Planning for Inflation in Retirement

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A robust personal retirement plan will suggest actions relating to spending and investing that should be considered whenever actual experience in retirement is more or less favorable than assumed. The recent unexpected increase in consumer prices (inflation) is an example of experience generally considered to be less favorable than assumed. This essay discusses how a personal retirement plan developed using basic actuarial and financial economic principles can suggest actions that retired and near-retired households should consider in light of recent unexpected inflation (and possibly negative investment or spending experience) during 2022, and includes an example.

The intended audience for this essay includes financial advisors, retirement academics and retired and near-retired households who are interested in developing more robust retirement plans and are not intimidated by having to enter a few numbers into an actuarial model.

Actuarial Balance Sheet

A basic building block of a robust personal retirement plan is the actuarial (or household) balance sheet. In his 2016 Advisor Perspectives article, "Eight Core Ideas to Guide Retirement Income Planning", noted retirement academic and expert Dr. Wade Pfau discusses his core retirement income planning precepts. In his core principle #7, he says,

> "7. **Start with the household balance sheet**. A retirement plan involves more than just financial assets. The household balance sheet is the starting point for building a retirement income strategy. This has been a fundamental lesson from various retirement frameworks, such as Jason Branning and M. Ray Grubbs' Modern Retirement Theory, Russell Investments' Funded Ratio approach and the Household Balance Sheet view of the Retirement Income Industry Association. **At the core of these different methodologies is a desire to treat the household retirement problem in the same way that pension funds treat their obligations**. **Assets should be matched to liabilities with comparable levels of risk** [emphasis added]. This matching can either be done on a balance sheet level, using the present values of asset and liability streams, or it can be accomplished on a period-by-period basis to match assets to ongoing spending needs. Structuring the retirement income problem in this way makes it easier to keep track of the different aspects of the plan and to make sure that each liability has a funding source. This also allows a retiree to more easily determine whether they have sufficient assets to meet their retirement needs, or if they may be underfunded with respect to their goals. **This organizational framework also serves as a foundation for deciding on an appropriate asset allocation and for seeing clearly how different retirement income tools fit into an overall plan** [emphasis added]."

The following five-step process outlines how an actuarial balance sheet developed using basic actuarial and financial economic principles can be used to develop a retirement plan that will suggest changes in the household retirement plan, when necessary, by focusing on the size of the household Rainy-Day Fund (or funded status).

Step 1. Determine your desired spending in retirement. Such spending will normally include recurring spending, non-recurring spending, essential expense spending and discretionary expense spending.

Step 2. Check the desired spending plan developed in Step 1 for feasibility (and generate an actuarial balance sheet) by inputting the desired spending plan, retirement assets, personal data and relevant assumptions about the future into an actuarial model. Relevant assumptions about the future may include:

- Expected investment returns on household non-risky assets/investments (Floor Portfolio)
- Expected investment returns on household risky assets/investments (Upside Portfolio)
- Expected annual rates of inflation
- Expected increases in future spending (if different from expected increases in inflation)
- Expected lifetime planning period(s)

Step 3. Match the present value of planned essential expense spending with the present value of household non-risky assets/investments. This step may involve delaying commencement of Social Security benefits, election of a lifetime payment option from a defined benefit pension plan or purchase of a lifetime annuity.

Step 4. Maintain your Rainy-Day Fund (the excess of the present value of total household assets over the present value of total household spending liabilities) at a comfortable level. This step involves managing spending and investments so that the present value of retirement assets exceeds the present value of expected (or unexpected) spending.

Step 5. Revisit the above steps at least annually.

Example – How Much Should Bill's Rainy-Day Fund Be?

Bill was a single male aged 65 as of January 1, 2022. His retirement assets consisted of the following:

- An immediate Social Security benefit of $18,000 per annum
- An immediate lifetime pension benefit of $15,000 per annum
- $800,000 in accumulated savings invested 52% in non-risky investments and 48% in risky investments

His desired spending plan included the following recurring expenses:

- $41,000 per annum increasing with inflation in essential expenses
- $3,000 per annum increasing with inflation in discretionary expenses
- $5,000 per annum decreasing by 2% per year in discretionary expenses

His spending plan included the following non-recurring expenses:

- $0 in long-term care expenses (assumed to be funded by his home equity)
- Present value of $25,000 for unexpected expenses
- Annual home mortgage repayments of $20,000 per year for 5 years (considered an essential expense)
- A new car assumed to be purchased when Bill is 70 for $30,000 increased with inflation (considered 50% essential and 50% discretionary)
- Annual travel expenses of $10,000 per year increased with inflation for the next 20 years (considered to be discretionary).

His 2022 assumptions about the future included:

- 3% annual investment return on non-risky assets/investments
- 6% annual investment return on risky assets/investments
- 2% per annum annual inflation increases
- Lifetime planning period based on Actuaries Longevity Illustrator for healthy non-smoking males, 25% probability of survival - 29 years

Entering the above data in an actuarial model[1] produced the following actuarial balance sheet for Bill as of January 1, 2022:

Exhibit 1

BILL'S ACTUARIAL BALANCE SHEET AS OF JANUARY 1, 2022

PV Social Security benefits	$456,875	PV Recurring essential expenses	$1,040,660
PV Fixed lifetime benefits	$296,462	PV Non-recurring essential expenses	$127,317
PV Other non-risky investments/assets	$416,000		
Total Floor Portfolio	$1,169,337	Total PV Essential Expenses	$1,167,977
PV Risky investments/assets	$384,000	PV Recurring discretionary expenses	$112,889
		PV Non-recurring discretionary expenses	$175,194
Total Upside Portfolio	$384,000	Total PV Discretionary Expenses	$288,082
		Rainy-Day Fund	$97,277
Total Assets	$1,553,337	Total Liabilities	$1,553,337

[1] The actuarial model used for this example is the Actuarial Financial Planner for Single Retirees and is available in the Spreadsheets section at How Much Can I Afford to Spend in Retirement? Amounts in the exhibits may not add to the total due to rounding.

Bill noted that given his asset allocation of 52% invested in non-risky assets/investments, his total Floor Portfolio matches the present value of his desired essential spending. He also noted that his Rainy-Day Fund is positive. He could have increased his spending for 2022, but he decided that he was comfortable with this level of Rainy-Day fund. The model also shows him that:

- His spending budget for 2022 was $79,000 ($41,000 recurring essential expenses + $8,000 recurring discretionary expenses + $30,000 non-recurring expenses)

- His expected end of year accumulated savings would be $787,600 if all assumptions were realized during the year and he spent exactly his budget, and
- He would need to withdraw $46,000 from his accumulated savings to supplement his Social Security and pension if he spent exactly his budget during 2022

Bill understands that if all assumptions about the future are realized, he can expect to increase his inflation-sensitive spending in 2023 and each year in the future by the annual increase in inflation. Unfortunately, the assumptions Bill made about future experience at the beginning of 2022 will probably not be realized. Interest rates have risen, inflation is higher than expected, Bill has suffered losses on his investments, and his spending for 2022 will probably exceed his spending budget. Exhibit 2 below shows Bill's projected Actuarial Balance sheet for January 1, 2023 based on the following assumptions:

- No changes in assumptions about the future (including future inflation) from those used on January 1, 2022
- His actual end-of-2022 accumulated savings are equal to his expected assets as of that date of $787,600
- His Social Security benefit will increase by 8.7% in 2023, and
- His inflation-sensitive plan expenses will increase in 2023 by 8.7% rather than his assumption of 2%

Exhibit 2

BILL'S PROJECTED ACTUARIAL BALANCE SHEET AS OF JANUARY 1, 2023 UNDER OPTIMISTIC PROJECTION ASSUMPTIONS

PV Social Security benefits	$481,734	PV Recurring essential expenses	$1,097,284
PV Fixed lifetime benefits	$289,905	PV Non-recurring essential expenses	$130,026
PV Other non-risky investments/assets	$456,808		
Total Floor Portfolio	$1,228,448	Total PV Essential Expenses	$1,227,310
PV Risky investments/assets	$330,792	PV Recurring discretionary expenses	$114,694
		PV Non-recurring discretionary expenses	$185,042
Total Upside Portfolio	$330,792	Total PV Discretionary Expenses	$299,736
		Rainy-Day Fund	$32,194
Total Assets	$1,559,240	Total Liabilities	$1,559,240

Bill notes that in order to match the present value of his essential expenses with the present value of his non-risky assets under the Exhibit 2 scenario, he should increase his allocation of his accumulated savings in non-risky assets from 52% to 58% (which has been done in the Exhibit).

Bill also notes that under this projection scenario, his projected Rainy-Day fund is expected to decrease from $97,277 to $32,194. The model under this scenario also shows:

- His spending budget for 2023 under this scenario would be $83,598 ($44,567 for recurring essential expenses + $8,161 for recurring discretionary expenses + $30,870 for non-recurring expenses)
- His expected accumulated savings as of December 31, 2023 under this scenario would be $770,078 if he spent his 2021 spending budget and all assumptions about the future were realized during the year, and
- He would need to withdraw $49,032 from his accumulated savings during 2023 if he spent his spending budget

Exhibit 3 below shows Bill's projected Actuarial Balance sheet for January 1, 2023 based on the following slightly more realistic assumptions:

- Same assumptions for inflation-sensitive expenses, 2022 spending and Social Security benefit increase as used for Exhibit 2
- Investment return assumption on non-risky assets/investments increased from 3% per annum to 4.5%
- Investment return assumption on risky assets/investments increased from 6% per annum to 7.5%, and
- -10% investment return on accumulated savings during 2022

Exhibit 3

BILL'S PROJECTED JANUARY 1, 2023 ACTUARIAL BALANCE SHEET UNDER SOMEWHAT MORE REALISTIC ASSUMPTIONS

PV Social Security benefits	$482,608	PV Recurring essential expenses	$1,099,273
PV Fixed lifetime benefits	$246,770	PV Non-recurring essential expenses	$126,650
PV Other non-risky investments/assets	$393,588		
Total Floor Portfolio	$1,122,965	Total PV Essential Expenses	$1,225,923
PV Risky investments/assets	$285,012	PV Recurring discretionary expenses	$108,619
		PV Non-recurring discretionary expenses	$184,902
Total Upside Portfolio	$285,012	Total PV Discretionary Expenses	$293,521
		Rainy-Day Fund	$(111,467)
Total Assets	$1,407,977	Total Liabilities	$1,407,977

Bill is obviously not pleased with the more realistic results shown in Exhibit 3 as he may have to reduce the allocation of his accumulated savings assets to approximately 27% to achieve the desired matching of his Floor Portfolio and the present value of his essential expenses, and his Rainy-Day Fund is significantly more negative under this scenario. What can/should he do?

In response to recent higher-than-expected levels of inflation, higher spending and less than expected asset returns, Bill or any other hypothetical retired (or near-retired) household that employs basic actuarial and economic principles to fund their retirement spending liabilities should consider some or all of the following actions:

- Using existing Rainy-Day Funds to fund some or all of the losses from unfavorable experience
- Reclassifying essential expenses as discretionary expenses
- Changing some or all assumptions regarding the future
- Increasing investments in non-risky assets to match expected increases in essential spending liabilities
- Increasing household assets to be used for retirement purposes, and
- Decreasing discretionary (or essential) spending, if necessary

Some of Bill's options are discussed below.

Changing Assumptions about the Future

The big questions for determining the effects of future inflation on personal retirement plans are:

- By how much will prices increase above "normal" levels of inflation in the future?
- And, for how long?

The Federal Reserve Board appears to be tackling the problem of higher-than-desired levels of inflation by aggressively raising federal funds interest rates, but it is unclear how successful their efforts will be at this time. The 2022 OASDI Trustees Report provides some guidance with respect to assumptions about future inflation. While the Trustees underestimated the rate of inflation in 2022, they assume (under the Intermediate Assumptions) that the real rate of return on the special issue government bonds held in the trust will increase to over 1% after 5 years, over 2% after 8 years and ultimately reaching a rate of 2.3% after 10 years.

Bill assumes a real rate of return of 1% on his non-risky portfolio. He hopes that this is equivalent to assuming a higher nominal rate than 3.5% for the next few years and a higher real rate in future years.

Increasing Investment in Non-Risky Assets

If Bill increases his estimated future essential expense spending, he may also wish to increase his investment in non-risky assets to cover such increase and match his increased expected essential expense liabilities. There are certain non-risky investments that are tied to the CPI index, such as I-bonds or TIPS that may be attractive for this purpose. In addition, it would certainly be helpful if one or more insurance companies in the U.S. reinstituted sales of inflation-indexed life annuities or similar products.

On the other hand, Bill may not be comfortable with reducing investment in risky assets and may decide to reclassify some of his essential expenses as discretionary.

Note that there are some retirement experts who will advise the household to increase investment in risky assets rather than non-risky assets as they believe risky assets tend to be a better hedge against inflation. However, this action could result in an undesirable mismatch between non-risky assets and essential spending liabilities.

Increasing Household Assets to Be Used for Retirement Purposes

Household assets to be used for retirement expense funding may be increased during retirement in a number of ways, including:

- Deferral of Social Security benefits
- Purchase of life annuities
- Going back to work on a part-time or full-time basis
- Sharing living arrangements or tapping into home equity
- Selling assets not previously intended for retirement
- Inheritances or other family support

Bill may also determine that his assumption that possible long-term care expenses will be covered by his home equity is too conservative and include some estimate of the proceeds of a future house sale in his assets.

Decreasing Spending

If Bill's Rainy-Day Fund become significantly negative from greater-than-expected inflation (or other experience) and he does not find other sources of assets, he may need to decrease his discretionary or essential spending. He may do this by decreasing his current discretionary spending budget or by assuming lower increases in future planned discretionary spending (by assuming such spending does not increase with future inflation, for example). There have been several recent studies that indicate it is not uncommon for discretionary spending to decrease in real-dollar terms as households age, so this may be a reasonable approach for Bill, but he already assumes that some of his discretionary spending will decrease in nominal dollars over time. Taking on a roommate, or house sharing is another option for Bill.

Summary

An actuarial model developed using basic actuarial principles can be used to generate an actuarial balance sheet that is very effective in comparing household assets with household spending liabilities by focusing on the Rainy-Day Fund balancing item. The Rainy-Day Fund is a summary statistic measurement of a retired household's funded status. An actuarial model can also be used to develop annual spending budgets that automatically adjust for actual experience over time. Such models are available on the internet for free. The actuarial model I used for the example calculations in this essay may be found at How Much Can I Afford to Spend in Retirement?

More conservative (risk-averse) retirees and near retirees will want to build up a large Rainy-Day Fund while less conservative retirees and near retirees will be more comfortable ignoring small or negative Rainy-Day Funds on the assumption that future more favorable experience will bail them out. And that is fine. Different retiree households will have different risk tolerances. Instead of having clients complete a complicated risk tolerance questionnaire, financial advisors can simply ask, "How big do you want your Rainy-Day Fund to be?"

While using an actuarial model may seem like a daunting prospect for the general public, it doesn't have to be. A good model will calculate the required present values and provide default assumptions about the future, so generally, all that is required from the user is entry of household desired expenses and personal asset data.

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