of remaining investment assets, remaining home equity after loan repayment and any cash refund on the income annuity in the event of an early death. The tenure payment option consistently helps support the largest legacy value of assets at the median, and the gap for its improvement widens after about twenty years of retirement. At this point, the loan balance surpasses the home value, so subsequent payments continue to be received without any negative offset to legacy. The tenure payments continue as long as the retiree is in their home and meets his obligations, even if the loan balance already exceeds the full principal limit and the full value of the home.

The tenure payment option provides longevity protection subject to the borrower remaining in the home and eligible, and it allows more assets to remain invested in the portfolio. It also reduces the demand on portfolio distributions, which mitigates sequence risk. At least at the median, the tenure payment offers potentially attractive outcomes for retirees relative to partially annuitizing a similar set of assets.

Exhibit 4 Median Real Legacy Value for a 4% Post-Tax Initial Withdrawal Rate, $1 million portfolio, $500,000 home value, 25% Marginal Tax Rate
The next two sets of lines in the exhibit reflect a case with no income annuity and no tenure payment, and a case where an income annuity is purchased with assets taken from the bond portion of the portfolio (modified asset allocation). Both options use a reverse mortgage only as a last resort. The pattern seen with these two lines reflects patterns I have shown elsewhere, as the no annuity case supports a slightly larger legacy in the short term (with the difference being that the cash refund provision on the income annuity assumes an investment return of 0% that lags behind actual portfolio returns in the median), but a larger legacy in the long term as mortality credits start to provide a unique source of additional returns beyond what could be received from the investment portfolio. Mortality credits slow portfolio depletion, but we must recognize that when taxes are considered, the 5.33% withdrawal rate needed to meet the post-tax spending objective is rather aggressive and risky. Though the income annuity improves the situation, it is a challenge to keep pace with this aggressive spending goal.

The worst outcome in this exhibit is the partial annuitization case when the amount of stocks held is reduced because the asset allocation remains the same after partial annuitization. In the median outcome, holding less in stocks and missing the realized upside hurts legacy outcomes.

Exhibit 5 provides outcomes at the 90th percentile when markets perform exceptionally well. Again, the tenure payment option consistently comes out ahead of the other strategies. It keeps more invested in the markets at a time they do well, and it provides more relief for portfolio withdrawals, which allows more assets to remain in the portfolio and to grow.

The next line in the exhibit is partial annuitization with the modified asset allocation reflecting that the annuitized assets are taken from bonds. This type of allocation allows for a higher subsequent stock allocation. The market gains at the ninetieth percentile allow this strategy to shine. The no income annuity option falls next in the ranking of outcomes since this strategy also allows more to remain in the market at a time markets did well. Finally, the income annuity option with the same asset allocation removes the most growth potential for the portfolio and leaves the relative smallest amount of legacy at the ninetieth percentile of the distribution.

Exhibit 5 90th Percentile Real Legacy Value for a 4% Post-Tax Initial Withdrawal Rate, $1 million portfolio, $500,000 home value, 25% Marginal Tax Rate
Finally, while Exhibit 5 shows what happens when markets perform extremely well, Exhibit 6 shows results for the 10th percentile of outcomes when market performance is poor. These are the bad luck cases for market returns and sequence risk in which planning generally focuses on providing a workable solution.

*Exhibit 6 10th Percentile Real Legacy Value for a 4% Post-Tax Initial Withdrawal Rate, $1 million portfolio, $500,000 home value, 25% Marginal Tax Rate*
There is very little difference in outcomes for any of the strategies shown in Exhibit 6. The investment portfolio is depleted rapidly before credit lines have an opportunity to grow. The tenure and income annuity options support some spending after portfolio depletion, which changes the slope for these legacy lines, but the effect is fairly small, as observable in the diagram. Simply put, the withdrawal strategy is too aggressive for cases in which market returns do not cooperate during retirement.

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