

# What's the "safe" withdrawal rate in retirement ?

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..... **This article was updated on March 4, 1998.**

One of the most vexing questions for an early retiree is "How much can I safely withdraw per year from my retirement assets?". If you've been lucky enough to retire in your 30's or early 40's you could easily live another 60 or 70 years. Miscalculating could result in an involuntary return to the workforce, or the estate planning headache of distributing a large net worth.

**Few researchers have investigated this question.**

While there isn't a great deal of research in this area (most analysts devote their time to the question of accumulating capital, not spending it), there have been a few studies on "safe" withdrawal rates. Most use data from Chicago consulting firm Ibbotson Associates showing returns from stocks, bonds, and cash since 1926 as the basis for their analysis. Even though the average annual rate of return over the past 70 years for the S&P 500 is about 10.7%, you can't reliably withdraw an amount that large because of inflation and the ups and downs of the stock market. Reputable studies on "safe" withdrawal rates attempt to answer the question, "If I invested my whole retirement account at the market top, just before the stock market crash of 1929, how much could I withdraw per year and still not run out of money."

**The Bengen study.**

Last year (February 25, 1997 issue), the Wall Street Journal columnist Jonathan Clements reported on a study by San Diego based financial planner William Bengen. Bengen looked at year-by-year returns since 1925 for a 50/50 stock/bond portfolio. He assumed half the portfolio was in the S&P 500 and half in intermediate term government bonds. Using a 30 year holding period, he calculated that a 4.1% withdrawal rate would

allow you to survive the worst market declines.

### **The Harvard study.**

In 1973, Harvard University did a study to determine how much they could safely withdraw from their endowment fund without eroding the principal. Assuming a portfolio of 50% stocks and 50% bonds and cash, Harvard's analysts calculated they could withdraw 4% the first year and then adjust the subsequent year's withdrawals for inflation. For example, if there was 10% inflation, the second year's withdrawal would be 4.4% of the initial (i.e., first year) asset value.

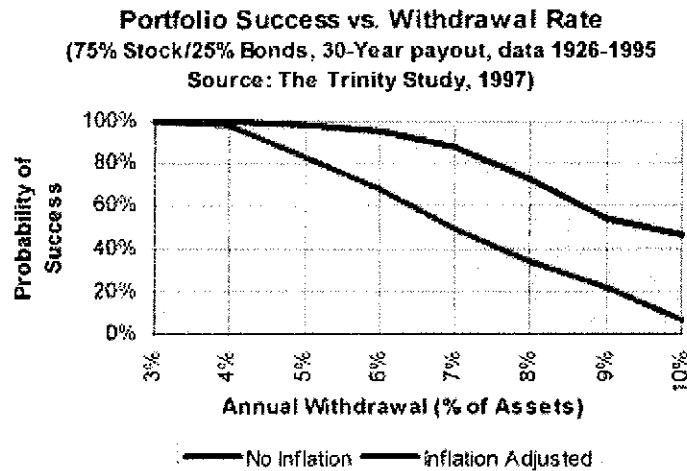
### **The Trinity study.**

Dallas Morning News columnist Scott Burns has written extensively on a "safe" withdrawal study by three Trinity University (San Antonio, TX) researchers. The Trinity Study measures the "success rate" of various portfolios from 1926 to 1995. The "success rate" is the percent of time a retiree could sustain a given withdrawal rate without depleting his retirement assets. One portion of the Trinity study adjusted withdrawals for inflation/deflation, much like the Harvard study. This analysis showed that of the portfolios considered, the optimal asset mix is 75% stock/25% long term corporate bonds. For a 30 year payout period and a 4% withdrawal rate, this mix had a 98% success rate. At a 3% withdrawal rate, the 75/25 mix had a 100% success rate. Interpolating these results would give you a "safe" withdrawal rate of slightly less than 4%, virtually identical to the Harvard study.

### **The consensus seems to be about 4% per year, but how should I interpret these studies ?**

- The first thing to consider is that these studies are based on investment returns before expenses. If you're paying an investment advisor an annual fee of 2% of assets and he has you invested in no-load mutual funds with a 0.5% expense ratio, your annual expenses are 2.5%. Your "safe" withdrawal rate is  $4.0\% - 2.5\% = 1.5\%$ . This may be the best reason yet to seek out "low-fee" investments.
- Another consideration is that most of these studies are based on historical data. The fine print here should read "past performance does not guarantee future results." While there is every reason to believe that investment returns in the next 70 years will be similar to the previous 70 years, there's little chance it will be EXACTLY the same. To say that 4.0% is a "safe" withdrawal rate and that 4.1% will leave you broke implies a measure of

accuracy in the forecast that just isn't there. It may make more sense to say that the "safe" withdrawal rate going forward lies somewhere in the range of 3.25% to 4.25%. For my own planning, I'm using a somewhat narrower range of 3.5% to 4.0%.



- One positive aspect of these "safe" withdrawal studies, is that they assume you've invested everything at the market top. If you're currently withdrawing 4.0% of assets per year, and your account balance grows by 20% this year, you can withdraw the same 4.0% of assets from your larger balance next year. Once you enter a year with a declining stock market, you would then adjust the subsequent year's withdrawals for inflation/deflation until the stock market, and your account balance, had reached a new inflation adjusted high. You could then resume making your withdrawals of 4.0% of assets of your January 1st balance as long as the stock market continued to rise.

If you wonder about the effectiveness of this interpretation, let's consider the case of someone who retired in 1981 with a \$100,000 nest egg. Using the Harvard study's guidelines, our retiree withdrew \$4,000 the first year. Inflation from 1981 to 1998 as measured by the CPI was 72%, so by 1998 his annual withdrawal increased to \$6,880. However, in the same period of time, our retiree's nest egg, as measured by the Dow Jones average, had grown to over \$900,000. His 1998 withdrawal is now less than 1% of the account balance. Far short of even the most conservative estimate of a "safe" withdrawal rate.

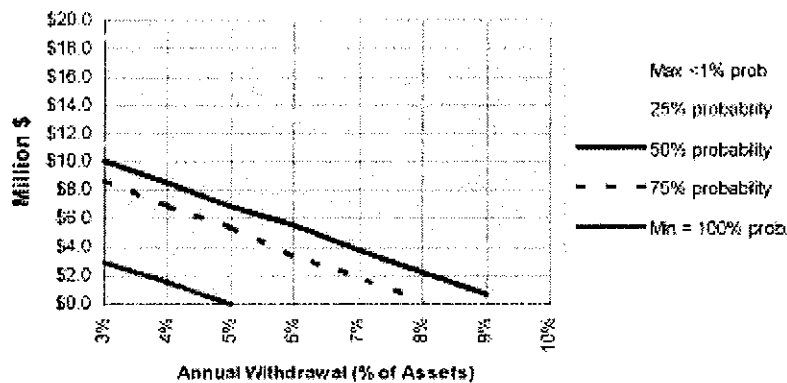
- While a 4.0% withdrawal rate protects you against

running out of money, it leaves you a very good chance of accumulating a large net worth. For someone starting with a \$1.0 million account, 75% stocks/25% bonds, a 30-year payout period and a 4% withdrawal rate, there is a 75% chance your account will be worth at least \$7.0 million at the end of 30 years. Indeed, the authors of the Trinity study admit low "safe" withdrawal rates "cause a suboptimal exchange of present consumption for future consumption." The chart below shows the probability of attaining **at least** a given account balance after 30 years for various withdrawal rates.

#### Terminal Value of \$1 Million Portfolio vs. Annual Withdrawal

(Assumes 75% Stock/25% Bonds, not inflation adjusted,  
30-Year payout period, data from 1928-1995)

Source: The Trinity Study, 1997



- It's interesting to compare these results to what economists call "the wealth effect." The **wealth effect** is the phenomenon that people tend to spend a portion of the increase in their accumulated capital each year. Economists estimate that the wealth effect at 3% to 5%. In other words, after a \$100,000 increase in one's stock portfolio, the average person would spend \$3,000 to \$5,000. This percentage is remarkably similar to the "safe" withdrawal rate. It seems wealthy folks intuitively know to limit their spending increase to a sustainable level. Perhaps it's the reason they're wealthy.

#### **Related Web Sites for additional information.**

**The Trinity Study** - Scott Burns' web site has the details on this recent study of "safe" withdrawal rates.

**Fortune Magazine: Why you should worry about the wealth effect.** - Excellent explanation of the wealth effect and it's investment implications.

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