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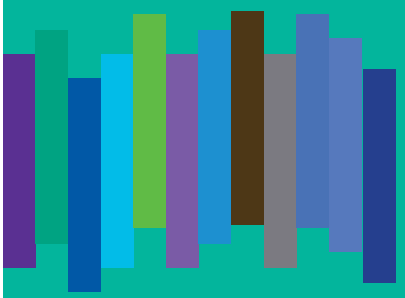
INVESTMENT PRINCIPLES

INFORMATION SHEET FOR INVESTORS

THE INCOME I CAN EXPECT FROM MY SAVINGS



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IMPORTANT NOTICE

The term "financial advisor" is used here in a general and generic way to refer to any duly authorized person who works in the field of financial services, including the following:

- Investment brokers
- Mutual fund brokers
- Scholarship plan dealers
- Exempt market dealers
- Portfolio managers
- Investment fund managers
- Life insurance agents
- Financial planners (F.Pl.)

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THE INCOME I CAN EXPECT FROM MY SAVINGS

How much must be saved periodically to ensure a comfortable retirement is not a simple question. There are many relevant variables to consider, but it is possible to develop a reasonable estimate that will give an indication of the scope of the savings effort required. Unfortunately, what is required is often much more than most individuals expect, especially in a low real interest rate environment.

THE MOST RELEVANT VARIABLES

How much must be saved to generate specific levels of real (inflation-adjusted) after-tax income at a future point in time depends on current wealth, time to retirement, life expectancy after retirement, anticipated return on investment, inflation, availability of tax-exempt or tax-deffered opportunities and so on. Also, how much income is required and possible during retirement is clearly an issue of lifestyle and circumstances. Can the retiree combine his or her financial resources with those of a partner? Will financial markets deliver surprisingly bad or good returns?

Often advisors will say that an income replacement level of 70% is sufficient for a couple. Assuming the house is paid (there are no rent payments), that there are no more expenses for children's education, and that further savings are no longer required, it may even be possible to live on less than 70% of the previous income. Some research shows that most couples in this situation live comfortably on less than 60% of previous income. However, these are only guidelines. Individuals approaching retirement should evaluate their financial needs based on their own recent experience.

THE LEVEL OF RETIREMENT INCOME MY SAVINGS WILL PROVIDE

Since we cannot adapt this document to every situation, we will concentrate on the following question:

What level of real income at retirement can be expected from each $1,000 of real yearly savings?

Hence, if the investor wants five times more revenue than the answer will provide, it implicitly means that his or her savings would have to increase by about five times as much.

The answer will be adapted to specific assumptions and circumstances such as:

- The number of years of savings prior to retirement;
- The life expectancy after retirement;
- The portfolio's expected return;
- The use of tax-exempt or taxable accounts.

This analysis will help guide reasonable expectations of what is achievable. The main assumptions are provided in the footnote.[1] However, a complete analysis would require an investment planning software that can handle variable contributions (i.e. that can adjust contributions once the mortgage is fully paid or the kids are out of school), that can manage the asset location (in tax-exempt vs. taxable accounts) and asset allocation over time and that considers different income alternatives (at retirement) and risk management features.

The following two tables present the expected real (inflation-adjusted) annual income at retirement from $1,000 of real yearly savings according to the number years of savings and longevity at retirement for both taxable and non-taxable accounts.[2] It is based on a 70/30 asset allocation and it assumes the asset allocation is the same in both accounts.[3] In reality, we could do slightly better by optimizing the allocation across the two accounts in order to minimize total taxes.

The tables present the results for four scenarios of investment duration (20 to 35 years) and four identical scenarios of longevity after retirement. Assuming retirement at 65, a 25-year longevity corresponds to a 90-year life expectancy.[4] Canadians and Americans aged 65 have a life expectancy of approximately 85. However, a large proportion, perhaps 30% of North Americans, will live past the age of 90. Hence, it makes sense to assume we may live longer than average life expectancy may indicate.

Non-Taxable	Longevity				
Years of Savings	20	25	30	35	4% Rule
20	$1,879	$1,607	$1,429	$1,305	$1,113
25	$2,554	$2,184	$1,942	$1,773	$1,513
30	$3,338	$2,854	$2,538	$2,317	$1,977
35	$4,248	$3,633	$3,231	$2,949	$2,517

[1] Tax rates on interest/foreign dividends, domestic dividends and capital gains are respectively 40%, 20% and 20%. Return assumptions are 3% for fixed income and 7% for equity (2% from dividends). Inflation is 2%. The allocation is respectively 30%, 40% and 30% to fixed income, domestic equity and foreign equity before and after retirement. The portfolio could be more diversified, but the principles would remain the same. The equity turnover is 40% yearly. All-in fees are 1%, and the impact of portfolio rebalancing on long-term expected return is 0.25%. The expected return is approximately 5.05% on the tax-exempt portfolio and 3.90% on the taxable portfolio.

[2] In the case of a tax-deffered account, it would actually require $1,667 of real savings per year assuming a 40% tax rate to achieve the same purchasing power as $1,000 of real savings in a non-taxable account.

[3] We could illustrate that investors allocating their entire portfolio to fixed income during the accumulation and decumulation periods would, under the same scenarios as above, extract a yearly income that would only be 35% to 55% of the income stated above. Furthermore, a 70% allocation to equity is likely too high for most investors, especially during the retirement period, but it will illustrate the scope of the challenge.

[4] For information on life expectancy see: http://www.worldlifeexpectancy.com/your-life-expectancy-by-age

Taxable	Longevity				
Years of Savings	20	25	30	35	4% Rule
20	$1,484	$1,240	$1,079	$964	$980
25	$1,950	$1,630	$1,418	$1,268	$1,288
30	$2,463	$2,058	$1,790	$1,601	$1,619
35	$3,025	$2,528	$2,199	$1,969	$1,999

The last column presents the annual income resulting from applying the 4% income rule. The 4% rule is a simple rule of thumb used by some advisors to guide people planning for retirement: withdraw 4 percent of the initial capital balance each year (adjusted for inflation) and you have excellent odds of having enough money for 30 golden years. For example, if you have accumulated $1 million at retirement, you could withdraw $40,000 in the first year and then adjust this amount annually to inflation.

The 4% rule has been criticized in recent years as being too generous in a low interest rate environment. The 4% rule was designed when returns on Treasury bonds were as much as 2.6% above inflation. They are much lower than this currently. Nevertheless, the examples we provide indicate that the income level for the 35-year horizon (assuming a taxable portfolio) are very similar to those resulting from the 4% rule. However, this analysis assumes stable returns. Hence, it does not incorporate the uncertainty of future returns. Finally, the comparison between taxable and non-taxable accounts illustrates that there is tremendous value in fully using non-taxable accounts.

THE EFFECT OF UNCERTAINTY

It is relatively easy to build a retirement program on the assumption that real portfolio returns will be stable. The reality is somewhat more complex. The level of income investors can expect from their accumulated wealth during retirement can be less than expected for at least two reasons. First, the real return on the portfolio (the return in excess of inflation) may be less than expected. Second, the pattern of returns can be unfavorable even if we are right about the average return. This aspect is often neglected in simple retirement calculators that assume a stable return.

Consider the following situation. An investor has accumulated $1 million towards retirement. However, two scenarios of returns are considered. In both scenarios the compounded return over 30 years is 4.5%, but in the first scenario a financial crisis leading to a negative performance of -25% occurs during the first year. Assuming an inflation rate of 2.0%, we could demonstrate that the sustainable level of retirement income is 17.4% less in the first scenario.

	Scenario 1	Scenario 2
Nominal Return Year 1	-25%	4.5%
Nominal Return Years 2-30	5.7%	4.5%
Compounded Return over 30 Years	4.5%	4.5%
Sustainable Real Annual Income	$39,207	$47,466

The real issue for retirees is to determine the probability that their income assumptions will not be met, either because they are wrong about the expected return assumption or because the pattern of return is unfavorable. To illustrate this issue we have evaluated the likelihood of achieving the targeted real income specified in scenario 2 (slightly above $47,000), assuming a growth portfolio (70/30 allocation) that has an expected return after fees and taxes of about 4.5%, as in the example above, but we took into account the risk usually associated with such a portfolio. Hence, more than 10,000 scenarios of returns over 30 years were considered.[5]

Unsurprisingly, the analysis shows that there is approximately a 50% probability that the level of real income that can be supported may be less than expected (and 50% that it would be greater). The range of possible income is also fairly wide. For example, there is approximately a 25% likelihood that the sustainable income would be less than 80% of the targeted level.

Furthermore, the scenarios that lead to a lower income than desired are not necessarily explained by a low portfolio performance achieved over the period. In fact, we have determined that 60% of the scenarios of lower income are explained by an unfavorable pattern of returns and not by lower average returns. One such example is having poor performance in the first five years of retirement even if the long-term average performance is appropriate.

DEALING WITH UNCERTAINTY

Investors have a few options when it comes to uncertainty. Some are not pleasant, but this is where common sense must play a role. Here are three examples:

- Budget (if possible) an expense level at about 80% of the investment income that is expected when a stable return environment is assumed. This may reduce your likelihood of exceeding your sustainable income from about 50% to 25%. It is not necessarily an easy option, but you can always revaluate after a few years if performance in financial markets is favorable.
- Consider other income alternatives for a portion of your income than solely an investment portfolio. For example, your advisor could analyze the possibility of buying a single or joint life Single Premium Immediate Annuity (SPIA) from an insurer. An SPIA will pay a fixed amount for as long as you live (single SPIA) or for as long as you or your spouse live (couple SPIA). Obviously, the annuity amount is less in the latter case. An SPIA will offer you a stable income, although usually unadjusted for inflation. However, the annual payout rate is likely to be higher than what would normally be advised to withdraw from an investment portfolio. The drawback is that an annuity leaves no legacy wealth once the beneficiaries are deceased. However, it may make sense in some circumstances to use part of your wealth to purchase an annuity.
- There are risk management approaches that can help manage the risk related to unfavorable patterns of returns, especially during the few years preceding or following the planned retirement date. A popular approach consists of using target date funds (TDFs). Such funds lower the level of risk of the investment portfolio over time (as the investor ages), but unfortunately, they also lower the level of expected returns. Nevertheless, the risk of significant losses remains even with TDFs. More sophisticated approaches may actually manage the allocation according to the forecasted level of market risk, reducing the equity exposure when volatility is high and increasing it when volatility is low. However, such an approach is not widely used currently, and target date funds have the advantage of simplicity.

[5] We assumed that 50% of the assets are in taxable accounts and 50% in tax-exempt accounts. The return of 4.5% is coherent with such an allocation.

SUMMARY AND CONCLUSIONS

Planning for retirement is complex and involves integrating many variables into the analysis. This document concentrated on some of these variables but many more must normally be considered. For example, we have ignored the potential access to other sources of retirement income, the possibility of receiving an inheritance and of pooling financial resources with a partner, the existence of a current pool of savings and more effective tax management. An actual portfolio should also have more style diversification in order to better balance risks and increase the effectiveness of the rebalancing process. Finally, financial market uncertainties complicate the entire process. Retirees must plan for the possibility that portfolio returns may be unfavorable. It may require them to plan for an income buffer even before they retire or to purchase insurance-related products that will provide greater income certainty.

In the last document of this series, we will present all that we have learned in a coherent framework.