

PRODUCT ALLOCATION *for* RETIREMENT INCOME

by Faisal Habib

IN THE EARLY YEARS OF AN INDIVIDUAL'S FINANCIAL LIFE, I.E., IN THE ACCUMULATION PHASE, SAVINGS AND INVESTMENTS IN A WELL-DIVERSIFIED PORTFOLIO ARE THE FOCUS. PARTICIPATION IN RETIREMENT BENEFIT PLANS IS ENCOURAGED, AND AS THE INDIVIDUAL GETS CLOSER TO RETIREMENT AND BEGINS TO CONTEMPLATE WITHDRAWALS FROM THE ACCUMULATED NEST EGG, A NEW SET OF RISKS SUCH AS LONGEVITY, INFLATION, AND SEQUENCE-OF-RETURNS (SOR) RISK BEGINS TO APPEAR ON THE HORIZON AND THREATEN THE CHANCES OF FINANCIAL RETIREMENT SUCCESS. WITH A MYRIAD OF FINANCIAL AND INSURANCE PRODUCTS AVAILABLE, KNOWING WHICH OF THESE PRODUCTS ARE SUITABLE AND IN WHAT PROPORTIONS BECOMES VERY IMPORTANT. A PRODUCT ALLOCATION STRATEGY CAN HELP IN SUCCESSFULLY HEDGING THESE RISKS AND MINIMIZING THEIR ADVERSE EFFECTS.

RISKS IN RETIREMENT INFLATION

Inflation is the increase in the prices of goods and services over time. The inflation rate is calculated by observing the change in price of a basket of goods and services. The Consumer Price Index (CPI) is an indicator of average inflation for a typical urban consumer. In the US, the Bureau of Labor Statistics computes various consumer price indices nationally and for different geographical areas. Figure 1 shows a graph of the average CPI for All Urban Consumers (CPI-U) from 1983 to 2012.

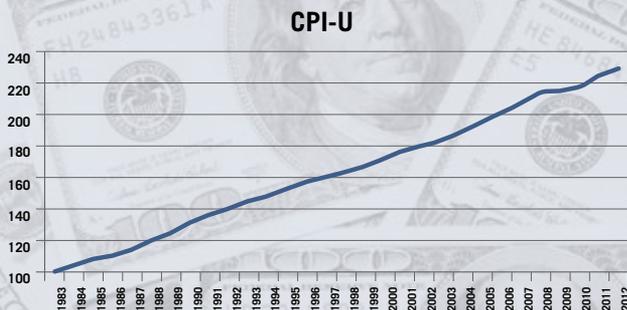


Figure 1. CPI-U (1983 to 2012)
(Source: U.S. Bureau of Labor Statistics)

Inflation is a risk in retirement because it erodes the purchasing power of the consumer. It is less of a risk before retirement because most workers' salary increases are at least somewhat tied to inflation. In the figure above, in a span of 28 years, a basket of goods that cost \$100 in 1983 costs \$230 by the end of 2012. For retirees, the inflationary situation is more pronounced as health care costs, prescription drugs, medical appliances,

and long-term care become a significant part of the expenditure (which are not necessarily captured in the CPI-U). The decline in purchasing power over the course of retirement is a risk that needs to be managed.

LONGEVITY

Due to improvements in medical technology, nutrition, disease control, public health, and environment, human life spans have improved very rapidly and very significantly. Figure 2 shows the life expectancies of 65-year-old Americans. Notice the improvement in life expectancies from one decade to the next. Today, people are living longer than they ever have before. The implications of longevity are that after we retire, our accumulated assets may have to last much longer. Prior to retirement, longevity is not an immediate risk because the single most impactful thing that one can do to mitigate longevity risk is to work longer. As discussed below, there are alternatives to manage longevity risk.

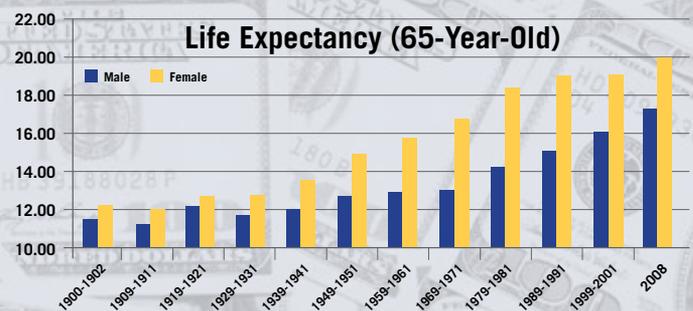


Figure 2. Life Expectancy for 65-Year-Old Americans
(Source: CDC National Vital Statistics Reports, September 24, 2012)

SEQUENCE OF RETURNS

When withdrawals are made from an account, the performance of the account can be negatively impacted quite significantly, especially during a down market. On the other hand, if the withdrawals take place during an up market, the account is not severely impacted. The timing of the returns is important and is an additional risk that needs to be addressed. As an individual, one does not get to choose the retirement date based on what sequence will materialize. SoR risk forces the individual to adjust his/her standard of living and in extreme cases can cause a dependency on social programs, friends, and family, which clearly would not make for a dignified retirement.

HOW DOES PRODUCT ALLOCATION HELP?

Product allocation is a technique that allows an individual to hedge against the risks identified above by allocating funds across three broad categories: Income Annuities (immediate or deferred), Managed Accounts (stocks, bonds, mutual funds, commodities, etc.), and Hybrid Accounts (VAs and FIAs) with Guaranteed Living Income Benefits (GLIBs). Income Annuities such as Single Premium Immediate Annuities (SPIAs) or Deferred Income Annuities (DIAs) are used to capture the benefit and value of longevity protection within a retirement strategy. Managed Accounts provide a Systematic Withdrawal Plan (SWiP), or a method by which the account is periodically liquidated to generate income. With exposure to capital markets, a Managed Account, if markets perform well, provides protection from the effects of inflation. Hybrid Accounts composed of Variable Annuities (or Fixed Income Annuities) with a GLIB capture the benefit and value of market contingent annuities, thus providing a hedge against a bad SoR.

Each product varies in its effectiveness at addressing the risks and retirement goals of a retiree, which may include maintaining liquidity, maximizing estate value, or increasing sustainability. Remember that there is no “free lunch” – a valuable benefit offered by a product is typically offered at the expense of another risk management attribute. The trade-off of income sustainability and financial legacy is at the heart of many product allocation tools. For example, a SPIA offers a good hedge against longevity risk but at the expense of liquidity, bequest, and flexibility. On the other hand, a managed account provides full flexibility but fails to address longevity or SoR risk.

PrARI™, an acronym for Product Allocation for Retirement Income, is an example of a product allocation tool. It measures the income sustainability and financial legacy of each allocation by calculating

its RSQ (Retirement Sustainability Quotient) and EFL (Expected Financial Legacy). The RSQ measures the likelihood that a given mix of income products and assets will provide desired lifetime income in retirement while the EFL is a measure of expected bequest in today's dollars. Just as there is a trade-off in asset allocation, of risk vs. return, product allocation involves a trade-off of income sustainability vs. financial legacy, or RSQ vs. EFL. The optimal product allocation strategy is driven by diametrically opposed priorities: security and sustainability of desired retirement income vs. estate value for heirs and beneficiaries. By combining annuities, traditional investments, and hybrid products (such as VAs and FIAs with GLIBs), in proper proportions, one can effectively manage longevity risk, SoR risk and inflation risk. Figure 3 depicts the RSQ-EFL trade-off frontier, where the brown section is the portion of the portfolio invested in income annuities, the blue in traditional investments and the yellow in hybrid products:

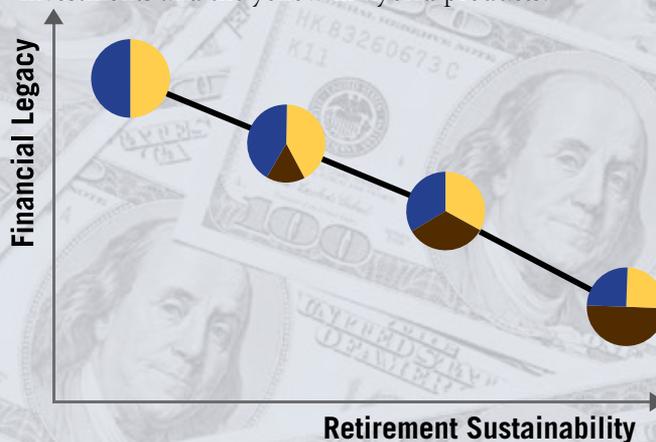


Figure 3. Sustainability-Legacy Frontier

The sustainability-legacy frontier is intuitively explained. If an individual desires to leave behind a large bequest without reducing spending in retirement, it would have to be at the expense of an increased risk of running out of money in retirement. Similarly, an individual can increase spending in retirement without increasing the risk of depleting assets, but this will reduce legacy.

HOW DOES PRODUCT ALLOCATION WORK?

Product allocation is always client-specific because, at the very minimum, it depends on demographic characteristics such as client age (and spouse's, if applicable), gender, health, and the number of years until retirement; the client's financial position and desired retirement income; and whether the client will receive any government pensions (for example, Social Security benefits) or any work-related defined benefit plans. Some product allocation tools also take into consideration life insurance policies

and large anticipated cash flows, but we will ignore these for purposes of our discussion. The case study outlined below shows the practical benefits of product allocation.

CASE STUDY

Consider the case of John, a 61-year-old male in excellent health. John plans to retire in five years at age 66. He has saved \$1,000,000 (split 60% bonds and 40% stocks). He plans to withdraw \$55,000 (in today's dollars) each year for the remainder of his retirement. This annual amount will increase by his personal inflation rate of 3.5%. John qualifies for \$18,000 in Social Security benefits, which we will assume is adjusted at a 2% CPI annually.

When these client input values are entered into PrARITM, the sustainability of John's current allocation and spending is calculated to be 89% with an expected legacy of \$392,000.

A natural question might be, "What product and asset allocation maximizes sustainability (subject to a positive legacy)?" In John's case, if he allocates 35% to a Deferred Annuity, 50% to a VA with a GLIB, 5% to a bond portfolio and the remaining 10% to equities, his sustainability and legacy are 100% and \$259,000 respectively. In other words, John will not outlive his investments and can expect to leave behind a \$259,000 legacy (in today's dollars).

The investment profile of John has not changed. Overall, John is still allocated (65%) in bond-like products, even though his investments in managed accounts is somewhat aggressive (67% in equity and 33% bonds). The main takeaway here is that by combining annuities one can bring certainty to a retirement income plan and manage to invest in a slightly aggressive portfolio – all while keeping the global risk profile of the client in a balanced range.

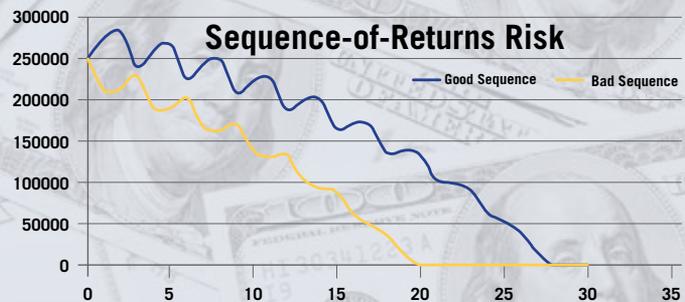
FINAL THOUGHTS

Financial professionals recognize the existence and relevance of unique risks that await clients in retirement. The impact of longevity and the risk of outliving one's investments are real. Rather than trying to predict the outcomes of the inflation, longevity, and SoR variables, one should insure against adverse outcomes by adopting an appropriate product allocation strategy

Traditional annuities as well as hybrid products combined with managed investments can balance and fine-tune the sustainability and legacy trade-off. PrARI™, by combining methods of financial engineering and actuarial sciences, offers the financial planner an easy and intuitive tool to not only assess the sustainability and legacy of a client's current plan but also determine the allocations across product categories that maximize the client's retirement plan sustainability.

To illustrate the impact of SoR risk, consider the following example:

Assume you have \$250,000 in assets and you earn 17% in year one, 10% in year two, and -8% in year three and then this sequence repeats itself indefinitely. On average, you are earning 6.3%. Further, assume that you will withdraw \$1,650 monthly, or \$19,800 annually.



How long is the money going to last? As depicted in the above figure, the funds will last around 28 years. Now if we reverse the sequence, i.e., earn -8% in year one, 10% in year two, and 17% in year three (the average still being 6.3%), then the funds will last around 21 years.



Faisal Habib is President of QWeMA (a division of CANNEX), which developed PrARI™, a set of proprietary algorithms that implements the product allocation methodology. PrARI™ supports advisors in evaluating and validating their clients' current portfolios as well as assessing the sustainability and legacy of a particular retirement investment strategy. Faisal worked with Moshe Milevsky in the development of PrARI™. For more information, see www.qwema.ca/.

