

Built to Last

Which portfolio model will hold out the longest after your retired clients start taking withdrawals? By Craig L. Israelsen

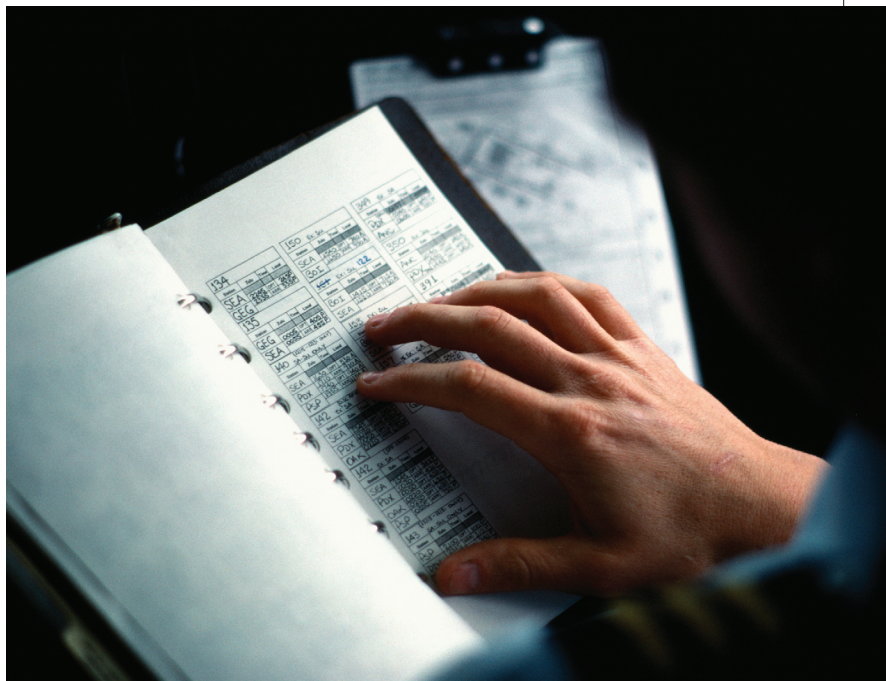
EVERY RETIREE WANTS TO BUILD A resilient retirement portfolio. One of the most important parts of such a portfolio is durability. Durability allows a retirement portfolio to sustain increasing annual withdrawals without becoming depleted before the owner turns 90 (assuming a retirement age of 65). A durable portfolio outlasts the retiree.

Let's compare four different retirement portfolios: 100% bonds; 60% bonds/40% stock; 60% stock/40% bonds; and a multi-asset portfolio that invests equally in seven different asset classes (large U.S. stock; small U.S. stock; non-U.S. stock; real estate; commodities; U.S. bonds; cash). Over a 40-year period, which one has the greatest durability? But before we analyze the portfolios during the distribution phase, let's first take a look at how they performed during the accumulation phase.

A PARTY OF FOUR

The obvious appeal of a 100% U.S. bond portfolio is that it nearly always has positive nominal returns (before considering the impact of inflation). As a result, an all-bond portfolio has very low volatility of return (as measured by standard deviation). Over the 40-year period from Jan. 1, 1970 to Dec. 31, 2009, an all-bond portfolio (using the performance of the Barclays Capital Aggregate Bond Index) had an annualized return of 8.3%, an annual standard deviation of 6.73% and a worst three-year cumulative return of 6.2%. This assumes a single lump sum investment on Jan. 1, 1970, and no additional investments or withdrawals.

A 40/60 portfolio (40% large U.S. stock, 60% aggregate bonds)



with annual rebalancing had a higher 40-year annualized return by 100 basis points, but also produced more volatility. Moreover, its worst three-year cumulative percentage return during this period was -0.4%. By comparison, the all-bond portfolio never had a three-year period (and there were 38 rolling three-year periods between 1970 and 2009) during which it experienced a cumulative percentage loss.

Compared with the 40/60 portfolio, a 60/40 portfolio (60% large U.S. stock and 40% aggregate bonds) that was annually rebalanced produced a slightly higher return of 9.7%, but with an increase in standard deviation to 11.87%. The worst-case three-year cumulative return increased dramatically to -13.3%.

A multi-asset portfolio with equal allocations to seven different asset classes (annually rebalanced) had a 40-year annualized return of 10.5% and a slightly lower standard deviation of 10.59% compared with the classic 60/40 portfolio. The worst three-year cumulative return of -13.3% was the same as the 60/40 portfolio. Compared with the standard 60/40 portfolio, a multi-asset portfolio grew money faster and with comparable risk.

Over the 40-year period of this study, the S&P 500 served as a proxy for the performance of large-cap U.S. equities, while the Ibbotson Small Companies Index, from 1970-1978, and the Russell 2000 Index, from 1979-2009, captured the performance of small-cap U.S. equities. The Morgan Stanley Capital International EAFE

MEASURING DURABILITY

In distribution mode, a multi-asset portfolio tends to stabilize returns over three-year periods, easing the minds of investors.

Four Different Retirement Models

Assumes \$100,000 starting balance, 5% initial withdrawal rate, 3% annual cost of living adjustment

Retirement Portfolio Asset Allocation Model	Median Ending Account Balance (\$)	Figures below represent the average results over 16 rolling 25-year periods		
		Average 25-Year internal rate of return (%)	Average worst 1-year % loss	Average worst 3-year cumulative % loss
100% Bonds	343,627	9.3	-6.0	-3.7
40% Stock/60% Bonds	674,178	11.0	-7.6	-4.8
60% Stock/40% Bonds	859,757	11.7	-13.1	-12.4
Multi-Asset Portfolio	961,697	12.2	-10.1	2.0

Source: Raw data from Morningstar Principia

Index (Europe, Australasia, Far East) tracked the performance of non-U.S. equities. U.S. bonds were represented by the Ibbotson Intermediate Term Bond Index from 1970-75 and the Barclays Capital Aggregate Bond index from 1976-2007.

Three-month Treasury bills represented the historical performance of cash. The performance of real estate was measured by using the annual returns of the NAREIT Index (returns for 1970 and 1971 were regression-based estimates, inasmuch as the NAREIT (National Association of Real Estate Investment Trusts) Index did not provide annual returns until 1972). Finally, the Goldman Sachs Commodities Index (GSCI) tracked the historical performance of commodities. As of Feb. 6, 2007, the GSCI became known as the S&P GSCI Commodity Index. Raw data for this study came from Morningstar Principia.

TESTING DURABILITY

The results reported above are for portfolios in the accumulation phase. We'll now focus on how these four portfolios behaved when money was being systematically withdrawn during the distribution phase of retirement.

We began with a retirement portfolio with a starting balance of \$100,000. The initial withdrawal at the end of the first year was 5% of the starting portfolio balance (in this case, \$5,000). The annual increase in the cash withdrawal was 3% to account for annual inflation (or cost-of-living adjustment). Thus, the second-year withdrawal was \$5,150, the third-year withdrawal was \$5,305 and so forth.

The starting balance of the retirement portfolio is immaterial because it doesn't affect durability. The starting balance only affects the amount of the annual withdrawal, which may or may not be adequate for the retiree.

The durability analysis that follows represents the historical performance of the four types of retirement portfolios over 16 rolling 25-year periods. The first 25-year period (representing age 65 to age 90) was from 1970-1994, the second was from 1971-1995 and so on.

As shown in "Measuring Durability" (see above), the multi-asset portfolio had the largest median balance over the 16 different 25-year distribution periods where money was being withdrawn annually. Importantly, the average worst-case three-year return over the 16

different 25-year periods for the multi-asset portfolio was a positive 2%. By comparison, the standard 60/40 portfolio had an average worst-case three-year cumulative return of -12.4%.

This particular number (worst-case three-year cumulative percentage return) is perhaps the most practical measure of what causes investors to bail out of their asset allocation model—losses over a relatively short time frame, such as three years. A multi-asset portfolio tends to stabilize returns over three-year periods and, as a result, produces less emotional trauma. Less traumatized investors tend to stay in the saddle.

As shown in "Taking 5%," on page 124, the ending account balance of the all-bond portfolio was always positive, showing that the portfolio lasted the full 25-year period (over 16 rolling 25-year periods) and had a positive balance at the end of each 25-year period.

For example, over the 25 years from 1970 to 1994, the all-bond portfolio sustained 25 annual withdrawals (each increasing at 3%) and finished with an ending balance of just over \$300,000. The ending balance of the all-bond retirement portfolio ranged from about \$250,000 to \$500,000 when assuming a 5% initial withdrawal rate. The median ending balance was about \$340,000.

Compared with the all-bond portfolio, a 40/60 portfolio always had a higher ending balance over all 16 rolling 25-year periods. This demonstrates that a 40/60 retirement portfolio was superior to an all-bond retirement portfolio during every 25-year period between 1970 and 2009. A 60/40 retirement portfolio always performed better than a 40/60 portfolio—sometimes by a large margin (1975-1999) and sometimes by a small margin (1970-1994; 1984-2008).

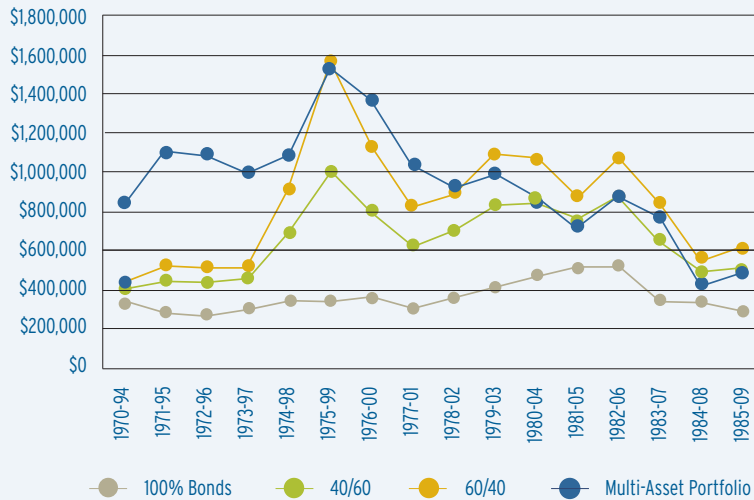
Finally, a multi-asset portfolio outperformed a 60/40 portfolio half of the time over these 16 rolling 25-year periods. During the early rolling periods (1970-1994; 1971-1995; 1972-1996; 1973-1997) the margin of superiority for the multi-asset portfolio was

TAKING 5%

Given a 5% withdrawal rate, the average ending account balance after 25 years of annual distributions was about \$100,000 higher in the multi-asset portfolio than in the 60/40 portfolio.

Ending Account Balance Over 16 Rolling 25-Year Periods

\$100,000 starting balance, 5% withdrawal rate, 3% COLA



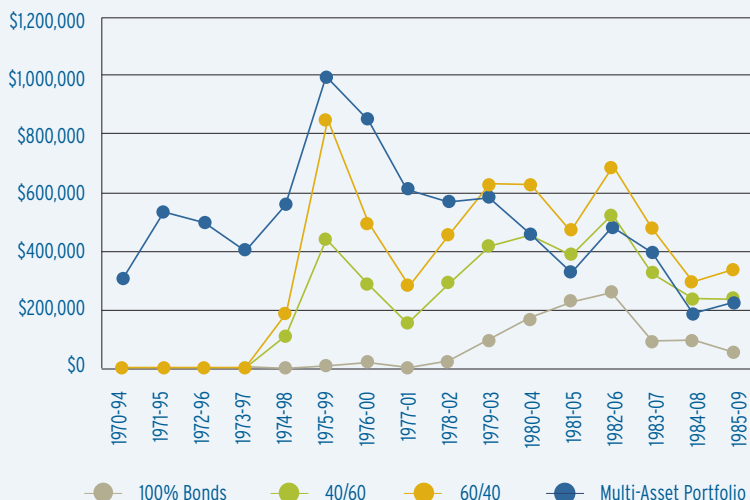
Source: Raw data from Morningstar Principia

TAKING 8%

Given an 8% withdrawal rate, the multi-asset portfolio survived in all 16 rolling 25-year periods, but the other portfolios did not.

Ending Account Balance Over 16 Rolling 25-Year Periods

\$100,000 starting balance, 8% withdrawal rate, 3% COLA



Source: Raw data from Morningstar Principia

dramatic. The average margin of victory in the multi-asset portfolio during those four particular 25-year periods was about \$500,000. Overall, the average (and median) ending account balance after 25 years of annual distributions was about \$100,000 higher in the multi-asset portfolio than in the standard 60/40 portfolio.

TORTURE TEST

Finally, let's look at a distribution portfolio torture test—the retirement portfolio that has to sustain a withdrawal rate of 8%. That is, with a starting retirement nest egg balance of \$100,000, the first year's withdrawal was \$8,000. The annual inflation rate of the cash withdrawal was 3%, meaning that the second-year withdrawal was \$8,240.

As shown in "Taking 8%," (see left), the all-bond portfolio survived the full 25-year period 63% of the time (10 out of the 16 periods). That's not comforting. A 40/60 and 60/40 portfolio both survived 75% of the time, while the multi-asset portfolio survived in all 16 rolling 25-year periods. I'm certainly not advocating an 8% withdrawal rate, but only the multi-asset portfolio could hold up under those conditions.

The key to durability is building a diversified portfolio—whether for a young investor in accumulation mode or a retiree in distribution mode. Obviously, advisors must deal with each client individually. However, diversification should be a key attribute of every portfolio at every point in the life cycle. **FP**

Craig L. Israelsen, PhD, is an associate professor at Brigham Young University. He is the designer of the 7Twelve Portfolio (www.7TwelvePortfolio.com) and author of the forthcoming book 7Twelve: A Diversified Investment Portfolio with a Plan by John Wiley & Sons. He is co-author, with Phil Fragasso, of Your Nest Egg Game Plan.

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