

Asset Allocation: A 50-Year Review

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141 Sully's Trail
Pittsford, N.Y. 14534
Office: 585-248-5700
Toll Free: 877-416-5700
Fax: 585-248-5703
www.ParksCapital.com
www.youtube.com/c/ParksCapital

By Craig L. Israelsen, PhD

Let's take a look at the performance of several asset allocation models over the last five decades, both during the accumulation mode of investing years and during retirement, in distribution mode.

In this article, we will examine several asset allocation models and how they performed over the past 50 years (from January 1, 1970 to December 31, 2019) both in accumulation mode (pre-retirement) and distribution mode (during retirement). Note: diversification does not guarantee profit or entirely protect against loss.

The first model is 100% cash (see Table 1). As cash is only one asset class it does not represent an asset allocation model (which implies at least two asset classes). However, as many investors often hide out in cash when they are afraid of the equities markets or worried about bonds, it's worth examining the performance of cash over the past 50 years.

A quick definition: the standard deviation measures how far apart the data are. The greater the standard deviation of securities, the greater the variance between each price and the mean, which shows a larger price range.

As can be seen, cash produced a return of 2.06% in calendar year 2019. The 50-year average annualized return of a 100% cash investment was 4.74% (accumulation mode performance) with a standard deviation of annual returns of 3.51%. It's important to recognize that Table 1 is showing nominal returns that have not been adjusted for the impact of inflation (as measured by the Consumer Price Index).

The last column in Table 1 shows the median ending account balance of a retirement portfolio. For an all-cash portfolio, the median ending account balance was \$150,104 (distribution mode performance). The median ending account balance was calculated over 26 rolling 25-year periods between 1970 and 2019, where the starting balance was assumed to be \$250,000. The initial withdrawal was 5% of the starting balance multiplied by a 3% cost of living increase—equally a first-year withdrawal of \$12,875. The second year withdrawal was 3% higher, or \$13,261, and so on. The total withdrawal in each 25-year rolling period equaled \$469,413. (See Table 2 for 25-year results.)

It should be noted that the all-cash retirement portfolio had a 30% failure rate (see Table 2). That is, it failed to survive for the full 25 years during distribution mode in 30% of the rolling 25-year periods.

We move down to a 50% cash/50% bond portfolio. This represents actual asset allocation (a model that uses more than one asset class)—albeit a very conservative one. The return of a 50% cash/50% bond portfolio in 2019 was 5.39%.

The 50-year annualized return of a 50/50 portfolio was 6.11% and the median ending account balance after 25 years of withdrawals in a retirement portfolio was \$451,349. This 50/50 bond/cash portfolio failed to survive for 25 years in distribution mode on one occasion (1994–2018). In that particular 25-year period it ran out of money in year 24.

The next asset allocation model is a 60% large cap U.S. stock, 40% U.S. bond portfolio that is typically referred to as a “balanced fund.” The 60/40 portfolio gained 22.38% in 2019, whereas the 50-year annualized performance was an impressive 9.67%. The 50-year standard deviation of annual returns was 11.08%.

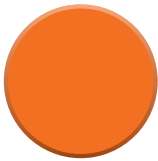



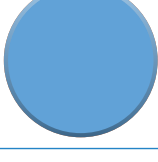
When any type of equity ingredient is added to a fixed income portfolio the standard deviation will increase—often substantially. The 60/40 portfolio was rebalanced annually, as was the 50% cash/50% bond portfolio. The median ending account balance in a retirement portfolio that was sustaining annual withdrawals was \$1.234 million.

This outcome is remarkable because the retirement portfolio began each 25-year period with a starting balance of \$250,000. However, there was a high degree of variability in the ending account balance over the 25-year periods.

Next, we examine a multi-asset portfolio that included seven different asset classes in equal portions (14.29% each) that was rebalanced annually. The asset classes included large U.S. stock, small cap U.S. stock, non-U.S. developed stock, real estate, commodities, U.S. bonds, and cash. (The indexes used are shown at the end of the article.)

Table 1: 50-Year Asset Allocation Risk & Return Spectrum 1970–2019

(Performance figures not adjusted for inflation)

Risk Level	Various Asset Allocation Models	Performance in 2019	50-Year Annualized Gross Return (%)	50-Year Standard Deviation of Return (%)	Median Ending Account Balance in \$250,000 Retirement Portfolio*
Very Conservative	100% Cash 	2.06	4.74	3.51	\$150,104
Conservative	50% Cash 50% Bonds 	5.39	6.11	4.21	\$451,349
Moderately Aggressive	60% US Stock 40% Bonds Traditional “Balanced” Fund 	22.38	9.67	11.08	\$1,234,749
Moderately Aggressive	14.3% in 7 different asset classes 7-Asset Diversified Portfolio** 70% Growth/30% Fixed income 	18.65	9.65	10.20	\$1,806,565
Very Aggressive	100% US Stock 	31.49	10.60	17.04	\$1,500,554

Source: Steele Systems Mutual Fund Software, calculations by Craig L. Israelsen

* Median ending account balance over 26 rolling 25-year periods. Assuming a starting balance of \$250,000, 5% initial withdraw rate, 3% cost of living increase in the annual cash withdrawal. Total withdrawal in each of the 26 rolling 25-year periods equaled \$469,413. See Table 2 for in-depth analysis.

**7-asset portfolio consisted of large cap U.S. stock, small cap U.S. stock, non-U.S. stock, real estate, commodities, U.S. bonds, and cash.

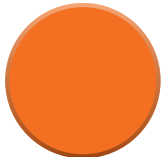



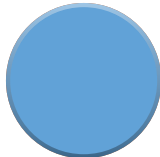
Past performance does not guarantee future performance. The multi-asset portfolios were rebalanced at the start of each year.

The 7-asset portfolio gained 18.65% in 2019. Its 50-year average annualized nominal return was 9.65% with a standard deviation of annual returns of 10.20%—comparable performance with less volatility than the standard 60/40 asset allocation model. The median ending balance over 26 rolling 25-year withdrawal periods was \$1.806 million—more than \$571,000 larger than the classic 60/40 model.

Finally, we examine a 100% stock model. As with the 100% cash model, this does not represent an asset allocation model because it only includes one asset class. But, as large-cap U.S. stock is a very prominent asset class, it is reviewed here. Large-cap U.S. stock (S&P 500 Index) gained 31.49% in 2019 with a 50-year average annualized return of 10.60%. The standard deviation was 17.04% and the median ending retirement account balance was just over \$1.5 million—roughly \$306,000 below the 7-asset portfolio.

Table 2: Retirement Portfolio Survival Analysis: 26 Rolling 25-Year Periods from 1970–2019

\$250,000 starting balance in each 25-year period. 5% initial end-of-year withdrawal with 3% annual COLA
(Annual cost-of-living-adjustment applied at the end of year starting with year 1)

Retirement Portfolio Asset Allocation Models		1-Asset Portfolio Very Conservative	2-Asset Portfolio Conservative	2-Asset Portfolio Moderately Aggressive	7-Asset Portfolio Moderately Aggressive	1-Asset Portfolio Very Aggressive
		100% Cash	Cash and Bonds (50% in each)	US Stock and Bonds (60% US Stock, 40% Bonds)	Diversified 7-Asset Portfolio* with Equal Allocations (14.3% each)	100% Large US Stock
Rolling 25-Year Periods Starting Account Balance \$250,000 5% initial withdrawal rate 3% annual cost of living adjustment (Total withdrawal of \$469,413 in each 25-Year Period)						
Starting Year	Ending Year	Ending Account Balance After 25 Years				
1970	1994	325,898	536,292	1,030,945	2,164,627	988,572
1971	1995	329,656	493,534	1,240,563	2,661,550	1,477,488
1972	1996	361,892	501,664	1,219,052	2,626,526	1,450,003
1973	1997	399,284	559,838	1,228,935	2,383,070	1,282,861
1974	1998	392,618	594,389	2,192,086	2,622,906	3,379,444
1975	1999	373,656	583,850	3,820,786	3,710,749	8,446,670
1976	2000	387,667	612,899	2,736,196	3,307,189	4,923,284
1977	2001	402,615	566,905	2,004,667	2,509,824	3,219,388
1978	2002	405,619	624,392	2,186,646	2,263,825	3,195,251
1979	2003	380,200	658,601	2,661,431	2,400,512	4,063,831
1980	2004	322,322	662,932	2,606,287	2,097,479	3,741,955
1981	2005	258,018	647,802	2,136,488	1,748,463	2,666,776
1982	2006	174,482	595,345	2,641,535	2,137,773	3,703,071
1983	2007	125,726	409,163	2,064,762	1,864,668	3,116,226
1984	2008	91,270	378,136	1,364,754	1,039,723	1,520,430
1985	2009	49,913	303,319	1,497,154	1,184,436	1,896,346
1986	2010	25,195	210,217	1,148,953	958,011	1,480,678
1987	2011	11,004	161,858	953,467	708,681	1,207,014
1988	2012	\$0 in year 24	169,337	1,088,074	757,536	1,404,556
1989	2013	\$0 in year 24	143,139	1,114,552	628,027	1,542,880
1990	2014	\$0 in year 23	90,928	836,478	460,621	1,109,268
1991	2015	\$0 in year 22	60,911	922,449	570,738	1,349,646
1992	2016	\$0 in year 21	16,369	657,480	435,724	957,698
1993	2017	\$0 in year 21	7,476	716,183	467,938	1,119,634
1994	2018	\$0 in year 21	\$0 in year 24	621,604	364,895	972,143
1995	2019	\$0 in year 21	13,164	883,061	473,013	1,403,559
Median Ending Account balance		\$150,104	\$451,349	\$1,234,749	\$1,806,565	\$1,500,554

Source: Steele Systems Mutual Fund Software, calculations by Craig L. Israelsen

Retirement is a time to stay diversified

The analysis of retirement portfolio survival in this article used an initial withdrawal rate of 5%. This particular rate was used for illustrative purposes and is not a suggested or recommended initial withdrawal rate for any particular retiree. An appropriate withdrawal rate is determined individually after considering a number of factors, including the amount of money in your retirement account, your age, needed income each year, anticipated number of years withdrawals may take place, anticipated annual rate of return of portfolio, anticipated general inflation rate in the overall economy, COLA being imposed, etc.

Portfolio diversification should be a lifelong strategy—both before retirement as well as during retirement. Warning: diversification is not exciting. That's by design. Broad diversification tends to smooth out returns which is crucially important when you start withdrawing money from a portfolio—such as in retirement.

Why is it so crucial? Because the sequence of returns matters a great deal when money is being withdrawn from a portfolio. The scenario a retiree wants to avoid is one in which their portfolio suffers several annual losses just as they start pulling money out at the start of retirement.

This would be a potentially disastrous sequence-of-returns risk which could materially reduce the longevity of their retirement portfolio. Broad diversification does not eliminate sequence of returns risk, but it does significantly reduce it. Diversification is no guarantee of growth, but it should be a central tenet in a retiree's investment philosophy.

Indices Used in Calculation of Performance

Portfolio Asset Class	Index Used to Represent Asset Class
Large US Stock	S&P 500 TR Index*
Small Cap US Stock	Ibbotson Small Stock Index 1970–1978* Russell 2000 TR Index 1979–2019*
Non-US Developed Stock	MSCI EAFE NR Index*
Real Estate	NAREIT Equity REIT Index 1970–1977* Dow Jones US Select REIT TR Index 1978–2019*
Commodities	S&P Goldman Sachs Commodity TR Index*
US Bonds	Ibbotson Intermediate-term Government Bond Index 1970–1975* Barclays Capital US Aggregate Bond TR Index 1976–2019*
Cash	US TREASURY Stat US T-Bill 90 Day TR*

Source: Craig L. Israelsen

**Past performance is not indicative of future results and an investment in these indices involves the risk of loss, particularly with respect to short-term performance.*

Craig L. Israelsen, PhD, is an Executive-in-Residence in the Personal Financial Planning program in the Woodbury School of Business at Utah Valley University. He is the developer of the 7Twelve® Portfolio. He writes for Horseshmouth, LLC, which is not affiliated with the reprint licensee or any of its affiliates.

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