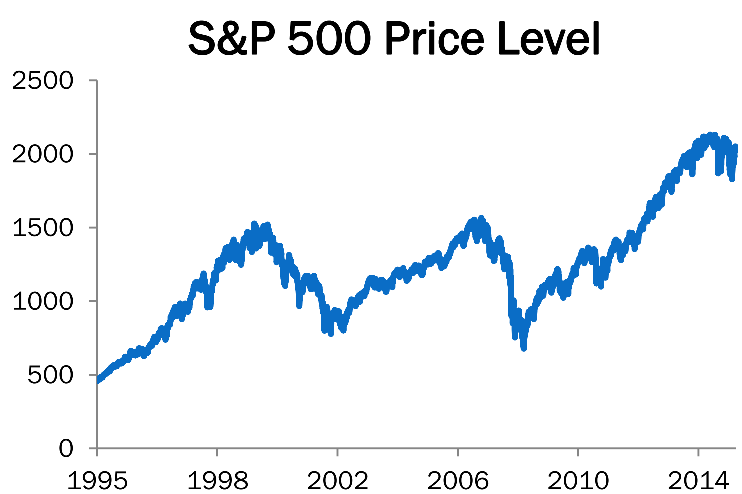
The Economy and Markets:

If we look at it from a quarterly perspective, U.S. stock markets are in a similar position to where they were at the time of our last newsletter. The S&P 500 ended the quarter at 2059.74, 0.77% higher than 2043.94, which was its value at the beginning of the year. In the interim, however, there has been some very significant fluctuation. The low for the quarter was 1,809.08, which is a drop of 11.4% from the start of the year, and a decline of 15.1% from the S&P 500's all-time high of 2,130.82 on May 21, 2015. That is quite a ride. Indeed, the VIX risk measure which we have discussed in past newsletters increased to 28.4 on Feb. 11, 2016, the same day the S&P 500 reached its quarterly low. That is a very high level for the VIX, which has an average value of about 18. Things have settled down quite a bit since, and the VIX closed at a level of 13.95 on March 31. From a valuation perspective, however, risk in the market remains high, with a cyclically-adjusted PE ratio (the CAPE ratio we have previously discussed) of 26.01.

Markets at a Glance (March 31, 2016)	
S&P 500	2,059.74
Dow Jones	17,685.09
10 yr. U.S. Treasury	1.77%
3mo U.S. Treasury	0.20%
GDP Growth (last quarter)	1.4%
Unemployment Rate	5.0%

The state of the real economy remains interesting, inasmuch as the domestic and international economies seem to have diverged a bit. In the U.S., 4th quarter GDP growth was relatively low at 1.4%, but the U.S. domestic economy continues to exhibit strength in the face of global economic headwinds. Economist forecasts continue to project GDP growth of 2-2.5% for the coming years, weighed down in part by continued very low projected growth in government spending. The U.S. unemployment rate fell to 4.9% last month before ticking up, just this morning, to 5.0%. This morning's uptick comes as more jobs were created in March than was expected by economists – the unemployment rate increased because a large number of workers have returned to the workforce, which is a positive sign for the labor market. This is a low unemployment rate for the labor market, and in the range of what economists consider to be stable and healthy. Indeed, this is probably the best 2-year stretch of labor market improvement since 1998-1999.



There are risks, however. Typically, when we approach "full employment," as a 5.0% unemployment rate would tend to indicate, it is a warning sign of impending inflation – particularly if that rate continues to drop. However, inflation has been quite far from a problem in the U.S. economy for some time. Indeed, inflation rates are so low that they are below the range in which the Fed considers comfortable. Futures markets indicate that inflation over the next five years is expected to be about 1.43%. This is lower than was expected six months ago, as most assumed energy prices would increase again bringing prices up along with them. There has been a modest increase in energy prices this quarter. For example, the front-month futures price for a barrel of oil has increased from $37.04 at the beginning of the year to $38.34. But this price is still well off the $50 a barrel or so that was the price of oil a year ago.

While the U.S. economy appears to be performing solidly, the global economy continues to be a bit shaky. Obviously, concerns about terrorist threats have a negative effect on the global economy, but outside of tourism those effects are typically relatively mild. The bigger economic concern remains the stability of the agreements that form the Eurozone. The refugee crisis that Europe is facing as a result of war in the Middle East is a political test that has the potential to spill over catastrophically into the economic arena. On June 23, for example, The United Kingdom will hold a referendum on whether to leave the European Union. The UK does not participate in the Euro currency. But, as part of the EU, the UK is part of an integrated goods, services and labor market with the other 27 member countries. The risk that the UK may exit the Eurozone has shaken currency traders, and the value of the pound Sterling has fallen to £1= $1.43 on March 31, down from $1.47 at the beginning of the year, and well over $1.55 last summer. Political analysis seems to indicate the referendum is most likely to end in UK remaining in the EU. However, the outcome will be affected by the refugee crisis – and some estimates of the cost to the UK economy if they abandon their 40 year integration with Europe (it joined the predecessor to the EU, the European Community, in 1973) exceed £100 billion and 950,000 lost jobs, even under the scenario in which free trade agreements with Europe are restored relatively rapidly.

Quarterly Special Topic: How can retirees sustainably live off their retirement funds?

To a greater and greater degree as time passes, the typical retirement setup of individuals in the United States puts them squarely in charge of the entirety of the financial assets that dictate their income in retirement. In 1979, 84% of workers that participated in their firm's pension plan had access to "defined benefit" plans (which is the structure of the "traditional" pension in which a retiree is paid a fixed sum periodically, usually adjusted in some way for inflation), and 16% had only "defined contribution" plans to choose from, such as 401(k)s. By 2011, 69% of such participants had access only to 401(k)-style plans, and this trend continues to strengthen today. I inquired with my class of college seniors last week, virtually all of whom have accepted jobs at this point in the academic year – not one had spoken with a potential employer who offered a defined-benefit plan.

I have written in a past newsletter about the strain this situation can put on many retirees. To replace the income from labor often requires the accumulation of multi-million dollar portfolios. Most individuals are not equipped to efficiently manage such large collections of assets – after lifetimes as schoolteachers, policemen, database administrators and auto mechanics, they haven't generally developed the skills to manage such large portfolios, assuming they have been able to accumulate them to begin with. This then leaves them vulnerable to a financial advising profession that has more than its fair share of individuals and even companies that do not put client needs ahead of their own.[1]

But assuming that a retiree is able to navigate this gauntlet and achieve an accumulation of a large retirement nest egg, how can that retiree best draw down the portfolio to ensure that it exists for the remainder of his or her life?

The seminal paper in this regard is due to Bill Bengen (October, 1994, *Journal of Financial Planning*). In that study, Bengen examines hypothetical overlapping 30-year retirement periods using historical data from the United States from 1926 to the present. This is a useful dataset to look at, as the United States went through a great many economic environments during that time: the Great Depression in the 1930's, World War II, the boom times of the 1950s and 60s, high inflation in the late 1970s, and the boom times of the 1980s.

The average annual return to the stock market since 1926 is about 12%, and the average return to holding a bond portfolio over that time period, depending on how you measure it, is about 5.3%. A portfolio that is 50% stocks and 50% bonds implies an average annual return of about 8.6% on this "hypothetical" portfolio. Prior to Bengen's work, this 8.6% was regarded as a reasonable "withdrawal rate" from a retiree's portfolio. The first year of retirement, a retiree would withdraw 8.6% from the portfolio. Then each year that amount, perhaps with an inflation adjustment, could be withdrawn from the portfolio and the portfolio should be able to last as long as needed.

The Bengen (1994) paper exposed the weaknesses of this thinking, and found that a sustainable withdrawal rate is considerably lower than 8.6% (my own analysis of this withdrawal rate suggests that the median portfolio would last only 11 years pursuing this withdrawal strategy). Bengen proposed the following strategy: a retiree withdraws 4% of their assets the first year of retirement (so, $40,000 from a $1 million portfolio), and adjusts this amount annually for inflation. He found

[1] For a look at the lobbying effort going on to stop proposed rules to require financial advisors of retirees to behave in their clients' best interests, see http://www.bloomberg.com/news/articles/2015-01-30/wall-street-gears-up-as-white-house-pushes-retirement-fund-rules. For a recent University of Chicago study showing that misconduct among financial advisors is concentrated among those advisors with retail (rather than institutional) and specifically retiree clients, see http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2739170

that for a hypothetical portfolio consisting of 50% stocks and 50% bonds, this strategy would have allowed a retiree's portfolio to last at least 30 years under all economic conditions in the United States since 1926, regardless of when the retiree retired. In the financial advising community, this has come to be known as the "4% rule."

Perhaps counterintuitively, he also found that increasing the percentage of the portfolio allocated to stock holdings, which increases the risk of the portfolio under conventional metrics, *increases* the probability of the portfolio surviving a given 30-year retirement intact. He makes the following statement near the end of his research: "Despite advice you may have heard to the contrary, the historical record supports an allocation of between 50-percent and 75-percent stocks as the best starting allocation for a client…stock allocations below 50 percent and above 75 percent are counterproductive." His finding is essentially that the increased average return of stocks offsets the risks associated with the occasional very large drop in stock prices.

There is one particularly important criticism of the 4% rule that bears mentioning. The United States did indeed go through several significant economic upheavals over the last 80 to 90 years that provide effective "stress tests" for hypothetical retiree portfolios. There is, however, a notable commonality to them: they all ended well. Between 1926 and the present, the United States was transformed from a leading industrial power to the preeminent economic engine on the planet. It is impossible for the United States to mimic this path over the next 80 years. As such, it may be preferable to look to international stock return experiences to help guide an appropriate withdrawal rate going forward. For example, the United Kingdom was the preeminent economic engine in 1926. Pfau (2010) finds that using historical data for the UK leads to a "3.77% rule," meaning retirees would need to withdraw that much less of their portfolios to be safe. There are actually several countries Pfau examined with much lower "safe" withdrawal rates, but those outcomes tended to be particularly bad because of major wars (Germany and Japan exhibited "1.14% and 0.47% rules," respectively). I discount those cases here, and simply hope they aren't relevant to our planning.

Though this leans more to the "art" of financial planning than the "science" side, I tend to think that the 3.77% of safe withdrawal rate extracted from the UK historical experience is the most reasonable approximation of the U.S. economic situation from the perspective of long-term retirement planning. Obviously, this is just an educated guess, however, and for that reason conservative investors may want to cut their withdrawal rates a bit beyond this, say to 3.5%. Further, the UK experience suggests that a stock/bond mix of about 65%/35% was optimal historically, rather similar to the U.S. historical data.

So what does this all suggest? It depends on where an individual is in their financial lifecycle. For a retiree, it means that constructing an efficient portfolio with a roughly 65%/35% stock/bond mix is a reasonable starting place (adjusted by risk preferences), and that a 3.5% withdrawal rate is a reasonable behavior to pursue. The expectation of producing $35,000 annually from a $1 million portfolio in order to be sustainable is probably about right – though currently low bond rates may suggest that a slightly higher stock allocation is preferable.

For an individual planning for retirement, it provides a prescription for how much money is necessary to save for retirement. In fact, taking social security into account, it provides a simple formula that gives a reasonable starting point:

$$Necessary\ Portfolio\ Size = \frac{(Desired\ Income - Expected\ Social\ Security\ Income - Other\ Pension\ Payments)}{Withdrawal\ Rate}$$

For example, an individual desiring to replace the median U.S. household income of roughly \$50,000, and who pessimistically believes that Social Security will not be around when he/she retires, would need a portfolio of a little over \$1.4 million to retire, assuming a conservative withdrawal rate of 3.5% and no other pension payments. However, if that individual was expecting to get \$20,000 annually from Social Security, only \$857,000 would be needed. This simple formula can be used both as a starting point for retirement planning, and as a basis to examine just how important Social Security is to the typical retiree (median net worth for American households at retirement, including household equity, is currently about \$190,000).

With or without Social Security in the calculation, it is evident that substantial portfolios are necessary for a comfortable retirement in the absence of prevalent fixed pensions. These large sums that need to be saved and subsequently managed are now a fixture in the American retirement system. Whether providing a prescription for the savings rates and accumulation necessities of young adults, or dictating the income feasibility from a portfolio for retirees, understanding the effect of withdrawal rates on a retirement portfolio is of critical importance.

About Us

Madison Financial Research, LLC (MFR) is a registered Investment Adviser.[2] Jason Fink provides all of the investment advising offered by MFR. Dr. Fink has a PhD in Economics from the University of Virginia, and is Professor and Wachovia Securities Faculty Fellow at James Madison University. He has over two decades of industry and academic experience, including previous positions at First Union Capital Markets, Fannie Mae, the University of Virginia and Florida State University.

What is Madison Financial Research?

MFR exists to provide *unbiased* answers to any financial questions its clients might have, and any help that its clients might need. We are comfortable working with a wide range of clients. For example, we are happy to explain the process of constructing an inexpensive and effective portfolio to novice investors, and to walk them through this process. We want to help you become comfortable with and understand your investments - not leave you mystified by them.

In the finance industry, almost all the people an individual can go to for advice have something they are trying to sell. A bank tells you why you need a mortgage. A financial adviser tells you why you should buy an annuity. An insurance agent tells you why their insurance product is ideal.

We are designed differently. We have nothing to sell but our time, which we use to convey knowledge to you. Whatever financial questions you might have, we will work to provide a solution.

These questions can be simple –

> "Is a particular mutual fund a good investment?"
> "Can you help me get started in understanding online brokerages?"
> "Is purchasing this particular annuity a good idea?"
> "Is my financial adviser charging me a lot for what he or she is providing?"

They can be complicated –

> "When can I retire, and how can I optimally construct my portfolio?"
> "Can you provide an overall assessment of my portfolio, including insurance, 401 (k), and other major holdings? How can I improve my approach? Should I diversify internationally?

We have the expertise to handle virtually any financial question, and the patience and teaching experience to provide understandable and actionable answers and guidance to novice investors. And outside of our time, *we have no products to sell* - our advice is unburdened by an alternate agenda.

As an investment adviser, we have a fiduciary responsibility to put our clients first. Investment brokers, insurance agents, mortgage lenders – *none of these have such an obligation to you*. We do, and we embrace it.

The financial world is complex. We can simplify it.

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