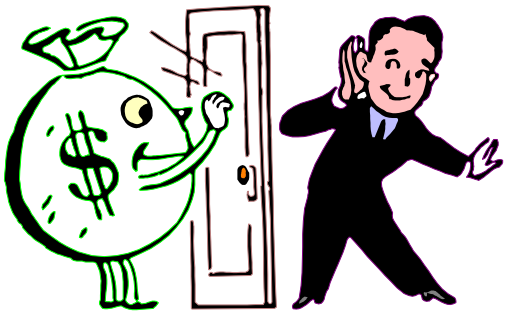
Real Return Bonds in Retirement Portfolios

Jim Otar



Recently, there has been number of articles about real return bonds (RRB). As the winds of inflation blow stronger, RRBs provide almost an ideal investment for retirees.

What are inflation-indexed bonds? They are a relatively new asset class, available in Canada since December 1991. Several other industrialized countries offer them, including U.S.A, France, Sweden, Italy, the U.K. and Australia. What makes an RRB different from a nominal bond is that its face value is adjusted for inflation periodically (every six months in Canada). Accordingly, the coupon payments increase with inflation.

Why do governments offer RRBs? They offer RRBs with the objective of raising stable, low-cost funding. The assumption is, that they (the governments) have all the necessary fiscal powers to keep inflation in check. Presumably, the coupon payment will cost less than that of the nominal bonds. Only the future will tell us if this is a correct assumption.

Why do people buy government RRBs? There are many reasons:

- They are the safest Canadian investments
- Current return is guaranteed to be greater than inflation if held to maturity
- Fully guaranteed principal and interest when held to maturity
- Inflation-indexed interest payments
- Liquidity
- Lower volatility

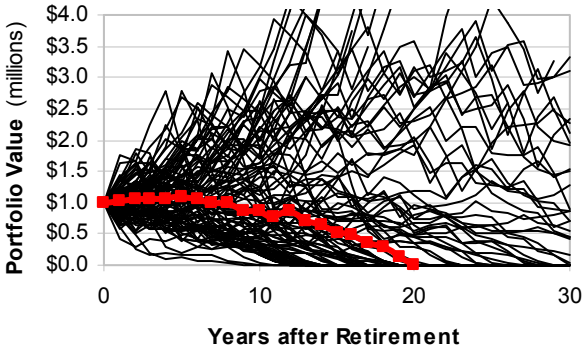
In my previous article “Will that be Inflation or Deflation” (January 2004), I demonstrated the reasons as to why we can expect a higher inflation in coming years based on market history. Since then, the inflation numbers have been climbing. Sure, people always find an excuse: “If you exclude this or that, then inflation is not so bad”. My answer to that is: “If you exclude death, I may live forever!”

In order to demonstrate the benefits of including RRB in a retirement portfolio, I will present three variations of the same case: Steve, 65, is retiring this year. He has saved $1 million for his retirement. He needs $60,000 income each year, indexed to inflation.

Example 1: Steve heard that “stocks are for the long run”. Thus, he decides to invest all his money in equities. Steve has a good advisor, and over the long term, his equities outperform the index by 1.5%. I plug in these numbers into my retirement calculator (free trial version available at www.retirementoptimizer.com).

Using historic data for equities and inflation since 1900, my retirement calculator determines the portfolio value over its life for each year after retirement, assuming that Steve commences his retirement in any of the years 1900, 1901, 1902 up to the year 2000. Figure 1 depicts portfolio value on the vertical scale and time on the horizontal scale. Black lines project the asset value if Steve retired in any of the years since 1900. The red line indicates the median value, where half of asset values are above the median and half are below.

Figure 1: Portfolio Value after Retirement, 100% Equity

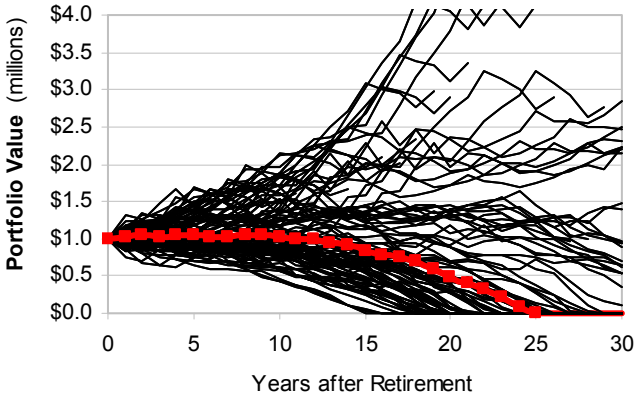


It is interesting to note that in the worst case, Steve's portfolio ran out of money after only 8 years. This was not an isolated instance; 28% of these portfolios ran out of money within the first 15 years and more than half of them depleted by the 21st year.

The effective real annual growth rate of the median portfolio turned out to be 1.9% after inflation. When I design a retirement plan, I want to make sure that 90% of portfolios survive in historic context, which is called the bottom decile. I calculate the effective real annual growth rate of the bottom decile: Amazingly, it is *minus 3.7%*. Unless I use minus 3.7% real return rate in Steve's retirement plan, I may be misleading Steve!

Example 2: Based on our findings as described in my previous articles "Optimizing Asset Allocation" (February 2004) and "Optimizing Rebalancing in Retirement Portfolios" (April 2004), I decide to use a 60/40 asset mix, rebalanced every four years on the US Presidential election year. I plug in this data into my retirement calculator. Figure 2 depicts Steve's portfolio value over time.

Figure 2: Portfolio Value after Retirement,
40% Equity, 60% Nominal Bonds



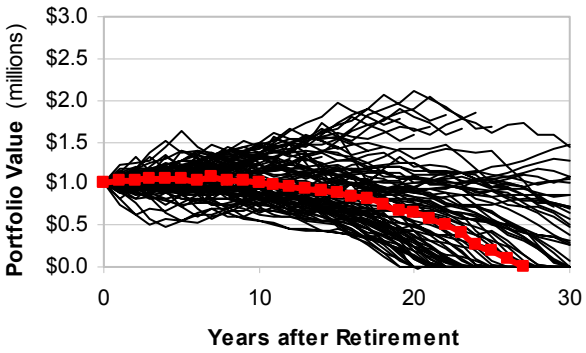
Using this optimum asset allocation, Steve's minimum portfolio life increased from 8 to 15 years, an 88% improvement. The effective real annual growth rate is now 3.4% and 1.3% for the median and bottom decile, respectively. This is a significant improvement over the all-equity portfolio.

While we welcome these improvements, the results indicate that the majority of financial plans we present to our clients will fail by a very wide margin, even with optimum asset allocation and rebalancing. This is because most financial plans are based on assumed annual real growth rates that are well in excess of 1.3%.

Example 3: Now, I will use Real Return Bonds instead of nominal bonds. I will assume RRBs provide a real yield of 2.3% over and above inflation. I follow the same optimization process for asset mix and rebalancing frequency that I described in my previous articles. As it works out, the optimum asset allocation for Steve is 30% equities and 70% real return bond, rebalanced every four years on the US Presidential election year. I plug in these numbers into my retirement calculator

I plot the portfolio value over time using RRBs as the fixed income portion of the portfolio. Figure 3 shows the portfolio value over time for each retirement year since 1900.

Figure 3: Portfolio Value after Retirement,
30% Equity, 70% Nominal Bonds



Steve's minimum portfolio life increased from 15 years to 19 years, a 27% improvement. The effective real annual growth rate of the median portfolio is now 3.9%. For the bottom decile, it is 2.3%, a respectable improvement over nominal bonds and a significant improvement over equity only portfolio. Keep in mind, this improvement comes at the cost of limiting the upside potential of his portfolio. That is the price Steve pays for lowering his risk.

Here are the effective annual real return rates for median and bottom decile portfolios:

	Median	Bottom Decile (90% Survival)
All Equity Portfolio	1.9%	minus 3.7%
Optimum Portfolio with nominal bonds	3.4%	1.3%
Optimum Portfolio with real return bonds	3.9%	2.3%

With real return bonds, we now have a much better solution for Steve.

Bio:

Jim C. Otar, CFP, CMT, B.A.Sc., M. Eng., is a certified financial planner, financial writer, market technician and a professional engineer. He is the author of "High Expectations & False Dreams – One Hundred Years of Stock Market History Applied to Retirement Planning". His articles are published in various magazines in Canada, U.S. and Australia. He won the prestigious CFP-Board Award for 2001 and in 2002 for his articles, the first Canadian to win such a prestigious award.

