The Infamous 4% Withdrawal Rate

I received another article this week, highlighted by an investor website that touted the virtues of the 4% withdrawal rate for fixed income and retired individuals. I scratch my head whenever I see one of these and wonder who is doing the math. A 4% withdrawal rate or any fixed rate of withdrawal, doesn't factor in what I consider to be the most important element in any withdrawal calculation. We need to cover expenses. If expenses are covered elsewhere, and there are millions invested, then withdraw 4%…it won't matter. For the rest of us, we need to take into consideration all of the factors involved and how different approaches work out in the long run. Let me explain using an example…

Let's say my wife and I have $500,000 in investments and savings, I'm retiring next year, and we'll need $70,000 a year for expenses. I have a pension that will pay $2,400 a month, my wife has a pension that will pay $600 a month, and we'll get Social Security at about $650 a month. That gives us $3,650 a month, or $43,800 a year, and leaves us short $26,200. This figure is very important because this is what we need to withdraw annually from our investments and savings. We know that we'll be getting a return on our investments while we withdraw, but we also know that the return in dollars will decrease as the balance decreases. How long will our money last? Let's enter the numbers into the Savings Longevity Analysis tool, and take a look at the 4% withdrawal rate scenario first. We assume a 4% return on investment and 2% inflation.

The first thing that I notice is that in the first year we're only withdrawing $20,000 (but we really need $26,200). So far I'm not feeling very good about this.

Savings Longevity Analysis (%)

	Beginning Balance	$500,000.00
	Annual Withdrawal %	4.00%
	Annual Return on Inv %	4.00%
	Aniticipated Inflation Rate %	2.00%
	Age at Start of Withdrawals	62

Age	Years	Int. Earned	Withdrawal $	Acct. Balance
62	1	$20,000.00	$20,000.00	$490,000.00
63	2	$19,600.00	$19,600.00	$480,200.00
64	3	$19,208.00	$19,208.00	$470,596.00
65	4	$18,823.84	$18,823.84	$461,184.08

As the years go by, the annual withdrawal amount continues to be reduced as the balance is depleted (we're getting 4% of a smaller balance each year). Looking at the bottom of the schedule, we see that in the final years there's a significant reduction in our withdraw amount. The money will last until we're 102 years old, but the withdrawal amount has been inadequate. Again, we need $26,200 each year, and this arrangement doesn't work.

Jazer 100 - [Savings Longevity Analysis]

File   Window   Budget   Debt   Finance Manager
Investment Analysis   Retirement   Utilities   Help

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Age at Start of Withdrawals	62

Age	Years	Int. Earned	Withdrawal $	Acct. Balance
100	39	$9,281.56	$9,281.56	$227,398.17
101	40	$9,095.93	$9,095.93	$222,850.20
102	41	$8,914.01	$8,914.01	$218,393.20

Many people on fixed incomes are forced to cut expenses year after year, as inflation drives costs higher. Imagine having to start with $20,000 when you need $26,200, and within 4 years only getting $18,447. In our scenario, I would be 66 years old and I'd be looking for at least a part-time job. What went wrong? Did the money last? Yes it did. It lasted until I was 102 years old, but it never provided the withdrawal amount that I needed. So if we wanted to say that using a 4% withdrawal rate made my money last, we could say that.

So, what do we do? There are some other factors at work here that could provide some options. We'll look at those in a minute, but first let's take another look at this using the withdrawal amount that I need. The fixed amount side of the analysis window (below) shows the calculations for a constant withdrawal amount of $26,200 (which is what I need). Things start out pretty good, but notice the withdrawal percentage (5.24%). It's a bit higher than 4% to start with, and grows quickly. A larger percentage of the balance is being withdrawn each year, even though I'm simply taking the $26,200 that I need to cover

expenses. The balance is being reduced faster, and this has an effect on the return on investment, but I'm getting the withdrawal amount that I need to pay expenses.

Looking at the bottom of the schedule, we quickly see the difference in how long the money will last. My wife and I will have taken the $26,200 that we needed to pay expenses, but it

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Savings Longevity Analysis ($)

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Annual Withdrawal $	$26,200.00	
Annual Return on Inv %	4.00%	
Anticipated Inflation Rate %	2.00%	
Age at Start of Withdrawals	62	

Age	Years	Int. Earned	Withdrawal %	Acct. Balance
62	1	$20,000.00	5.24%	$483,800.00
63	2	$19,352.00	5.42%	$467,276.00
64	3	$18,691.04	5.61%	$450,421.52
65	4	$18,016.86	5.82%	$433,229.95

will run out in about 24 years. Current life-expectancy tables predict that at least one of us

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Savings Longevity Analysis ($)

Beginning Balance	$500,000.00	
Annual Withdrawal $	$26,200.00	
Annual Return on Inv %	4.00%	
Anticipated Inflation Rate %	2.00%	
Age at Start of Withdrawals	62	

Age	Years	Int. Earned	Withdrawal %	Acct. Balance
83	22	$3,292.41	31.83%	$57,756.47
84	23	$2,310.26	45.36%	$32,711.60
85	24	$1,308.46	80.09%	$7,165.83
86	25	$286.63	102.00%	$0.00

will still be living if not both of us. This won't work either, but we have a clear picture of what will happen using this approach. Simply using real numbers (we have $500,000 and

we need $26,200, we get a return on investment, and inflation takes a bite) we can see how things will work out. Now my wife and I can discuss how to modify our plan to prevent experiencing a bad situation in retirement. Maybe I can delay retirement, we can change our expected return on investment, or we could revisit our planned expenses and see if we allocated too much in some areas. You get the point.

For comparison, changing the expected return on investment to 6% (shown below) adds more than 10 years of withdrawals.

Jazer 100 - [Savings Longevity Analysis]

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Investment Analysis   Retirement   Utilities   Help

Savings Longevity Analysis ($)

Beginning Balance	$500,000.00
Annual Withdrawal $	$26,200.00
Annual Return on Inv %	6.00%
Anticipated Inflation Rate %	2.00%
Age at Start of Withdrawals	62

Age	Years	Int. Earned	Withdrawal %	Acct. Balance
94	33	$6,675.05	23.55%	$89,500.93
95	34	$5,370.06	29.27%	$66,880.97
96	35	$4,012.86	39.17%	$43,356.21
97	36	$2,601.37	60.43%	$18,890.45
98	37	$1,133.43	104.00%	$0.00

In conclusion, I caution anyone considering or using a constant withdrawal percentage when calculating a fixed income scenario. Consider all of the factors when determining how long savings will last, and factor them into the calculations. Then try a variety of different scenarios to hone in on a workable plan, or sit down with a Financial Advisor. Be sure to consider recent statistics on life-expectancy, the stability of Social Security, and what inflation rate we can anticipate. Any guesswork that we can remove from our fixed income future is well worth the effort.

Chris Simber

The complete schedule used in the example:

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64	3	$18,691.04	5.61%	$450,421.52
65	4	$18,016.86	5.82%	$433,229.95
66	5	$17,329.20	6.05%	$415,694.55
67	6	$16,627.78	6.30%	$397,808.44
68	7	$15,912.34	6.59%	$379,564.61
69	8	$15,182.58	6.90%	$360,955.90
70	9	$14,438.24	7.26%	$341,975.02
71	10	$13,679.00	7.66%	$322,614.52
72	11	$12,904.58	8.12%	$302,866.81
73	12	$12,114.67	8.65%	$282,724.15
74	13	$11,308.97	9.27%	$262,178.63
75	14	$10,487.15	9.99%	$241,222.20
76	15	$9,648.89	10.86%	$219,846.65
77	16	$8,793.87	11.92%	$198,043.58
78	17	$7,921.74	13.23%	$175,804.45
79	18	$7,032.18	14.90%	$153,120.54
80	19	$6,124.82	17.11%	$129,982.95
81	20	$5,199.32	20.16%	$106,382.61
82	21	$4,255.30	24.63%	$82,310.26
83	22	$3,292.41	31.83%	$57,756.47
84	23	$2,310.26	45.36%	$32,711.60
85	24	$1,308.46	80.09%	$7,165.83
86	25	$286.63	102.00%	$0.00

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64	3	$19,208.00	$19,208.00	$470,596.00
65	4	$18,823.84	$18,823.84	$461,184.08
66	5	$18,447.36	$18,447.36	$451,960.40
67	6	$18,078.42	$18,078.42	$442,921.19
68	7	$17,716.85	$17,716.85	$434,062.77
69	8	$17,362.51	$17,362.51	$425,381.51
70	9	$17,015.26	$17,015.26	$416,873.88
71	10	$16,674.96	$16,674.96	$408,536.40
72	11	$16,341.46	$16,341.46	$400,365.68
73	12	$16,014.63	$16,014.63	$392,358.36
74	13	$15,694.33	$15,694.33	$384,511.19
75	14	$15,380.45	$15,380.45	$376,820.97
76	15	$15,072.84	$15,072.84	$369,284.55
77	16	$14,771.38	$14,771.38	$361,898.86
78	17	$14,475.95	$14,475.95	$354,660.88
79	18	$14,186.44	$14,186.44	$347,567.67
80	19	$13,902.71	$13,902.71	$340,616.31
81	20	$13,624.65	$13,624.65	$333,803.99
82	21	$13,352.16	$13,352.16	$327,127.91
83	22	$13,085.12	$13,085.12	$320,585.35
84	23	$12,823.41	$12,823.41	$314,173.64
85	24	$12,566.95	$12,566.95	$307,890.17
86	25	$12,315.61	$12,315.61	$301,732.37
87	26	$12,069.29	$12,069.29	$295,697.72
88	27	$11,827.91	$11,827.91	$289,783.76
89	28	$11,591.35	$11,591.35	$283,988.09
90	29	$11,359.52	$11,359.52	$278,308.33
91	30	$11,132.33	$11,132.33	$272,742.16
92	31	$10,909.69	$10,909.69	$267,287.32
93	32	$10,691.49	$10,691.49	$261,941.57
94	33	$10,477.66	$10,477.66	$256,702.74
95	34	$10,268.11	$10,268.11	$251,568.68
96	35	$10,062.75	$10,062.75	$246,537.31
97	36	$9,861.49	$9,861.49	$241,606.56
98	37	$9,664.26	$9,664.26	$236,774.43
99	38	$9,470.98	$9,470.98	$232,038.94
100	39	$9,281.56	$9,281.56	$227,398.17
101	40	$9,095.93	$9,095.93	$222,850.20
102	41	$8,914.01	$8,914.01	$218,393.20

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