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CHIEF INVESTMENT OFFICE

Pitfalls in Retirement

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The volatility in stock prices has left many to wonder whether they should adjust their portfolio allocations in an effort to help preserve their retirement nest eggs. In weighing this decision, clients should be aware of several basic principles of retirement investing that apply whether markets are up or down, tranquil or stormy.

Newspaper and magazine articles, Internet posts, bestselling books and academic studies bombard us with reminders to save for retirement. But another pressing issue receives less attention: How shall a client invest and spend wisely upon reaching retirement age? As baby boomers reach this age, a growing number seek clarity from advisors on this question. This paper looks at some of the key risks that retirees face and how to address them.

BEWARE THE PITFALLS

Many clients fear outliving their investment portfolios. Indeed, a key concern for 59% of those surveyed is ensuring that their assets will last a lifetime.[1] Their apprehension reflects an erosion of the "three-legged stool" of retirement: Social Security, employer pensions and personal savings.

- Social Security faces growing stress as the ratio of workers paying into the system to retirees collecting benefits continues to decline. Government will likely contain costs by reducing benefits, raising the retirement age or further taxing benefits.
- Accounting rule changes make traditional defined benefit plans more expensive for employers, hastening their disappearance.
- Market volatility poses a challenge to those seeking to retire.

Faced with these challenges, baby boomers must manage their wealth to last a lifetime and, ideally, to leave something for the next generation, if they choose.

Retirement investing is challenging and not well understood. Wealth managers have devised efficient approaches to asset accumulation but have given far less thought to ensuring that retirees don't outlive their wealth.

The margin for error is slimmer now than in the past. Yesterday's retirees could count on more generous pension and Social Security benefits. The fraying of these financial safety nets necessitates greater care in retirement investing.

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KEY IMPLICATIONS

In preparing for retirement, investors should be alert to several common pitfalls.

Overspending
New retirees can typically afford to spend about 3% to 5% per year of their life savings.

Excessive conservatism
Allocating a portfolio entirely to bonds and cash might increase a retiree's risk of outliving their wealth.

Longevity and inflation risks
Investors should consider allocating some of their retirement portfolios to investments that can outpace inflation over time.

Abandoning your plan
Investors should work with their financial advisors to craft a retirement plan that helps them pursue their retirement goals.

[1] Source: SOA Research Institute, 2021 Retirement Risk Survey Brief Report: Identifying Retirement Risks and Trends, published in October 2022.

Please see last page for indexes and important disclosure information.

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Pitfall 1: Overspending

Think of your life savings as a personal financial garden whose produce you can harvest to help pay for retirement. You may improve your chances of harvesting a lifetime income that grows with inflation by spending in moderation, diversifying broadly and following a disciplined asset allocation strategy.[2] Those who draw down their wealth too rapidly risk depleting it.

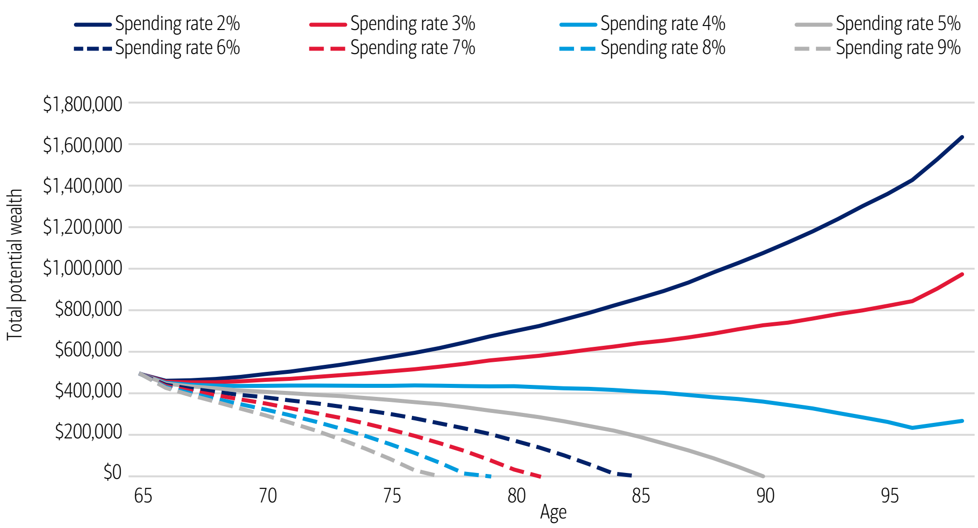
How much may retirees safely spend?

A 4% spending rate would mean that someone with $500,000 of investments spends $20,000 the first year of retirement and increases this amount with inflation in subsequent years. This rate may be appropriate for some retirees, but no single rate works for everyone.[3]

Clients nearing retirement can benefit from avoiding these common pitfalls:

1. **Overspending**
2. **"Playing it safe"**
3. **Failing to address longevity and inflation risks**
4. **Not adhering to a retirement plan**

Exhibit 1: Value of a Diversified Retirement Portfolio at Various Spending Rates



Source: Chief Investment Office.
Notes: This chart represents the evolution of initial wealth of $500,000 invested in a moderate risk asset allocation and with various spending rates at the 10th percentile (90th confidence level).
Asset allocation assumed is Equities: 58% to U.S. stocks (proxied by the S&P 500 Index), 41% to U.S. bonds (ICE BofA U.S. Broad Market) and 1% to cash (ICE BofA U.S. Treasury Bills 3 months).
We are assuming annual rebalancing. The 25 year horizon refers to the asset class assumptions. This is a tehnical modeling detail. We have simulated 20,000 market scenarios. The increase in 32 years can happen because the analysis is based on simulation (random returns) and the draw in that year could be a positive return.
The spending rate is a rate which applies to initial wealth and subsequently spending grows each year by inflation. 2.8% represents our long-term (25-year holding period) estimate of inflation.
These hypothetical results are for illustrative purposes only and are not meant to represent the past or future performance of any specific investment vehicle.
Investment return and principal value will fluctuate and, when redeemed, the investments may be worth more or less than their original cost.
Life expectancy assumption Source: IRS single life expectancy table + 10 years (Table I in Appendix B in Publication 590-B at irs.gov/pub/irs-pdf/p590b.pdf. Time horizon is measured in years.

The sustainable rate of retirement spending depends on numerous factors including:

- The age of the retiree(s)
- Their risk tolerance
- Their asset allocation
- Their desire to leave a sizable bequest

The illustration gives some feel for the spending that a diversified retirement portfolio can sustain. Spending rates of 3% or less are likely sustainable, while those above 5% may not be. Careful research confirms these observations.[4] The sustainability of spending rates within the range of 3% to 5% depends on the period in question as well as the other factors noted above.

[2] Diversification and asset allocation do not ensure a profit or protect against loss in declining markets.

[3] For guidance on sustainable spending rates for retirees based on age and risk tolerance, see "Beyond the 4% rule: Determining sustainable retire spending rates." Chief Investment Office, January, 2023.

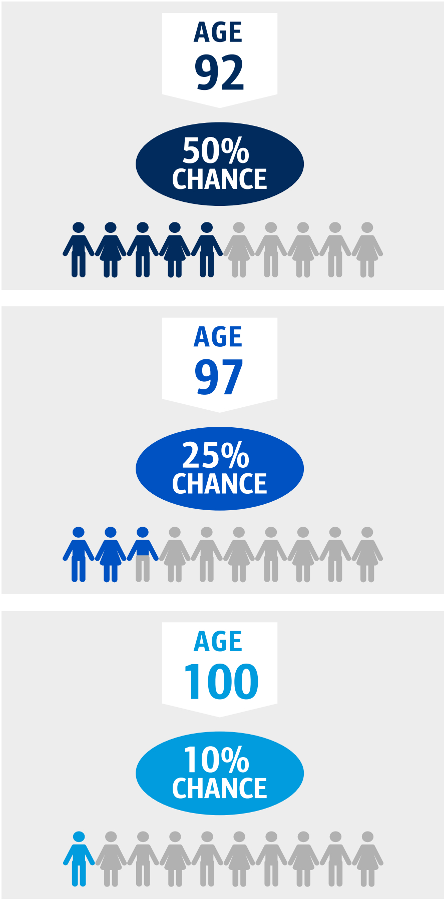
[4] Chief Investment Office "Beyond the 4% rule: Determining Sustainable Retiree Spending Rates." January 2023.

Pitfall 2: "Playing it safe"

A natural reaction to market turbulence is to "play it safe" by investing all or nearly all of a retirement portfolio in investment grade bonds or highly liquid, lower-risk investments like CDs, money market funds or Treasury bills. But this seemingly conservative approach could actually prove riskier for retirees than holding a more broadly diversified portfolio that includes equities.[5]

Typically, new retirees should view themselves as long-term investors. For a 65-year-old couple, there is a 1-in-4 chance of at least one spouse living past 97 and a 1-in-10 chance of at least one spouse living to 100. (Exhibit 2).[6] Funding a retirement that might last 30 years or more generally requires the higher long-run returns that equities have historically earned. We believe that stocks will continue to earn higher long-run returns than bonds (Table 1).

Exhibit 2: Longevity Risk



Calculations based on Society of Actuaries, 2012 Individual Annuity Mortality Tables, Basic (latest data available).

Table 1: Chief Investment Office Asset Class Assumptions

	U.S. Stocks	U.S. Bonds	Cash (U.S.)
Expected Geometric Return	9.7%	4.4%	3.3%
Expected Volatility	17.3%	4.9%	0.4%

Notes: The proxy for U.S. stocks is the S&P 500 Index; for U.S. bonds, it is the ICE BofA U.S. Broad Market; for cash it is the ICE BofA U.S. Treasury Bills 3 months. These assumptions are provided for informational purposes only. They do not reflect actual investments, and there is no guarantee that these assumptions will be realized. Results are illustrative and assume reinvestment of income and no transaction costs or taxes. One cannot invest directly in an index. Please see index definitions at the end of this report. Source: Chief Investment Office, January 2023. Expected Return: The average annual total return the strategic target can be expected to generate over a 25-year horizon. Expected arithmetic return is the simple arithmetic average of periodic returns, calculated by summing returns for all time periods, then dividing the number of time periods. Expected geometric return is expressed in terms of compounded average annual returns and calculated using geometric mean of periodic returns.

We believe there are solid reasons to expect stocks to outperform bonds and cash over time. From 1926 through 2022:

- U.S. stocks, as represented by the S&P 500 Index, earned an average annual return of 12.3%, compared to 7.3% for U.S. bonds.[7]
- Stocks have exhibited superior long-term performance in many other countries as well.[8]
- Because stocks are riskier than bonds, investors require higher long-term returns from stocks. Absent this "risk premium," investors would shun stocks. This is a basic financial tenant that there is a risk premium associated with investing in stocks. As a result of this risk premium associated with stocks investors over the long term expect to be compensated.

How can retirees harness this uncertain long-run risk premium given that, as John Maynard Keynes observed, "In the long run we are all dead"? Investing patiently and diversifying prudently can help. For example, a portfolio split evenly between stocks and bonds realized negative returns in just six of the 25 years through 2022 (1994, 2001, 2002, 2008, 2018 and 2022) and lost more than 10% in just one year (2022, down 15.6%). Moreover, in each of these four instances, the portfolio recovered from its losses within two years. Of course, past performance is no guarantee of future results.[9]

Many retirees wish to play it safe by avoiding stocks. But a portfolio of bonds and cash, despite producing stable returns year-to-year, may not be the best answer for retirees. A balanced portfolio that holds both stocks and bonds may offer retirees a far better

5 Asset allocation and diversification do not ensure a profit or protect against loss in declining markets.

6 Calculations based on Society of Actuaries, 2012 Individual Annuity Mortality Tables, Basic. (Latest available data.)

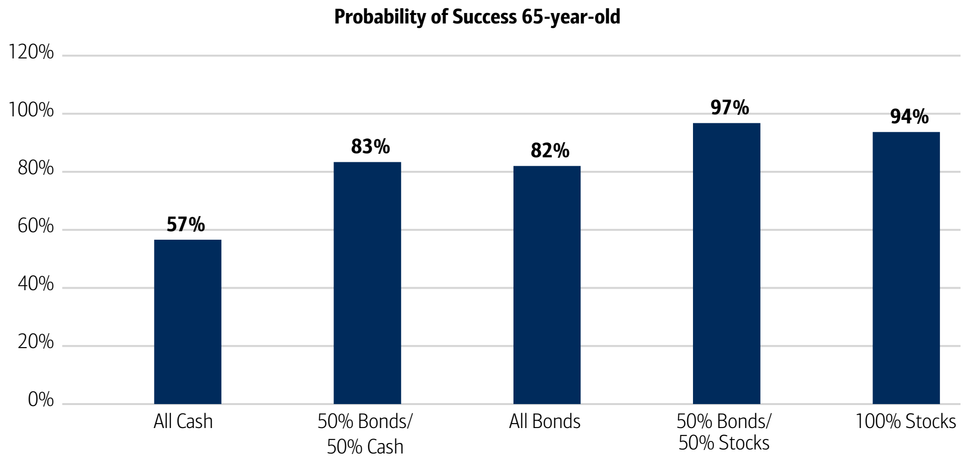
7 U.S. bonds are represented by: 1976-2022 ICE BofA U.S. Broad Market; (1975- 1926) Ibbotson U.S. Intermediate Government Bond Index. **Past performance is no guarantee of future results.**

8 The U.S. returns data are from Ibbotson Associates. For global returns, see Elroy Dimson, Paul Marsh and Mike Staunton, *Triumph of the Optimists*; and Credit Suisse, Global Investment Returns Yearbook 2022. **Past performance is no guarantee of future results.**

9 Based on CIO Portfolio Analytics calculations.

chance of not outliving their wealth. Investors should keep in mind asset allocation and diversification does not ensure a profit or protect against loss in declining markets.

Exhibit 3: Probability of a 65-Year-Old Woman Not Outliving Her Wealth for Various Asset Allocations



Notes: Assumes that a 65-year-old female spends 3.5% of her wealth the first year of retirement and increases this spending in line with inflation in subsequent years (based on CIO inflation assumption of 2.8%). These withdrawals are taken at the end of each year, at which time the portfolio is rebalanced. Planning horizon assumptions 30 years. Time horizon is measured in years. Risk and expected returns assumptions for stocks, bonds and cash are as given in Table 1. These hypothetical results are for illustrative purposes only and are not meant to represent the past or future performance of any specific investment vehicle. Investment return and principal value will fluctuate, and, when redeemed, the investments may be worth more or less than their original cost. Source: Analysis by the Chief Investment Office, May, 2023.

Consider the hypothetical example of a 65-year-old woman with $500,000 to invest who wishes to draw 3.5% income, or $17,500, next year and amounts that increase in line with inflation in subsequent years. Assuming a planning horizon of 30 years, if she invests the portfolio entirely in cash, she will have year-to-year return certainty but, according to our analysis, only a 57% chance of not outliving her wealth. If she instead invests entirely in bonds, this likelihood rises to 82% (Exhibit 3). But if she allocates half the portfolio to bonds and half to stocks and rebalances the portfolio annually, her chances of not outliving her wealth rise to 96%.

Generally, stocks are riskier than bonds with respect to daily or annual portfolio fluctuations. But if you are a retiree, there is another risk to consider: the risk of outliving your wealth. A broadly diversified portfolio that includes both stocks and bonds may reduce this risk.

Pitfall 3: Failing to address longevity and inflation risks

Retirees can be blindsided by unanticipated risks. Many people need to retire sooner than expected or they live longer than they imagined. Moreover, inflation can wreak havoc on a retirement plan, especially for those enjoying a long retirement.[10]

Timing of retirement

You may have in mind a retirement date and a plan to have sufficient assets by then. But there's a good chance you might retire sooner than intended due to circumstances beyond your control. The EBRI retirement Confidence Survey (RCS) has consistently found that a large percentage of retirees leave the work force earlier than planned (47 percent). What explains this disconnect?[11]

Many who say they retired earlier than planned did so because of a hardship, such as a health problem or disability (32 percent). Another 23 percent say that they retired due to changes at their company, but a larger share say they could afford to retire earlier (38 percent).

[10] For a more complete discussion of the key risks retirees face and ways to mitigate these risks, see "Tackling Retirement Risks," Chief Investment Office, Spring 2023.

[11] 2022 Employee Benefit Research Institute, EBRI Retirement Confidence Survey (RCS).

The possibility of retiring earlier than expected heightens your need to be well prepared, or even over-prepared. In planning for retirement, invest early—and invest often. If you find yourself among the many who retire sooner than expected and your wealth must last longer than originally anticipated, you may need to revisit your work options and spending plans.

Length of retirement

Many individuals' retirement plans assume a fixed time horizon, such as 30 years. This approach has two basic shortcomings. First, in most cases, the planning horizon takes no account of a client's actual life expectancy. Second, even if the planning process does take the client's life expectancy into account, it may do so incorrectly. How, for example, should you plan for a remaining lifespan that may be 20 years, but may also be 40 years?[12] Being overly conservative may lead you to continue working longer than necessary in your current position or keep you from enjoying your retirement. But following an overly aggressive approach may cause you to consider retiring too early or spending too freely, placing you at risk of exhausting your wealth.

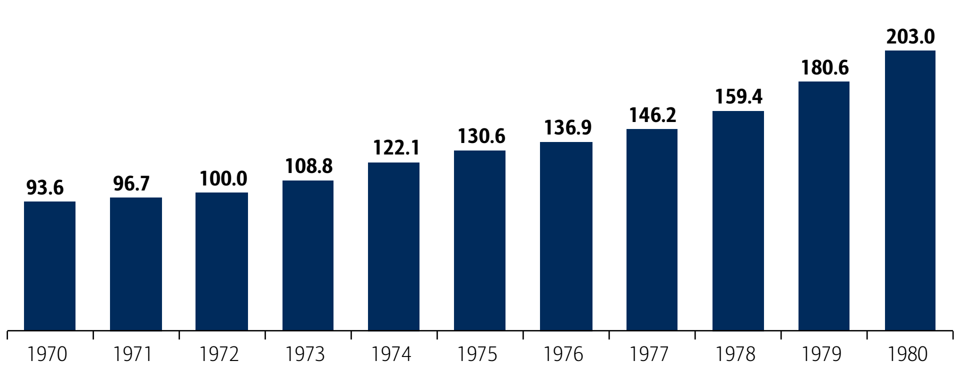
Complicating matters is the difficulty many encounter in estimating their life expectancy. When asked to estimate how long the average person of their gender and age can expect to live, almost 3 in 10 underestimate by five years or more. Twenty-three percent similarly overestimate his or her life expectancy.[13] One reason for these underestimates is a failure to recognize that life expectancy increases with age. Another is that many people estimate their life expectancy based on how long their parents or other close relatives lived. Because life expectancies have grown markedly from one generation to the next, using relatives as a benchmark can lead people to underestimate their life expectancy.

Inflation

When planning for retirement, many do not adequately consider the corrosive long-term impact of inflation. For example, some baby boomers might recall that the price of a first-class postage stamp was 4 cents in 1958. Today it costs 55 cents, a cumulative inflation rate of 1,275%. More generally, according to the Consumer Price Index (CPI-U), a typical basket of goods and services that cost $10 in 1958 cost $85 in 2017, an 88% erosion in the purchasing power of the dollar. Uncertainty regarding the ongoing rise of prices is known as inflation risk, another key risk confronting retirees. It is related to longevity risk because the longer a retiree lives, the more acute inflation risk becomes.

Inflation can spike suddenly. From 1972 to 1980, consumer prices more than doubled, imposing a serious burden on those living on a fixed income (Exhibit 4). Adding insult to injury, stocks and bonds have fared poorly in periods of high inflation.

Exhibit 4: Consumer Price Index, 1970–1980



Sources: Bureau of Labor Statistics; Chief Investment Office. As of 2022.

[12] The uncertainty surrounding an individual's lifespan, called longevity risk, is a key risk facing retirees.

[13] Society of Actuaries. "Longevity Perceptions and Drivers: How Americans View Life Expectancy." January 2020.

Over the course of a long retirement, even moderate inflation can have a major impact. Inflation of 2.5% per year will erode purchasing power by 63% over 40 years (Table 2). Three decades of 5% inflation will reduce purchasing power by 77%. Moreover, retirees typically experience higher inflation than the headline CPI-U figure reported in the media. This is because retirees consume a different basket of goods and services from what the general populace does. Notably, medical care expenditures have twice the relative importance for a retiree as for a pre-retiree. From 2000 through 2022, medical care inflation averaged 3.6%, as opposed to 2.6% for CPI-U. Aside from inflation, as people grow older, their healthcare expenses tend to rise.[14]

Table 2: Erosion in the Purchasing Power of the U.S. Dollar at Various Rates of Inflation

	Rate of Inflation			
Year	**1%**	**2.5%**	**5%**	**10%**
0	0%	0%	0%	0%
10	9%	22%	39%	61%
20	18%	39%	62%	85%
30	26%	52%	77%	94%
40	33%	63%	86%	98%

Source: Calculations by the Chief Investment Office. For illustrative purposes only.

Pitfall 4: Not adhering to a retirement plan

People nearing retirement can benefit from sound retirement planning, a process that an advisor can help facilitate. Planning can help offer assurance and comfort to those on track to retire, and guidance on how to improve retirement prospects to those who are not. With a sound strategy in place, clients can make prudent decisions on such matters as when to retire, how much they can afford to spend, and when to start receiving Social Security. Many find that the very process of developing a retirement plan offers a heightened sense of well-being.[15]

The need for a retirement plan

One of the greatest threats to a secure retirement is the failure to plan. Yet, remarkably, only 48% of workers surveyed report that they or their spouse have tried to calculate how much money they will need to live comfortably in retirement.[16] Most retirees need income from their retirement assets to fund living expenses, making it crucial to have a sound plan. Moreover, some retirees face challenges such as unexpected healthcare expenses. These concerns distinguish retirement planning from financial planning for other stages of life.

Sticking to a retirement plan

Dalbar produces an annual study gauging the impact of investor behavior on long-term portfolio returns. The study shows that individual equity fund investors realized a 6.2% average annual return in the 30 years through 2020, compared to 10.7% for the S&P 500 Index.[17] It concludes that the benefits of a long-term investment strategy are lost to the average investor, who generally abandons investments at inappropriate times, often in response to bad news.

What do we believe gives investors the fortitude to stick with their retirement plans and hold investments despite market turmoil?

Confidence that their plan is well-thought-out and appropriate to helping them pursue their goals. What we believe investors want most is not to beat some market benchmark or to outperform their peers. We believe that investors want to achieve their personal goals, nothing more and nothing less.

[14] Data on medical and CPI-U inflation and medical care expenditures are from the U.S. Bureau of Labor Statistics, as of December 2022.

[15] In "Annuities and Retirement Well-Being," a chapter in Olivia Mitchell and Stephen Utkus, *Pension Design and Structure: New Lessons from Behavioral Finance*, 2004, Constantijn Panis notes: "Our evidence conclusively shows that satisfaction with retirement was higher among retirees who had engaged in some sort of financial planning activity."

[16] Employee Benefit Research Institute. "2021 Retirement Confidence Survey."

[17] Dalbar, Quantitative Analysis of Investor Behavior, 2021. The study uses data from the Investment Company Institute and Standard & Poor's to compare mutual fund investor returns to appropriate benchmarks. Covering the period from January 1, 1990, to December 31, 2020, the study uses monthly mutual fund sales, redemptions and exchanges to measure investor behavior. These behaviors reflect the "average investor." Based on this behavior, the analysis calculates the "investor return" for various periods. These results are then compared to the returns of relevant indexes. **Past performance is no guarantee of future results.**

OVERCOMING THE PITFALLS

Having examined four retirement pitfalls to which many are prone, let's briefly recap and discuss some potential solutions.

Overspending. Most retirees have little idea how much of their overall savings they can safely afford to spend each year. The answer varies but is generally on the order of 3% to 5%. Spending more could put you at risk of reducing your retirement assets to a level that requires scaling back your lifestyle, perhaps substantially. If this amount seems inadequate, you might examine your spending patterns to identify which expenses are essential and which are discretionary. By eliminating or reducing some of the latter, it may be possible to reduce your spending rate to 3% to 5%.

Another possibility is to delay retirement. This need not mean continuing to work in your current position. It could be a "second act" career that allows you to work in a field or setting more to your liking. Indeed, a majority of older Americans with full-time career jobs move to a different job before exiting the workforce.[18] Delaying retirement can help compensate for a retirement investments shortfall by providing added income, medical benefits, a shorter retirement to finance out of pocket, more time to save and earn returns, and higher Social Security benefits, which are largely tax-exempt. Your financial advisor can help you weigh these options.

"Playing it safe." You can do this by shunning equities. A well-diversified portfolio with appropriate allocations to stocks, bonds and cash investments has the potential to keep pace with inflation and grow in value. Investing a retirement portfolio entirely in bonds and cash may be counterproductive. If market fluctuations leave you uncomfortable, it may make sense to limit your equity exposure. But doing so may mean lower long-run returns, necessitating a lower spending rate. Your Financial Advisor has tools to help you determine what strategic asset allocation is most appropriate for your situation.[19]

Longevity and inflation risks. These risks are important examples of the subtle factors that can undermine your retirement security. Your financial advisor can help you craft a strategy that addresses these risks. This might include allocating some of your retirement portfolio to investments that can outpace inflation over time. Another possibility to consider is allocating some portion of your retirement assets to an immediate annuity, which can provide an income for life, regardless of how long you live.[20]

Staying with your plan. People are much more likely to adhere to a retirement plan if they feel comfortable with it. Your financial advisor can help you structure your retirement portfolio in a way that helps you pursue your long-term financial goals, providing you the fortitude to stick with your plans even when markets turn stormy.

Just as you will get more out of retirement by staying physically fit, staying financially fit and avoiding these pitfalls can help you get more out of retirement. Your key to a secure retirement is a plan that helps you meet your financial goals.

[18] Michael Giandrea, Kevin Cahill and Joseph Quinn. "Bridge Jobs: A Comparison Across Cohorts." Research on Aging, September 2009, pp. 549-76.

[19] "Beyond the 4% rule: Determining sustainable retiree spending rates." Chief Investment Office, January, 2023, provides guidance on optimal equity allocations for retirees of various ages.

[20] "Goals-Based Wealth Management with Guaranteed Lifetime Income Through an Annuity." Chief Investment Office, Summer 2022.

Index Definitions

Securities indexes assume reinvestment of all distributions and interest payments. Indexes are unmanaged and do not take into account fees or expenses. It is not possible to invest directly in an index. Indexes are all based in U.S. dollars.

S&P 500 Index is a stock market index that measures the stock performance of 500 large companies listed on stock exchanges in the United States. It is one of the most commonly followed equity indices.

Consumer Price Index (CPI) measures the change in the price of goods and services from the perspective of the consumer.

Expected Geometric Return is expressed in terms of compounded average annual returns and calculated using geometric mean of periodic returns. Expected risk is a measure of the dispersion of a set of data from their mean. Also known as standard deviation. Applied to the periodic rate of return of an investment to measure its volatility. The more spread apart the data are, the higher the volatility of that investment.

Expected volatility means a measure of the amount by which a financial variable, such as share price, has fluctuated (historical volatility) or is expected to fluctuate (implied volatility) during a period.

ICE BofA Global Broad Market tracks the performance of investment grade securitized and collateralized debt, including mortgage backed, asset backed, commercial mortgage backed, covered bond, and US mortgage pass-through securities publicly issued in the major domestic and euro-bond markets. Qualifying securities must have an investment grade rating (based on an average of Moody's, S&P and Fitch).

ICE BofA US 3-Month Treasury Bill Index is comprised of a single issue purchased at the beginning of the month and held for a full month. At the end of the month that issue is sold and rolled into a newly selected issue. The issue selected at each month-end rebalancing is the outstanding Treasury Bill that matures closest to, but not beyond, three months from the rebalancing date. To qualify for selection, an issue must have settled on or before the month-end rebalancing date.

Ibbotson US Intermediate Government Bond Index is an unmanaged index representing the U.S. intermediate-term government bond market. The index is constructed as a one bond portfolio consisting of the shortest-term non callable government bond with less than 5 years to maturity.

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Asset allocation, diversification and rebalancing do not ensure a profit or protect against loss in declining markets.

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