

A Scientific Approach to Protecting Your Nest Egg

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If you are a physician who will retire, are getting ready to retire, or are retired and drawing on the fruits of your hard earned labor, a new article in the November/December 2007 issue of the Journal of Indexes has relevance. Craig L. Israelsen, PhD, the author, came up with a new look on how to draw from retirement funds and still gain a maximal return, even in a down market. What better time to talk about this than when the market is volatile and it seems, especially down?

The article, [The Benefit of Low Correlation](#), refers to the movement of asset classes, either together or apart. Those that highly correlate go up and down together. Those that have low correlation do not. Dr. Israelsen based his work on Harry Markowitz's 1952 statement, "To reduce risk, it is necessary to avoid a portfolio whose securities are all highly correlated with each other."* Markowitz, along with Merton H. Miller and William F. Sharpe won the Nobel Prize in Economics in 1990.

Risk & Volatility

Generally, when risk is less, volatility is reduced. Dr. Israelsen determined the effect of lessened volatility on returns. This is particularly important to retirees who have to depend on their investment assets for income because they typically lack a steady earned income. If the market dives and the retiree's assets are unstable, he/she can easily lose 10% or more of a portfolio in any three-year period. This can be disastrous because of the need to continue to draw on the very money that he/she is trying to grow back to baseline after the unfortunate portfolio nose dive. This is unlike a working person with a steady income who can let a portfolio grow undisturbed without withdrawals as it struggles to return to baseline.

Dr. Israelsen examined the effect of low correlation among asset classes on investment return using data from 1970-2006. His assumptions included \$500,000 in the initial portfolio plus a 5% withdrawal rate with a 3% annual increase for inflation. The author presents eight different investment strategies, each with unique assets and correlations. The first three strategies are below and include two to four asset classes. They have a relatively high return (10.60-10.94%), although there is a chance of a three-year 10% cumulative loss or worse varying from 5.7 to 8.6%. After that loss, there is a 60-62.9% probability of recovery.

- Two-Asset Portfolio: Large US Equity and Small US Equity, 50% each
- Three-Asset Portfolio: Large US Equity, Small US Equity and Non-US equity, 33% each
- Four-Asset Portfolio: Large US Equity, Small US Equity, Non-US equity and US Intermediate Bond, 25% each

The next three strategies are below and include five to seven asset classes. They also have a relatively high return (9.96 to 11.25%) though the chance of a three-year 10% cumulative loss or worse was considerably lower—0.0 to 2.9%. However, if a loss occurred (the 2.9%), the probability of recovery was also lowered, 54.3 to 57.1%.

- Five-Asset Portfolio: Large US Equity, Small US Equity, Non-US equity, US Intermediate Bond and cash, 20% each.

- Six-Asset Portfolio: Large US Equity, Small US Equity, Non-US equity, US Intermediate Bond, cash, and REIT, 16.6% each.

- Seven Asset Portfolio: Large US Equity, Small US Equity, Non-US equity, US Intermediate Bond, cash, REIT and commodities, 14.3% each.

*** **Maximum return with least risk**

The most comprehensive portfolio that Dr. Israelsen constructed was the Seven-Asset Portfolio immediately above. The correlation between the components was the lowest of any strategy studied. This broader combination produced the highest return, 11.25%, with zero frequency of a one three-year 10% loss. This quantifiable benefit is obvious to retirees—more return with no risk for a three-year cumulative loss of 10% or more, at least in the constructed scenario.

The last two portfolios that Dr. Israelsen composed consisted of only two asset classes each, large stock and intermediate bond in different proportions. They had relatively low return (9.35 to 9.70%) and the chance of a three-year 10% cumulative loss or worse was also low—0.0 to 2.9%. However, if a loss occurred, there was also a low probability of recovery, 37.1-51.4%.

- 40/60 Conservative Allocation Portfolio: 40% large stock and 60% intermediate bond

- 60/40 Moderate Allocation Portfolio: 60% large stock and 40% intermediate bond

Investor Beware

The importance of this study to anyone planning to retire or to those retired is this: If the assets in your retirement portfolio show high rather than low correlation, beware. A bad three years in the market could reduce your income from your retirement portfolio for years, or worse, you will outlive your retirement assets.

Dr. Israelsen does mention one caveat of caution when interpreting his study. He warns that the time frame of the analysis (1970-2006) was one of high returns, which are not necessarily predicted for the future. His final sentence brings his study into perspective, “Nevertheless, the benefits derived from building low-correlation portfolios—particularly during retirement withdrawal—will always be in demand regardless of the performance level of various assets.”

* Markowitz, H., 1991 Portfolio Selection, Blackwell Publishing.

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