

Laurence J. Kotlikoff

Rethinking Your Investment Risk

Go with stocks when you're young and bonds if you're older? Not so fast.

One of the occupational hazards of being an economist is getting asked for investment advice. Truth be told, most economists are clueless about investing their own money let alone anyone else's.

I certainly was in September 1987 when my 65-year old aunt asked me how she should invest her limited savings. My first instinct was to explain that I specialized in public—not personal—finance. But feigning ignorance wouldn't fly. I had a PhD (from Harvard, to make matters worse) and was expected to know this stuff.

So I told my aunt that stocks were a great bet over the long run. I even told her that investing in the market right before the '29 crash worked out fine for those who held on long enough.

My aunt followed my “professional” advice. She invested in a stock index fund. Three weeks later, the market tanked 30 percent. And just as it reached its nadir, my aunt panicked and sold all her holdings.

My name was mud. But I learned two valuable lessons: Know what you're talking about, and know who you're dealing with. For starters, I had been thinking like a stock analyst, concerned only about how stocks happened to have performed in the past over long holding periods, ignoring the fact that future returns need bear no relation to past returns. Second, my aunt didn't have the luxury of waiting decades to see how her investments would pan out and then spend her money. She needed to live off her assets each and every year. For her the issue was not how well her portfolio was going to perform, but how high and variable her living standard was going to be.

Living Standard Risk

In short, my aunt was thinking like an economist. She had never studied economics and knew nothing of portfolio theory. But, my aunt was focused on the two factors that really matter for portfolio choice – the average level and variability of her living standard.

Living standard risk – the variability of your living standard—and portfolio risk—the variability of the return on your investments—sound similar. But they aren't. You can have a very risky portfolio, but a very safe living standard.

Take Joe, a retiree living primarily off Social Security. Following his dentist Peter's example, Joe's invested every penny of his meager savings in a single, very risky high-tech stock. But whether the stock triples in price or goes down the tubes won't matter much to Joe's living standard because the amount he has invested is very small compared to his Social Security benefits, on which he's been managing for years. Joe has lots of portfolio risk, but very little living standard risk. Hence, Joe's decision to invest all his assets in a single stock can be questioned, but it's not nuts.

Peter's investment decision, on the other hand, is nuts. He's about to retire, is very rich, and views his future Social Security benefits as icing on the cake. But in putting all his eggs in one basket, Peter, who has been living at a very high level for years, risks experiencing a dramatic drop in his living standard.

Financial Mindbenders

The fact that poor Joe is in a much better position to hold stocks than wealthy Peter is a telling example of a general proposition that emerges from focusing on the proper measure of risk.

The Poor Should Invest in Riskier Assets than the Rich.

This statement runs counter to conventional financial planning wisdom. But it's in full accord with conventional economics. Like Joe, the poor, broadly speaking, are in a better position than the rich to invest in risky assets. Although the poor obviously have a much lower living standard than do the rich, it's much closer to the level effectively guaranteed by the government through its various welfare programs, including Food Stamps,

Medicaid, and Workfare. Hence, the government provides the poor much better downside protection against a major percentage drop in their economic resources than it provides the rich.

That the poor should hold more stocks than the rich is just one of several financial mindbenders that emerge from a proper view of investment risk. Here's another.

The Old Should Invest in Riskier Assets than the Young

Unlike the old, the young typically have lots of “off-the-top” expenditures they must cover including paying the mortgage, sending the kids to college, and purchasing health insurance. They also have extra mouths to feed. And compared with older folks, who have Social Security and Medicare covering their derrieres, the young have relatively unstable sources of income and expenses.

Such factors add up to considerable living standard risk and a good reason to be wary of risky investments. Nonetheless, conventional financial advice tells the young to hold stock and the old to hold bonds. Indeed, the hottest financial products on the market these days are “lifestyle funds” that reduce the share of one's portfolio held in stock as one ages.

Yet another piece of economically unfounded conventional wisdom (which I stupidly provided my aunt) is that stocks are safer the longer you hold them. But, from the perspective of living standard risk,

Stocks are Riskier the Longer You Hold Them.

Here's why. The return to stocks basically follows what's called a *random walk*. In other words, a stock's future performance is independent of its past performance. Holding stocks is like throwing dice. What comes up in this throw bears no connection to what came up previously.

If you invested in stocks and they drop 20 percent this year, they have an equally good (but also very small) chance of dropping 20 percent next year, the year after the next year, the year. And just because you've lost for several years in a row doesn't necessarily mean that things will turn around for you in the future. In 2000, 2001, and 2002, for example, the U.S. stock market declined 9.1 percent, 11.9 percent, and 22.1 percent for a cumulative drop of almost 40 percent. So bad returns do happen and happen and happen some more.

Each time you get hit with a low return you naturally reduce your spending and living standard. You do the opposite—raise your living standard—each time you get hit with a high return. These adjustments connect portfolio risk to living standard risk.

(Of course, not every household pays as much attention to its investments as it should. So for some, these spending adjustments may be delayed. But delay comes at a cost; the longer a household fails to recognize a change in its financial situation, the bigger the ultimate adjustment required.)

Over time, because of the random nature of stock returns and the potential for ever longer strings of bad and good luck, there's a larger and larger spread between the lowest and highest possible values of your living standard. This increase in the range of your *possible* living standards (in geek speak – this increase in the size of the tails of your living standard distributions) is why stocks are riskier the longer you hold them.

This is not to suggest that holding stocks for short periods of time is perfectly safe. Far from it; it simply entails less risk to your future living standard. Indeed, holding stocks for any period of time is a risky, although very enticing business.

Indeed, those who think lifestyle funds are safe should think again.

Lifestyle Funds Entail Major Living Standard Risk

The good thing about lifestyle funds is that they limit the increase over time in your living standard risk by gradually moving you out of stocks into safer securities. But be forewarned. These funds keep you mostly in stocks for at least a decade. Consequently, they remain quite risky to your living standard. You can easily get hit with a decade of very poor stock returns. At that point, the lifestyle fund moves you into safer securities, which relegates you to a permanently low living standard.

Living Standard Risk and Ways to Limit It

Since living standard risk, not portfolio risk, is the key to providing proper portfolio advice, you'd think that those who dispense portfolio advice—financial planners and such—would try to assess the volatility of households' living standards. They don't. Instead they focus almost

exclusively on portfolio risk, and for a simple reason. Assessing living standard risk isn't easy.

To understand it, you need to consider all the factors that affect a household's ability to spend over time and thus enjoy particular living standards. Apart from its investments, the list includes the household members' ages and educational qualifications, their earnings from work, pension benefits, retirement account contributions and withdrawals, borrowing limits, federal and state taxes, and eligibility for Social Security and other government benefits. The list also includes the aforementioned "off-the-top" spending requirements that limit a household's disposable income.

As penitence for losing my aunt's money, I've been part of an effort to develop a financial planning program called *ESPlanner (Economic Security Planner)* to help households a) attain a high and stable living standard and b) understand how different investment strategies affect their living standards.

Here's what happens when I ran numbers through the program using the example of Ms. Nellie, a single 65 year-old Texan with \$1 million in assets, no other means of support, and an estimated maximum age of life of 95. Nellie's nickname is Nervous because she's worried about the stock market where, incidentally, she's invested all her money.

Ms. Nellie is not only nervous. She's greedy. She knows that since 1926 the stock market has generated, on average, annual returns of 9.16 percent per year after inflation—a truly fantastic performance. Were Nellie able to count on this return, she could spend \$79,387 a year. But she can't. Stock returns are highly variable and, as the table below shows, engender major living standard risk.

Let's consider Nellie's future living standard with reference to the \$79,387 she could enjoy were stocks risk-free. As the table indicates, at age 65 there's no chance that Nellie's living standard will fall below \$39,693, which is half of \$79,387. But as Nellie ages, this probability rises. At ages 75, 85, and 95, the probabilities are 21 percent, 38 percent, and 53 percent. The chance that Nellie's living standard is below \$19,847, which is one quarter of \$79,387, is zero at age 65, 2 percent at age 75, 13 percent at age 85, and 26 percent at age 95.

Clearly, Nellie's downside living standard risk rises with age. But her possibility of reward rises as well. For

example, the chance that her living standard will exceed \$138,927, which is 1.75 times \$79,387, rises from zero at age 65 to 7 percent at age 95.

Playing It Safe

There's no reason Nellie need expose herself to any living standard risk. She can invest in long-term Treasury Inflation Protected bonds (TIPs), which are currently yielding 2.3 percent after inflation. By doing so she locks in a living standard of \$42,836 per year (measured in today's dollars) forever.

But zero risk may be too much for Nellie to stand. After all, worrying's her thing. So what if she invests in a lifestyle fund that keeps her in stocks for 10 years and then switches her to TIPs. In this case, the chance of Nellie's experiencing a living standard below \$19,847 late in life remains significant -- roughly 10 percent. And the chances of her experiencing a living standard below \$39,693 ranges from roughly 25 to 35 percent. So this lifestyle investment strategy still leaves Nellie facing considerable downside living standard risk.

A third option is what I call a *guaranteed lifestyle portfolio* because it establishes a minimum living standard. This strategy, which has Nellie investing a high fraction, say 80 percent, of her wealth in TIPs and the rest in stocks, dramatically reduces Nellie's downside. Based on her, let's assume, 80 percent TIPs investment, Nellie can consume \$34,767 year in and year out for sure. If she resolves to only spend based on her TIPs holdings and to periodically allocate a rising fraction of her remaining equity holdings to TIPs, her living standard through time has only one possible direction to go -- north of \$34,767.

The moral here is that if Nellie invests just in stocks, she has no floor under her economic feet. And the longer she invests exclusively or primarily in stock, the longer she risks a major and permanent decline in her living standard. If Nellie has to play the market, she can do so much more safely with a guaranteed lifestyle portfolio that never allocates less than a very high percentage of her assets to TIPs.

Take Aways

In academia, there's an old saying, "Tell them what you'll tell them, tell them, and tell them what you told them." So let me tell you what I told you.

- Living standard risk and portfolio risk are quite different.
- Living standard risk, not portfolio risk, is critical for making investment decisions.
- People with significant living standard risk, typically the young and the rich, should be particularly careful about holding stocks.
- Lifestyle Funds can be very risky from a living standard perspective.
- Holding a guaranteed lifestyle portfolio will let you sleep at night and still give you some of the market's upside potential.

The Rest of the Story

Let me close where I began, with my aunt. When I learned she'd lost money following my advice, I decided to cover her losses. I figured I would have to pay a bundle. But the amount turned out to be small. My aunt was like Joe: Her living standard was firmly secured by a pension and Social Security, and she had had relatively few assets to invest. This, no doubt, was why she took my advice in the first place. She knew my advice really couldn't matter to what really mattered – her living standard risk.

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Nellie's Living Standard Risk from Investing Just in Stocks

Age	Probability that Nellie's Living Standard Is				
	Below \$19,847	\$19,847 to \$39,693	\$39,693 to \$119,080	\$119,080 to \$138,927	Above \$138,927
65	0%	0%	99%	1%	0%
75	2%	19%	70%	3%	6%
85	13%	25%	53%	3%	6%
95	26%	27%	38%	2%	7%

Source: Calculations based on *ESPlanner*TM