

STRESS-TEST YOUR RETIREMENT SAVINGS

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ABSTRACT

The study aims to establish the probability of running out of money in retirement based on changes in asset returns and withdrawal rates. Dot.com bubble imploding in early 2000s, real estate prices collapsing, and credit freeze in late 2000s, COVID pandemic in 2020 should alert anyone to reassess the risk of experiencing these crises during retirement, especially the longer you live. Many types of stress tests can be done for a retirement portfolio. Stress testing a retirement portfolio involves evaluating its resilience and performance under various adverse scenarios. Withdrawal rates impact the likelihood of running out of wealth late in life. Factors such as expected returns on assets, withdrawal size, retiree's tolerance for risk, and asset allocation may interact to determine the optimal withdrawal rate. This study seeks to establish the probability of running out of money based on changes in the two parameters of asset returns and withdrawal rates. If 75% to 95% estimates are considered for acceptable success rates, withdrawal rates between 3% and 4% can be recommended for a 30-year withdrawal period based on the simulation results, depending on risk tolerance. However, the results for a 5% withdrawal rate show that the highest success rate of nearly 58% is achieved. Consequently, a withdrawal rate of 5% is only suitable for risk-tolerant investors.

Keywords: retirement planning, investing, asset allocation, withdrawal rates;

1. INTRODUCTION

As firms switch from defined-benefit plans to defined-contribution plans, employees bear more responsibility for making decisions about how much to save. Retirees are defined as individuals who are not in the labor force and over age 60. The difference between retirement income and actual expenses is known as a retirement income gap or retirement funding gap (RFG), the amount needed at retirement or also known as retirement gap may fall short of your actual needs. Retirement income provided by Social Security and employee pension plans vary depending on various factors, including an individual's income level, contributions made, and the specific details of the plans. Social Security and employee pension plans are assumed to provide 50% of required retirement income. Behavioral economics suggests that individuals have bounded rationality and bounded self-control, which limits their ability to make rational decisions. Biases in decision-making include availability bias, anchoring, biases based on social norms, habitual behavior, and the rule of thumb bias.

RETIREMENT FUNDING GAP -\$803,357.40:

PMT \$91,648.88, 17 N, 8.604% I, PV in projected year 17=? -\$803,357.40

It is assumed that employer retirement plan and social security provide 50% of needed a stream of income of \$91,648.88 a year during retirement and employee needs to provide the rest of that amount. This is calculated using 17 year-period of retirement at 8.604% real rate. If \$803,357.40 is available at retirement, it will provide an approximate constant dollar stream of \$91,648.88 a year over 17-year retirement period). Rising costs, a longer duration of retirement, lower interest rates, reduced returns on some investments, a rising age for full Social Security benefits, changes in tax rates, higher costs of living, shifts in the market and unexpected expenses can mean retirement income may fall short of the actual needs. About 40 percent of all U.S. households where the head of the household is between 35 and 64 are expected to run short of money in retirement, according to a 2019 report by the Employee Benefit Research Institute (Christian). This article stress tests inflation adjusted withdrawal rates of 5%, 4%, and 3% on a retirement portfolio of \$803,357 simulating asset returns and inflation rates over a period of 17-years and 30-years retirement period.