FIRE User Facing Methodology

FI Number Calculator

The FI Number Calculator is intended to provide a projected age at which the desired level of spending can be achieved with 90% confidence throughout the retirement time horizon (age 96). The calculator takes as inputs your current age, your current savings and planned contributions and your desired retirement expenses (net of any retirement income) expressed in today's dollars. The calculator then tests every year whether the estimated combined savings and contribution growth is sufficient to cover the desired expenses. Assets and contributions are grown using straight line growth rate calculations from a reference table derived with Monte Carlo simulations; that is to say the tool itself is not running any simulations but the return used to project to any given year has been derived by determining the return rate over the planning horizon with 90% confidence out of 250 Monte Carlo simulations. This means that the growth rate used for a given planning. Fidelity uses this figure so as to err on the side of a more conservative estimation of future market performance. Similarly, the withdrawal rates are done in a straight-line manner but represent withdrawal rates determined by the Monte Carlo process again with 90% confidence over the given horizon. For any given year the calculator first projects assets and contributions to that year. Then, if the age in question is less than 60, the calculator attempts to cover expenses to age 60 with taxable assets; if taxable assets are insufficient the calculator will make use of tax deferred assets (with tax and penalty) and tax-free assets (with penalty). A flat tax rate of 15% is assumed on withdrawals from tax deferred assets. Balances are then determined at age 60, after any spending pre 60, to determine the level of spending possible for the remainder of retirement; penalties no longer apply to tax advantaged assets. Once the calculator reaches an age where the spending pre 60 (if necessary) and the spending post 60 are greater than or equal to the desired spending level it is deemed to have succeeded at that age and is reported to the user; balances at that age are also reported in today's dollars. A balanced asset allocation of 50% stocks, 40% bonds and 10% short term is used throughout the experience and rebalanced monthly to this stated allocation

Limitations of the tool

It is important to remember that the calculator is not intended to project or predict the present or future value of an actual asset allocation or actual investments, Also, the calculator should not be used as the primary basis for any investment, savings or tax-planning decisions. This calculator makes no assumptions about taxes and displays all results in gross (before tax) format. All calculations and results are generated through Monte Carlo simulations based on an analysis of historical market data. The analysis considers the probabilities of returns that certain asset mixes might experience under different market conditions., respectively. Stocks are represented by the Dow Jones Total Market Index from March 1987 to latest calendar year. From 1926 to February 1987, stocks are represented by the Standard & Poor's 500® Index (S&P 500® Index). The S&P 500® Index is a market capitalization-weighted index of 500 common stocks chosen for market size, liquidity, and industry group representation to represent U.S. equity performance. Bonds are represented by the Barclays U.S. Aggregate Bond Index from January 1976 to the latest calendar year. The Barclays U.S. Aggregate Bond Index is a market value-weighted index of investment-grade fixed-rate debt issues, including government, corporate, asset-backed, and mortgage-backed securities, with maturities of one year or more. From 1926 to December

1975, bonds are represented by the U.S. Intermediate Government Bond Index, which is an unmanaged index that includes the reinvestment of interest income. Short-term instruments are represented by U.S. Treasury bills, which are backed by the full faith and credit of the U.S. government. Monthly returns assume the reinvestment of interest and dividends. It is not possible to invest directly in an index. All indices include reinvestment of dividends and interest income. All calculations are purely hypothetical and will not affect your actual accounts. Remember, past performance is no guarantee of future results. Performance returns for actual investments will generally be reduced by expenses which may be different from those used in these hypothetical illustrations. Returns also will generally be reduced by taxes.

IMPORTANT: The projections or other information generated by this calculator regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Results may vary with each use and over time.

Invest Well Logic

The steps presented to you here are determined based off of the answers to 3 questions: your desire to retire before or after 59.5; whether you have a workplace savings account available; and whether you would like your money professionally managed or not. The general guidance is to use tax advantaged savings accounts for spending post 59.5 while if spending pre 59.5 is desired taxable accounts will also be suggested. If you have access to a workplace account, the logic suggests saving in that account at least up to the match and then making use of IRAs in addition to the full limit available in the workplace savings account; if no workplace savings accounts are available just IRAs are suggested. Finally, if you desire your money professionally managed that decision will manifest itself in the flow suggesting a managed account for your taxable investments compared with investing yourself in a taxable account.

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