



Managing “Black Swan” Stock Market Risks in Retirement





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Introduction

The COVID-19 Pandemic brought us our third significant bear stock market in the past twenty years. During this same twenty-year period, however,

- more favorable than expected returns on stocks have also been experienced,
- expected returns on less risky fixed income investments (including annuities) have been decreasing
- Social Security’s financial position has been worsening, and
- fewer workers have been accruing benefits under defined benefit plans and are now generally expected to be more responsible for managing their personal retirement finances.

In light of the increased frequency of the Black Swan stock market events, how should individuals and couples plan for retirement and try to manage the risks involved once retired? Specifically, how much of their retirement assets should they invest in risky rather than less risky assets? The answers to these questions are made somewhat more complicated in an environment where:

- many individuals lack sufficient financial skills (or the necessary desire) required to manage their retirement finances, and they seek an easy answer, a trusted advisor or some other source to help them
- there is no shortage of “retirement experts” providing advice on the internet or in other media,
- younger individuals and those in or near retirement may have different financial goals or tolerances for risk, and
- some advisors have potential conflicts of interest when it comes to advocating specific strategies.

This essay attempts to address these questions and discusses general approaches for managing downside investment risk for individuals or couples in or near retirement. Since we will be discussing investment risk, let’s first look at risk tolerance in general.

Different People Have Different Financial Goals and Tolerance for Risk

We can expect younger workers to have more tolerance for risk, as a general rule, than individuals who are close to or who have already retired. These younger individuals generally have more human capital (present value of future employment earnings) on the asset side of their household balance sheets and are generally willing to invest in more risky assets with higher expected returns in order to accumulate sufficient assets to retire.

Retirees can and do have different levels of risk tolerance. Some retired individuals with significantly more assets than needed to fund their living standard needs and whose goals include leaving substantial estates to their heirs may desire to maximize their wealth and therefore may have higher tolerance for risk and fewer concerns with investing significant amounts of their retirement assets in equities. Other retirees or near retirees may have accumulated insufficient assets to fund their desired living standards and have almost no choice in today’s low

interest environment but to invest in more risky assets in order to achieve their retirement goals. And, there are always those individuals who simply have very high tolerance for risk regardless of their financial situation.

There is, however, a significant portion of the near-retired and retired population with relatively low tolerance for risk. They have accumulated sufficient assets to fund their desired standard of living in retirement and one of their most important retirement goals is to protect their retirement assets and their standard of living for the duration of their retirement. For these individuals, the downside risk associated with poor investment returns far outweighs the upside potential of higher possible returns. In order to achieve their goals, these individuals would generally benefit from adopting a robust downside risk management strategy.

Probability-Based vs. Safety-First Investment Strategies

While there are several ways to manage downside investment risk in or near retirement, this essay will focus on two general approaches discussed in *The Yin and Yang of Retirement Income Philosophies* by Dr. Wade Pfau and Jeremy Cooper. In their paper, the authors describe the two opposing philosophies as probability-based and safety-first strategies.

The probability-based strategy generally anticipates significant investment in equities but attempts to manage the downside risk generally associated with investment in such risky assets by selecting a “safe” spending strategy that is expected to have a high probability (greater than 90%, for example) of success in meeting the individual’s financial goals, based on projected results of a Monte Carlo model (or some other simulation model).

By comparison, the safety-first approach anticipates significant investment in less risky investments such as Social Security, pensions, annuities and fixed income assets to fund some or all of the individual’s future spending needs (generally future expenses considered to be part of one’s standard of living or expenses deemed by the individual to be essential).

These two strategies are not necessarily mutually exclusive. Aspects of each approach can be incorporated into the other. Let’s take a closer look at the two basic strategies.

Probability-Based Strategies

Probability-based strategies based on results of Monte Carlo models are frequently employed by financial advisors for their clients. The models are usually fairly complicated and can be difficult to understand. This level of complication can lead to increased reliance on (or trust in) one’s financial advisor.

In a Monte Carlo model, assumptions for mean future real investment returns and standard deviations of returns (volatility) are generally made for each significant asset class. These assumptions are typically based on historical returns and are either selected by the financial advisor or are built into the model he or she uses. This is another area where clients normally trust their financial advisor to make best estimate assumptions for them.

If assumptions with respect to mean returns and volatility used in the simulation model to forecast future returns are reasonably accurate (or conservative) and spending strategies with high probabilities of success are adopted (and adhered to), then this approach should be expected do a reasonably good job of protecting the individual’s future standard of living during retirement. It should also provide significant upside potential for higher future spending and/or more assets to be left to heirs as, according to the model, most of the time results should be better than those used to develop the spending plan.

If assumptions for future experience used in the simulation model are overly optimistic relative to actual future experience, future spending may have to be reduced. Thus, a spending strategy with a 90% probability of success under optimistic assumptions may only have a 60% probability of success under more realistic assumptions (or after a market crash).

Unfortunately, without carefully examining the assumptions used to predict future returns, it is very difficult for a typical client to know in advance whether the assumptions utilized in the simulation model are optimistic, pessimistic, or realistic. As discussed below, some useful information relative to the reasonableness of stochastic model assumptions may be obtained by comparing expected spending under spending strategies with high probabilities of success with spending that may be obtained through investment in relatively low risk assets.

It is not always clear under probability-based strategies if or when spending should be adjusted (either up or down) in circumstances where actual experience deviates from assumed experience. This lack of definitive action also fosters a necessary level of trust in the financial advisor, who may be relied upon to decide when it is time for spending to be adjusted either up or down.

And while a probability-based strategy may anticipate a certain amount of volatility, occurrence of a Black Swan event near commencement of retirement will almost always require a significant adjustment of an individual's spending plans. Therefore, it will be important for an individual who uses a probability-based approach to build in some level of cushion when deciding if that individual has sufficient assets to retire.

Since many financial advisors are frequently compensated based on the amount of assets they manage for their clients (Assets Under Management, or AUM), these advisors have a potential conflict of interest when it comes to recommending specific risk management strategies.

As discussed above, there can be several levels of trust involved in using a probability-based strategy to manage investment risk in retirement:

- Trust in the financial advisor,
- Trust in assumptions used in the model, and
- Trust in the stock market and equity risk premiums

Most of us expect to earn higher risk premiums from investment in risky assets, but no one really knows how much these equity risk premiums will be in the future. A probability-based strategy will offer greater potential upside investment returns than a safety-first strategy and arguably greater potential downside as well. And while financial advisors may provide many fine services for their AUM fees, they do not guarantee any specific level of investment performance.

Safety-First Strategies

Safety-first strategies accomplish downside investment risk management by investing a portion of retirement assets in minimal or relatively low-risk investments, including:

- Social Security (and Social Security deferral)
- Life annuities (immediate and/or deferred)
- Pensions
- Bonds and other fixed income investments
- Cash

The above assets that anticipate lifetime payment also provide longevity-risk protection, and Social Security and some annuities, pensions, and government bonds can provide inflation-risk protection.

The portion of one's assets to be invested in these low-risk investments is generally referred to as the floor portfolio. The floor portfolio is intended to fund future essential expenses, with the remainder of a person's retirement assets (the upside portfolio) to be used to fund future discretionary expenses. Assets comprising the upside portfolio could be invested in risky assets as desired by the individual. Expenses classified as essential by the individual would presumably be important lifestyle-type expenses, but this type of expense could vary from individual to individual, as one person's essential expenses could be another's discretionary expenses.

Once the individual (or her financial advisor) determines the individual's desired level of essential expenses (both recurring and non-recurring), a complicated Monte Carlo model would not be needed to develop a reasonable estimate of the size of the floor portfolio necessary under this strategy. It could be estimated by backing into the income needed to cover essential expenses, or for more complicated situations, present values could be employed using discount rates consistent with low-risk investments.

Critics of the safety-first strategy note that this approach may not necessarily be safer than the probability-based strategy because:

- Social Security may be reduced or eliminated
- Pensions may be reduced
- Insurance companies may default on annuity contracts
- Corporations and other bond issuers may default on bonds

And, to be fair to financial advisors, it is likely that annuity salespeople may suffer from a similar amount of bias in their recommendations as financial advisors. And, to the extent that assets are invested in low-risk investments, total expected investment returns are likely to be lower in the long run under the safety-first strategy than under the probability-based strategy.

So, as argued by Michael Kitces in his article, *Even Safety-First Retirement Income Strategies Are Probability-Based – The Real Distinction Is Risk Transfer Vs Risk Retention*,

“the distinction really comes down to a matter of who/what you trust more: the returns provided by the markets, or the guarantees offered by third-party providers (insurance companies, pension plans, government).”

I agree with Mr. Kitces.

Mr. Kitces also notes that initial levels of spending under both approaches may not differ by much. This observation may be helpful to those using a probability-based strategy in developing a sense for the reasonableness of the

assumptions used in their financial advisor's Monte Carlo model, as truly "safe" approaches should produce about the same level of anticipated spending irrespective of the risk mitigation approach employed.

Dr. Pfau nicely encapsulates the objective of a safety-first strategy when he says

"After all, the goal of true retirement income planning is not to earn a high investment return, but rather to actually be able to fund all of their financial goals for retirement, including have enough income to cover essential monthly expenses in retirement."

Summary

Managing one's retirement in today's environment is a risky business. A critical part of developing a successful retirement plan will be to incorporate robust downside risk management to withstand relatively frequent stock market Black Swans. One of the significant advantages of the safety-first approach (at least for DIY retirees) is that it doesn't necessarily require understanding or trusting the results of a complicated Monte Carlo model. As a conservative retired actuary, I favor the safety-first strategy as my personal risk management strategy. I was able to sleep reasonably well during the recent COVID-19 stock market turmoil.

Other retirees and near retirees with higher tolerance for risk than I, or different retirement goals, may favor a probability-based strategy. I would encourage those using a probability-based strategy to take the time to understand the model used by their financial advisor so they are comfortable that it is consistent with their tolerance for risk and retirement goals. If they are not comfortable (or had trouble sleeping during the recent market turmoil), they should consider incorporating more safety-first aspects into their retirement plan.

About The Society of Actuaries

With roots dating back to 1889, the [Society of Actuaries](#) (SOA) is the world's largest actuarial professional organizations with more than 31,000 members. Through research and education, the SOA's mission is to advance actuarial knowledge and to enhance the ability of actuaries to provide expert advice and relevant solutions for financial, business and societal challenges. The SOA's vision is for actuaries to be the leading professionals in the measurement and management of risk.

The SOA supports actuaries and advances knowledge through research and education. As part of its work, the SOA seeks to inform public policy development and public understanding through research. The SOA aspires to be a trusted source of objective, data-driven research and analysis with an actuarial perspective for its members, industry, policymakers and the public. This distinct perspective comes from the SOA as an association of actuaries, who have a rigorous formal education and direct experience as practitioners as they perform applied research. The SOA also welcomes the opportunity to partner with other organizations in our work where appropriate.

The SOA has a history of working with public policymakers and regulators in developing historical experience studies and projection techniques as well as individual reports on health care, retirement and other topics. The SOA's research is intended to aid the work of policymakers and regulators and follow certain core principles:

Objectivity: The SOA's research informs and provides analysis that can be relied upon by other individuals or organizations involved in public policy discussions. The SOA does not take advocacy positions or lobby specific policy proposals.

Quality: The SOA aspires to the highest ethical and quality standards in all of its research and analysis. Our research process is overseen by experienced actuaries and nonactuaries from a range of industry sectors and organizations. A rigorous peer-review process ensures the quality and integrity of our work.

Relevance: The SOA provides timely research on public policy issues. Our research advances actuarial knowledge while providing critical insights on key policy issues, and thereby provides value to stakeholders and decision makers.

Quantification: The SOA leverages the diverse skill sets of actuaries to provide research and findings that are driven by the best available data and methods. Actuaries use detailed modeling to analyze financial risk and provide distinct insight and quantification. Further, actuarial standards require transparency and the disclosure of the assumptions and analytic approach underlying the work.

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