



## ***Understanding the Role of Luck on Your Retirement Standard of Living***

There is no shortage of studies showing the role of luck in life success is far greater than we realize. Not that skill, hard work, good habits, tenacity, mental toughness, emotional intelligence, optimism, intellectual curiosity and other factors aren't important. The point is that those and other attributes are far from the sole determinant of success.

**What about your retirement;** what role might luck play in that important life phase?

Your future **health** and that of loved ones is an important unknown – both financially and how it will directly impact your quality of life. Even with prudent habits, quality health care, good genetics, and a proactive approach, your health can change on a dime. Deterioration is not always foreseen. Luck often plays a role.

**Similarly, the investment returns you ultimately realize in retirement can't be seen with clarity in advance.** The smartest people on the planet can't predict how converging influences of future investment returns will play out. Too many moving parts inhibit forecasting with clarity, particularly with the wider range of outcomes suggested by today's rapidly changing world. Interest and inflation rates, economic activity, technological and societal changes, global trade issues, labor productivity, industry disruptions, monetary conditions and policy, fiscal challenges, potential debt (pension) crises, currency fluctuations, consumer and investor confidence, market cycles, climate change, income inequality, and other factors will combine to play out in surprising ways.

Interest rates matter greatly to retirees. Do you think anyone back in 1989 foresaw the relentless, multi-decade cascading of interest rates? As **\$250,000** in CDs was generating \$1,771 in reliable monthly income (8.5% a.p.r.), did anyone think 23 years later (2012) it would require 36 times that principal (**\$9,000,000**) to provide the same income? [See *Unpredictable Markets – a Harsh backdrop for retiring Baby Boomers* <http://mmdadvisory.com/unpredictable-markets-a-harsh-backdrop-for-retiring-baby-boomers/>]

Fortunately, asset class returns have shown a tendency to return to a 'mean' range over longer periods. Robert Shiller's on-line calculator at [http://moneychimp.com/features/market\\_cagr.htm](http://moneychimp.com/features/market_cagr.htm) shows for the **93 year period** ended **12-31-17**, the Compound Annual Growth Rate (CAGR <sup>1</sup>) of the S&P 500's total return (appreciation and dividends) was **10.34%**. More recently, the **28 year period** through the same date shows a total return CAGR of **9.82%**.

While these statistics may be useful in estimating how savings may grow during the accumulation phase, they obscure a vital point to those in – or about to transition to – the distribution (spend down) phase of retirement. **Retirees are extremely vulnerable to investment returns just before and after they retire.** As wealth approaches its zenith, investment performance impacts both accumulation and sustainable withdrawal rates in an amplified, if not immediately apparent, way.

Markets have indeed shown remarkable recuperative ability "over longer periods," but history also exhibits extended periods of sideways or down markets, and the returns over those prolonged periods can be catastrophic for retirees drawing income from assets. **Portfolios are susceptible to more rapid depletion when they are funding withdrawals at a time of market decline.**

How do we know markets are capable of providing poor returns over an extended period? Because they have done so. Consider the CAGRs for the S&P 500 Index over these time frames (from the same source)<sup>2</sup>:

- **-.08%** for the **9-year period** ended 12-31-74
- **-.31%** for the **5-year period** ended 12-31-77
- **-1.21%** for the **6-year period** ended 12-31-05
- **-.99%** for the **10-year period** ended 12-31-09
- **+.50%** for the **12-year period** ended 12-31-11

The **lost time** in these results is as least as costly as any **lost principal**. In addition, the summarized nature of these results masks the actual volatility occurring within the period. Significant portfolio drawdowns trigger the costly and entirely human inclination to "sell at the bottom," as recency bias (tendency to believe recent events will last forever) and other harmful behavioral biases take hold.

Several studies<sup>3</sup> show the variance in sustainable withdrawal rates is based simply on the **luck of the draw** concerning post retirement return sequence.

In the three following hypothetical examples, Mr. Green, Mr. Blue, and Ms. Brown:

- **Experience different sequences of returns in their portfolios.**
- Have identical average annual returns of **exactly 6.0%** that grows to the same value after 25 years: **\$4,288,197.**
- **Are not taking withdrawals;** they're still in the accumulation phase of investing.

| Age            | "Up" Market – Mr. Green |                | "Down" Market – Mr. Blue |                | "Average 6.0%" Market – Ms. Brown |                |
|----------------|-------------------------|----------------|--------------------------|----------------|-----------------------------------|----------------|
|                | Annual Return           | Year End Value | Annual Return            | Year End Value | Annual Return                     | Year End Value |
| 65             |                         | \$1,000,000    |                          | \$1,000,000    |                                   | \$1,000,000    |
| 66             | 5%                      | \$1,050,000    | -25%                     | \$750,000      | 6.0%                              | \$1,059,964    |
| 67             | 28%                     | \$1,344,000    | -14%                     | \$645,000      | 6.0%                              | \$1,123,523    |
| 68             | 22%                     | \$1,639,680    | -10%                     | \$580,500      | 6.0%                              | \$1,190,894    |
| 69             | -5%                     | \$1,557,696    | 16%                      | \$673,380      | 6.0%                              | \$1,262,304    |
| 70             | 20%                     | \$1,869,235    | 21%                      | \$814,790      | 6.0%                              | \$1,337,996    |
| 71             | 19%                     | \$2,224,390    | 5%                       | \$855,529      | 6.0%                              | \$1,418,228    |
| 72             | 23%                     | \$2,736,000    | -16%                     | \$718,645      | 6.0%                              | \$1,503,270    |
| 73             | 9%                      | \$2,982,240    | 8%                       | \$776,136      | 6.0%                              | \$1,593,411    |
| 74             | 16%                     | \$3,459,398    | 14%                      | \$884,795      | 6.0%                              | \$1,688,958    |
| 75             | 23%                     | \$4,255,059    | 24%                      | \$1,097,146    | 6.0%                              | \$1,790,234    |
| 76             | 22%                     | \$5,191,172    | 14%                      | \$1,250,747    | 6.0%                              | \$1,897,583    |
| 77             | -26%                    | \$3,841,468    | 5%                       | \$1,313,284    | 6.0%                              | \$2,011,370    |
| 78             | -15%                    | \$3,265,247    | -15%                     | \$1,116,291    | 6.0%                              | \$2,131,979    |
| 79             | 5%                      | \$3,428,510    | -26%                     | \$826,056      | 6.0%                              | \$2,259,820    |
| 80             | 14%                     | \$3,908,501    | 22%                      | \$1,007,788    | 6.0%                              | \$2,395,327    |
| 81             | 24%                     | \$4,846,541    | 23%                      | \$1,239,579    | 6.0%                              | \$2,538,960    |
| 82             | 14%                     | \$5,525,057    | 16%                      | \$1,437,912    | 6.0%                              | \$2,691,205    |
| 83             | 8%                      | \$5,967,062    | 9%                       | \$1,567,324    | 6.0%                              | \$2,852,580    |
| 84             | -16%                    | \$5,012,332    | 23%                      | \$1,927,808    | 6.0%                              | \$3,023,631    |
| 85             | 5%                      | \$5,262,949    | 19%                      | \$2,294,092    | 6.0%                              | \$3,204,939    |
| 86             | 21%                     | \$6,368,168    | 20%                      | \$2,752,910    | 6.0%                              | \$3,397,119    |
| 87             | 16%                     | \$7,387,075    | -5%                      | \$2,615,264    | 6.0%                              | \$3,600,823    |
| 88             | -10%                    | \$6,648,367    | 22%                      | \$3,190,623    | 6.0%                              | \$3,816,741    |
| 89             | -14%                    | \$5,717,596    | 28%                      | \$4,083,997    | 6.0%                              | \$4,045,607    |
| 90             | -25%                    | \$4,288,197    | 5%                       | \$4,288,197    | 6.0%                              | \$4,288,197    |
| Average Return | 6.0%                    |                | 6.0%                     |                | 6.0%                              |                |

Once they begin taking withdrawals, the sequence of their investment returns will affect (dramatically) their retirement income and their account value, even with **identical average returns**. Here's why:

- Mr. Green begins withdrawals in an **up market**, which gives him the optimal environment to maintain his portfolio value.
- Mr. Blue is not so lucky, as withdrawals in a **down market** deplete his reserves after only 17 years.
- Ms. Brown's ending portfolio value is significantly less than Mr. Green's, even with a **level 6.0%** rate of return.

These results appear below in the three hypothetical examples of **distribution phase** results.

| Age            | "Up" Market – Mr. Green |               |                | "Down" Market – Mr. Blue |               |                | "Average 6.0%" Market – Ms. Brown |               |                |
|----------------|-------------------------|---------------|----------------|--------------------------|---------------|----------------|-----------------------------------|---------------|----------------|
|                | 5% Annual Withdrawals   | Annual Return | Year End Value | 5% Annual Withdrawals    | Annual Return | Year End Value | 5% Annual Withdrawals             | Annual Return | Year End Value |
| 65             |                         |               | \$1,000,000    |                          |               | \$1,000,000    |                                   |               | \$1,000,000    |
| 66             | \$50,000                | 5%            | \$1,000,000    | \$50,000                 | -25%          | \$700,000      | \$50,000                          | 6.0%          | \$1,010,000    |
| 67             | \$50,000                | 28%           | \$1,230,000    | \$50,000                 | -14%          | \$552,000      | \$50,000                          | 6.0%          | \$1,020,600    |
| 68             | \$50,000                | 22%           | \$1,450,600    | \$50,000                 | -10%          | \$446,800      | \$50,000                          | 6.0%          | \$1,031,836    |
| 69             | \$50,000                | -5%           | \$1,328,070    | \$50,000                 | 16%           | \$468,288      | \$50,000                          | 6.0%          | \$1,043,746    |
| 70             | \$50,000                | 20%           | \$1,543,684    | \$50,000                 | 21%           | \$516,628      | \$50,000                          | 6.0%          | \$1,056,371    |
| 71             | \$50,000                | 19%           | \$1,786,984    | \$50,000                 | 5%            | \$492,460      | \$50,000                          | 6.0%          | \$1,069,753    |
| 72             | \$50,000                | 23%           | \$2,147,990    | \$50,000                 | -16%          | \$363,666      | \$50,000                          | 6.0%          | \$1,083,938    |
| 73             | \$50,000                | 9%            | \$2,291,309    | \$50,000                 | 8%            | \$342,760      | \$50,000                          | 6.0%          | \$1,098,975    |
| 74             | \$50,000                | 16%           | \$2,607,919    | \$50,000                 | 14%           | \$340,746      | \$50,000                          | 6.0%          | \$1,114,913    |
| 75             | \$50,000                | 23%           | \$3,157,740    | \$50,000                 | 24%           | \$372,525      | \$50,000                          | 6.0%          | \$1,131,808    |
| 76             | \$50,000                | 22%           | \$3,802,443    | \$50,000                 | 14%           | \$374,679      | \$50,000                          | 6.0%          | \$1,149,716    |
| 77             | \$50,000                | -26%          | \$2,763,808    | \$50,000                 | 5%            | \$343,412      | \$50,000                          | 6.0%          | \$1,168,699    |
| 78             | \$50,000                | -15%          | \$2,299,237    | \$50,000                 | -15%          | \$241,901      | \$50,000                          | 6.0%          | \$1,188,821    |
| 79             | \$50,000                | 5%            | \$2,364,199    | \$50,000                 | -26%          | \$129,006      | \$50,000                          | 6.0%          | \$1,210,151    |
| 80             | \$50,000                | 14%           | \$2,645,186    | \$50,000                 | 22%           | \$107,388      | \$50,000                          | 6.0%          | \$1,232,760    |
| 81             | \$50,000                | 24%           | \$3,230,031    | \$50,000                 | 23%           | \$82,087       | \$50,000                          | 6.0%          | \$1,256,725    |
| 82             | \$50,000                | 14%           | \$3,632,235    | \$50,000                 | 16%           | \$45,221       | \$50,000                          | 6.0%          | \$1,282,129    |
| 83             | \$50,000                | 8%            | \$3,872,814    | \$49,291                 | 9%            | \$0            | \$50,000                          | 6.0%          | \$1,309,057    |
| 84             | \$50,000                | -16%          | \$3,203,164    | \$0                      | 23%           | \$0            | \$50,000                          | 6.0%          | \$1,337,600    |
| 85             | \$50,000                | 5%            | \$3,313,322    | \$0                      | 19%           | \$0            | \$50,000                          | 6.0%          | \$1,367,856    |
| 86             | \$50,000                | 21%           | \$3,959,120    | \$0                      | 20%           | \$0            | \$50,000                          | 6.0%          | \$1,399,927    |
| 87             | \$50,000                | 16%           | \$4,542,579    | \$0                      | -5%           | \$0            | \$50,000                          | 6.0%          | \$1,433,923    |
| 88             | \$50,000                | -10%          | \$4,038,321    | \$0                      | 22%           | \$0            | \$50,000                          | 6.0%          | \$1,469,958    |
| 89             | \$50,000                | -14%          | \$3,422,956    | \$0                      | 28%           | \$0            | \$50,000                          | 6.0%          | \$1,508,156    |
| 90             | \$50,000                | -25%          | \$2,517,217    | \$0                      | 5%            | \$0            | \$50,000                          | 6.0%          | \$1,548,645    |
| Average Return |                         | 6.0%          |                |                          | 6.0%          |                |                                   | 6.0%          |                |

One takeaway: timing risk amplifies inherent market risk. When income draws begin market risk not only changes - it also increases. It is critical to understand this dichotomy and the different investment approaches needed in the two distinct phases of retirement (accumulation vs. distribution).

**Overall retirement outcomes are driven by how a retiree's portfolio performs in the early years of retirement.** So, with the sequence of investment returns significantly impacting your retirement savings once you take income, here's a question: can you predict market returns? Or, paraphrasing San Francisco PD inspector Dirty Harry Callahan, "you've got to ask yourself one question: 'Do I feel lucky?'" Well, do you?"

The most profound development in all of retirement planning is the loss of traditional defined-benefit company pension plans. The move to defined-contribution plans (401-k, IRA, etc.) represents an **important shift of** longevity and market **risks to the employee** from the employer. The employee must now make all investment decisions, rather than having them handled by professional investors, as with the (increasingly rare) employer-sponsored defined benefit arrangement. It gets worse. The employee must bear the shifted risks and responsibilities on their own, **without the benefit of risk pooling** available to pension funds. This amplifies longevity and market risks for today's retirees and their retirement assets.

**Risk pooling** is an actuarial concept which dramatically **enhances efficiency** in distribution portfolios, and improves risk / return relationships. Risk pooling has those dying before average life expectancy subsidizing those living beyond life expectancy. The unknowable nature of the retirement horizon warrants making prudent assumptions, including assuming a longer than average retirement period to be financed. This necessary assumption compresses safe withdrawal rates and otherwise inhibits efficiency.

Annuities offer retirees an alternative, the ability to pool risk in a way that no single individual can. Exploiting the benefits of risk pooling via annuities is an inherently efficient way to secure essential income for one or two lives. Allocating a portion of retirement savings to build such 'floor income' can be preferable to the alternative of subjecting more capital to investment and timing risks. **Just because higher returns are required to address those risks does not mean they will be able to.** Coherently fitting the pieces together can result in annuities efficiently "punching well beyond their weight." Guaranteed lifetime income in retirement can help meet important financial and emotional needs for predictability, leaving you more confident and relaxed about your lifestyle for the (unknown) duration.

*Studies have shown retirees with some form of annuity are assured more annual income for the remainder of their lives than those who manage their own portfolios.*

**Richard Thaler,  
Nobel-winning economist & Univ. of Chicago professor** <sup>4</sup>

Our web site's robust digital library of retirement and income planning ideas shares practical advice and well-vetted approaches. The site features an engaging video examining in plain English the three principal retirement risks (Timing, Longevity, and Inflation): <http://mmmadvisory.com/retirement-income/ifl-video/>. It's worth your time.

In retirement planning, we understand income is the outcome that matters. Maybe we have an approach that can benefit you and your family . . . something to improve your 'luck.' Maybe we don't. It shouldn't take much time to find out, and plenty is at stake.

- <sup>1</sup> CAGR is a constant average annual growth rate, which means it gives you a smoothed-out version of the world with no volatility. The CAGR is the total (pre-tax) return you get to keep.
- <sup>2</sup> The five periods all end on December 31, which is a limitation of the calculator. Additional periods of unfavorable historical returns through other ending dates exist. Incidentally, the CAGR of return implied by **Mr. Blue's** hypothetical sequence of returns in the distribution phase are **-1.4%** and **+9%** for the initial **10 and 11 years**, respectively.

- 3 Includes multiple independent studies by each of the following researchers: Moshe A. Milevsky, PhD, William Bengen SAFEMAX calculations, Wade Pfau, PhD, Michael Finke, David Blanchett, PhD, Michael Kitces, Joe Tomlinson, Jonathon Guyton, J. Ameriks, M. Veres, M. Warshawsky, C. Robinson, and Laurence Siegel.
- 4 'The Annuity Puzzle' New York Times, June 2011



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