

Of Burn Rates and Funding Ratios

By Kerry Pechter Mon, Dec 17, 2012

Setting a “safe” withdrawal rate is a great way to start taking retirement income, but advisors should monitor their clients’ “funding ratios” and “burn rates” to gauge the sustainability of their portfolios.

Table 1

Start-of-year values (Initial withdrawal rate, 6.4%)			End of year values			
Year	Bob's Age	Portfolio income	Portfolio balance	W/drawal Rate	Burn rate*	Funding Ratio
Retirement	63	\$64,000	\$996,840	6.6%	-0.1%	73.6%
+ 5 yrs	68	\$74,194	\$880,528	8.7%	-2.2%	61.5%
+ 10 yrs	73	\$86,011	\$716,191	12.4%	-5.9%	48.7%
+ 15 yrs	78	\$99,710	\$381,271	26.9%	-20.4%	26.4%
+ 20 yrs	83	\$115,591	(\$136,425)	-87.3%	93.8%	-10.3%
+ 25 yrs	88	\$134,002	(\$950,644)	-14.5%	21.0%	-89.3%
+ 30 yrs	93	\$155,345	(\$2,187,837)	-7.3%	13.8%	-369.6%

*If negative, earnings exceeded the 6.4% base withdrawal rate.

“I just don’t want to run out of money during my retirement!”

In my more than 30 years as a financial advisor, I have heard this—or at least some version of it—from client after client. It’s understandable. After all, who looks forward to a retirement that depletes a nest egg far too early?

Truth be told, if this is the *only* concern on the mind of a person facing retirement, the answer is really quite simple. You need only radically minimize expenses in order to extend savings as long as possible. But who wants to live like a miser?

Retirees didn’t save for years and years just to let the money sit in an account while pinching pennies. They want their money working for them as a resource for attaining their vision for retirement. But, how much can they safely withdraw each year? What happens when uncertainty strikes?

As planners, we can make all sorts of assumptions and projections for our clients, and develop likely cash flow and investment scenarios. But we can’t predict what will happen. As much as we hate to admit it, we are often times just guessing, regardless of our Monte Carlo analyses.

So, how should retirees utilize their money now, while at the same time remaining confident that it will be available throughout their lifetimes? Researchers like William Bengen and Jonathan Guyton have provided some answers to this question.

In general, they said that if you invest in specific ways, you can safely draw an initial percentage (4% to 5% of your total savings) and expect to increase this income stream with inflation each year for at least 30 years. Guyton also provided some excellent rules or financial “guardrails” a retiree should implement when the withdrawal rate is too high or when market performance doesn’t match expectations.

Funding ratio and burn rate

Along with these excellent rules, we propose that planners adopt two additional ratios—the funding ratio and the burn rate. These ratios are designed to set off warning signals when spending gets out of line and give planners additional ways of gauging a retiree’s ongoing financial wellbeing. You might think of them as a retirement dashboard. Even if everything is in good working order when retirees begin their journeys, you can’t ignore the gauges and warning lights along the way.

The funding ratio is well-established as a warning indicator for defined benefit plans. It is calculated by taking the market value of a retiree's portfolio and dividing it by the present value of future expected withdrawals. The funding ratio should be 100% (or higher for extra protection). If the ratio stays at 100% from the first through the last year of a person's retirement, there will always be enough money to meet planned withdrawals.

What if, during one's retirement, the funding ratio falls below 100%? This suggests that there are not enough savings to meet future withdrawal needs. Something must be done. One remedy is to implement the financial "guardrails" explained by Guyton. At minimum, one should consider cutting planned withdrawals to ensure that the funding ratio returns to the safe level of 100%.

The other benchmark we recommend is the burn rate. This is the rate at which next year's planned withdrawal rate differs from this year's actual rate of return. If it is negative, it means the retiree is withdrawing more than he is earning.

If the burn rate is positive, it means the retiree is withdrawing less than she could, and her capital will grow. If retirees do not want to deplete their capital, their burn rate should be zero. The higher the burn rate, the faster capital will be depleted.

Hypothetical couple

To illustrate, let's apply the funding ratio and burn rate to a hypothetical case in which a married couple, "Bob and Mary," is planning for their retirement. Bob is a 63-year-old doctor and Mary is a 60-year-old housewife. Bob is retiring at the end of the year with a \$1,000,000 IRA. Bob and Mary would like to withdraw \$64,000 per year, with annual increases to match inflation, to the age of 93. Assuming 3% average inflation, their withdrawals should be \$64,000 for the first year, \$65,920 for the second year and so on. If their portfolio is diversified and well managed, including equities, we would expect that their \$1,000,000 account will earn an average annual compound return of 6.5% throughout retirement.

Let's explore how Bob and Mary's retirement might play out if the market doesn't cooperate, and if warning signals are ignored and no corrective actions are taken.

Table 1 summarizes a retrospective analysis of Bob and Mary's retirement plan over a 30-year period. It reveals some unpleasant details. Their initial withdrawal rate was clearly too high at 6.4%. Even more worrisome is the fact that their funding ratio was projected to be 73.6% at the end of the first year of retirement—well below the funding ratio of 100% that indicates long-term sustainability.

The burn rate indicator is also blinking yellow. Though only -0.1%, this burn rate signals a troublesome future. It means that Bob and Mary withdrew money faster during the first year than the portfolio earned it. They withdrew 6.4%, yet only earned 6.5%.

Table 1

Start-of-year values (Initial w/drawal rate, 6.4%)			End of year values			
Year	Bob's Age	Portfolio income	Portfolio balance	W/drawal Rate	Burn rate*	Funding Ratio
Retire-ment	63	\$64,000	\$996,840	6.6%	-0.1%	73.6%
+ 5 yrs	68	\$74,194	\$880,528	8.7%	-2.2%	61.5%
+ 10 yrs	73	\$86,011	\$716,191	12.4%	-5.9%	48.7%
+ 15 yrs	78	\$99,710	\$381,271	26.9%	-20.4%	26.4%
+ 20 yrs	83	\$115,591	(\$136,425)	-87.3%	93.8%	-10.3%
+ 25 yrs	88	\$134,002	(\$950,644)	-14.5%	21.0%	-89.3%
+ 30 yrs	93	\$155,345	(\$2,187,837)	-7.3%	13.8%	-369.6%
*If negative, earnings exceeded the 6.4% base withdrawal rate.						

What about their withdrawal rate for next year? It jumps to 6.6% from 6.4%, a signal that they are taking a larger chunk out of their nest egg. Their portfolio balance at the end of the first year is still close to \$1 million (\$996,840), so they might think, "Why all the fuss?" But this is just the beginning of our story.

Let's travel forward in time to see how Bob and Mary are doing five years later. Bob is now 68 years old and Mary is 65. They withdrew \$74,194 that year, which gave them the same purchasing power they had five years before. However, this means the couple will have to withdraw \$76,420 next year, or 8.7% of their \$880,528 portfolio.

Their burn rate and funding ratio, which are -2.2% and 61.5%, respectively, are lower than they were five years ago. Despite the worsened warning signals, the couple still might feel confident because their portfolio is worth \$880,528. But let's look five more years down the road.

In the 10th year of retirement, the couple's portfolio is worth \$716,191. They would have to withdraw 12.4% of this balance to maintain their planned withdrawals. This situation is actually worse than it seems.

Their burn rate has deteriorated to -5.9% from -2.2%. The difference, 3.7%, is 1.6 percentage points higher than in the previous five-year period. Their funding ratio has fallen to 48.7%, meaning they have enough money to cover only half of their anticipated withdrawals over their projected 20 remaining years of retirement. Bob and Mary's situation has begun to look worrisome.

Let's fast-forward another five years. At age 78, Bob's retirement nest egg has shrunk to \$381,271. The

burn rate this year is -20.4%, which means the couple has outspent this year's earnings by 20%. Even worse, their funding ratio has fallen to 26.4%. Clearly, their portfolio can no longer sustain planned future withdrawals.

If the funding ratio and burn rate had been applied from the beginning, their financial planner could have warned them early on that their original withdrawal rate of 6.4% would be unsustainable. The funding ratio of 73.6% and the burn rate of -0.1% at the end of the first year would have demonstrated this. Corrective actions, such as a change in spending pattern or a reduction in withdrawal rate, might have been recommended.

In sum, we believe that if financial planners adopt these two additional ratios, the funding ratio and the burn rate, they will be better able to advise and guide their retired clients.

Let's address some questions that readers may have:

Q. Why do you assume a 6.5% rate of return every year during retirement?

A. For simplicity. The goal is to regularly compare the present value of future withdrawals to the current size of the nest egg. Just as in golf and tennis you should keep your eyes on the ball, in retirement analysis you should watch how the size of your nest egg compares with the amount required to meet expected future withdrawals, i.e., the present value of your expected withdrawals. To do that, you have to assume a discount rate.

Q. If I use the funding ratio, do I also need to use the burn ratio?

The burn rate looks at a different set of variables. Specifically, it looks at whether you are gaining less than you are withdrawing. A small negative burn rate is tolerable for retirees who wish to deplete their capital, but a large negative burn rate is a warning. Keep in mind too that many people prefer not to deplete their capital in retirement. For them, the burn rate is an excellent tool for making sure they never deplete or reduce their capital.

Q. Can the retiree ignore these warning signs?

A. Yes, but at the risk of running out of money before their retirement ends.

Q. Would you recommend this protocol at the start of retirement?

A. Yes. People who are about to retire should consider these ratios and recognize their importance as tools for monitoring their risk of depleting capital prematurely.

Q. How often would you use these ratios to make course corrections during retirement?

A. Ideally, they should be calculated every quarter, but at least once a year.

Ricardo Ulivi, Ph.D., is a professor of finance at the California State University-Dominguez Hills, and a

practicing fee-only advisor and member of NAPFA. Sky Nguyen is a student at California State University-Dominguez Hills and an intern at Ulivi Wealth Management.

References:

Bengen, William. *Conserving Client Portfolios During Retirement* (FPA Press, 2006).

Guyton, Jonathan. "Decision Rules and Portfolio Management for Retirees: Is the 'Safe' Initial Withdrawal Rate Too Safe?" *Journal of Financial Planning*, October 2004.

Guyton, Jonathan, and Klinger, William. "Decision Rules and Maximum Initial Withdrawal Rates," *Journal of Financial Planning*, March 2006.

© 2012 RIJ Publishing LLC. All rights reserved.