Winds of change
CIBs in retirement portfolios

After many years of low inflation, awareness about the effects of higher inflation has been recently increasing. As the winds of inflation blow stronger, capital indexed bonds provide an almost ideal investment for retirees, says JIM OTAR

What exactly are inflation-indexed bonds? They are a relatively new asset class offered mainly by governments. They carry the least amount of risk among all fixed income assets. Several industrialised countries offer them, including the US, Canada, France, Sweden, Italy, the UK and Australia. What makes a capital indexed bond (CIB) different from a nominal bond is that its face value is adjusted for inflation periodically. Accordingly, the coupon payments increase with inflation.

In order to demonstrate the benefits of CIB 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 an income of $60,000 each year, indexed to inflation during his retirement.

Example 1: Steve heard that "stocks are for the long run". Thus, he decides to invest all his money in equities. Steve's equities outperform the index by 1.5 per cent. I plug in these numbers into my retirement calculator (available at www.retirementoptimizer.com).

My retirement calculator applies historic data for equities (the Dow Jones Industrial Average) and inflation to Steve's current financial needs. Using Steve's current retirement assets and income need from these assets, the model determines the portfolio value over time as if Steve started his retirement in 1900 and draws the portfolio value. Then it does the same for 1901, then for 1902

and for all the years up until year 2000.

Figure 1 depicts portfolio value on the vertical scale and time on the horizontal scale. Each black line projects the asset value in one of the years since 1900. This gives us a true picture of all outcomes based on market history without resorting to any assumed growth rates or assumed inflation. The red line indicates the median value, where half of asset values are above the median and half are below.

It is interesting to note that in the worst case, Steve's portfolio ran out of money after only eight years. This was not an isolated instance; 28 per cent 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 per cent after inflation. When I design a retirement plan, I want to make sure that 90 per cent of portfolios survive in historic context, which is called the bottom decile. The effective real annual growth rate of the bottom decile turns out to be – amazingly – minus 3.7 per cent.

Unless I use minus 3.7 per cent real return rate in Steve's retirement plan to show him what would happen in an adverse outcome, I may be misleading Steve.

Example 2: Let us now use a balanced portfolio to reduce the risk. Allocate 60 per cent of assets to fixed income and 40 per cent to equities. I plug in this data into my retirement calculator. Figure 2 depicts Steve's portfolio value over time.

Using this asset allocation, which happens to be the optimum mix for Steve, the minimum portfolio life increased from eight to 15 years, an 88 per cent improvement. The effective real annual growth rate is now 3.4 per cent and 1.3 per cent 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

FIGURE 1: Portfolio Value after Retirement, 100% Equity
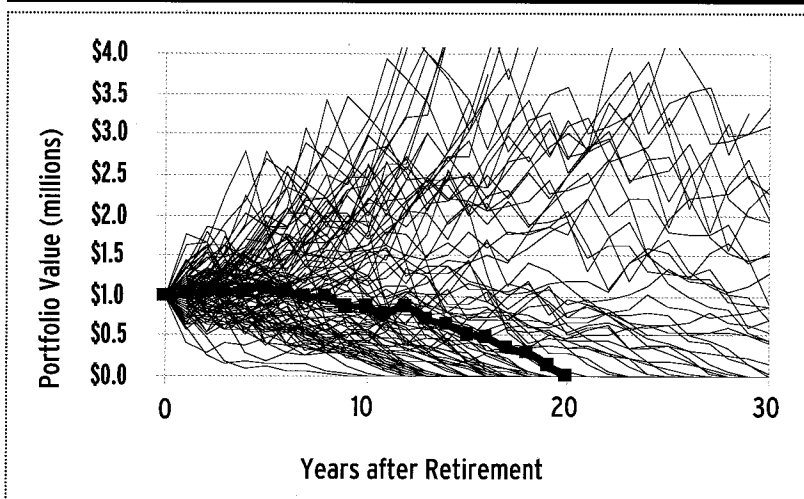
allocation and rebalancing. This is because most financial plans are based on assumed annual real growth rates that are well in excess of 1.3 per cent.

Example 3: Now, I will use CIBs instead of nominal bonds. I will assume CIBs provide a real yield of 2.3 per cent over and above inflation, going forward. After optimising the asset mix, I allocate 30 per cent to equities and 70 per cent to CIBs.

I plot the portfolio value over time. Figure 3 shows the portfolio value over time for each retirement year since 1900.

Steve's minimum portfolio life increased from 15 years to 19 years, a 27 per cent improvement over holding conventional fixed income, cited in Example 2. The effective real annual growth rate of the median portfolio is now 3.9 per cent. For the bottom decile it is 2.3 per cent, which is a respectable improvement over nominal bonds and a significant improvement over equity only portfolio.

However, keep in mind, this improvement comes at a price: the upside potential of his portfolio, if Steve is lucky, is a lot lower than the riskier Examples 1 and 2. That is the price Steve pays for lowering his risk.

With CIBs, we now have a much better solution for Steve's specific needs. ✤

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

FIGURE 3: Portfolio Value after Retirement, 30% Equity, 70% CIB

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 CIBs	3.9%	2.3%