A BETTER WAY TO FUND YOUR RETIREMENT

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INTRODUCTION

The ground shifts for retirees

Retirement is often portrayed as the best of times—golden years filled with travel, fine dining and fun. However, for many Canadians the reality is very different. They worry about whether they will outlive their savings and this prevents them from fully enjoying their retirement.

Contributing to the uncertainty is the demise of the defined benefit pension plan. These plans, with their guaranteed income for life, are disappearing in the private sector. An extrapolation of data shows the number of active defined benefit plan members in the private sector in Canada will drop to zero by 2026. This means many more Canadians now have to figure out how to fund their retirement from their savings.

At the same time, Canadian are confronted by two other developments that make planning for retirement even more challenging: longer life expectancy and lower investment returns.

- According to Statistics Canada, the **average life expectancy** for a **65-year-old is now 87.3 for women** and **84.5 for men**.[1]
- Low interest rates and sluggish economic growth are reducing future expected investment returns. PWL Capital research estimates a **balanced portfolio of stocks and bonds** is likely to provide a **long-term return of just 5% a year in the future versus 8% over the last 30 years**.[2]

[1] https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310038901

[2] R. Kerzérho and D. Bortolotti, Great Expectations 2019: How to estimate future stock and bond returns when creating a financial plan. PWL Capital Inc., 2019.

The result is that many retirees face the daunting task of figuring out how to stretch their savings over a retirement that could last a quarter of a century or longer with uncertain investment returns and future expenses.

> It's a complex task that Nobel prize winner Bill Sharpe has called **"the nastiest, hardest problem in finance."**

With the baby-boom generation heading to retirement, the pressure is on for more Canadians than ever to come up with solutions for this challenge.

This eBook is here to help. It explains your options and provides you with strategies to get:

- a steady income throughout your retirement
- more income without saving more
- peace of mind that you're on the right track

We explain why your retirement financial planning shouldn't be a set-it-and-forget-it exercise. Instead, you need to take a dynamic approach to optimizing your investment and spending strategies.

Making financial decisions is challenging, but with good information and guidance, you can make the right choices to enjoy a comfortable retirement.

How much income do you need in retirement?

If you're like most people, you want to maintain your lifestyle in retirement or perhaps improve it. This desire will naturally lead you to wonder how much income you will need each year to maintain your standard of living.

People tend to assume their day-to-day spending will fall substantially after they retire. They will pay less for things like clothing, food and transportation once they're no longer working and the kids are (hopefully) on their own.

While it's true you will pay less for some things, a Statistics Canada study found that an individual's day-to-day consumption actually doesn't drop that much.[3] Indeed, consumption remains remarkably stable with only a 5% reduction in the early sixties when many retire. This is consistent with data from outside Canada, indicating that retirees do not consume less than younger generations, although the pattern of spending may change.[4] In fact, the real savings in retirement come from items other than your day-to-day consumption. These include no more mortgage payments, lower taxes and, of course, the fact you are no longer saving for retirement.

Let's take a closer look at how this works. The average income for a Canadian who is 55 to 64 years old is $54,600, compared to $39,000 for Canadian over 65. So, the average post-retirement income is 73% of the average pre-retirement income. This is consistent with the oft-quoted rule of thumb that you should aim for a retirement income of 70% of your average earnings in your final years of employment.

[3] A. Lafrance, S. LaRochelle-Côté, Consumption Patterns Among Aging Canadians: A Synthetic Cohort Approach, Statistics Canada, 2011. https://www150.statcan.gc.ca/n1/en/pub/11f0027m/11f0027m2011067-eng.pdf?st=wqDBAi5

[4] Vanguard Group, Working longer, still spending: A look at graying populations, 2019. https://www.vanguardcanada.ca/advisors/en/article/markets-economy/a-look-at-graying-populations

However, this assumption is flawed, especially for Canadians who are higher income earners and homeowners. Higher earners tend to have larger homes and larger mortgages that they pay off before retirement. They also tend to save more in their pre-retirement years and pay higher taxes than they will in retirement. Consequently, wealthier retirees can maintain the same **after-tax income** with a lower percentage of their pre-retirement income than the 70% rule of thumb.

To illustrate this, consider two neighbours Alice and Betty, both living in similar houses (Table 1). Alice is 60, has employment income of $250,000 and is making an annual RRSP contribution of $25,000 and an annual mortgage payment of $50,000. Betty is retired at age 65, has no mortgage and is withdrawing retirement income from her RRSP.

TABLE 1

	ALICE	BETTY
Income	$250,000	$151,340
Tax paid	$84,009	$46,966
After tax income (after RRSP deduction)	$179,373	
Less mortgage	$50,000	
Less RRSP contribution	$25,000	
Available for consumption	$104,373	$104,373

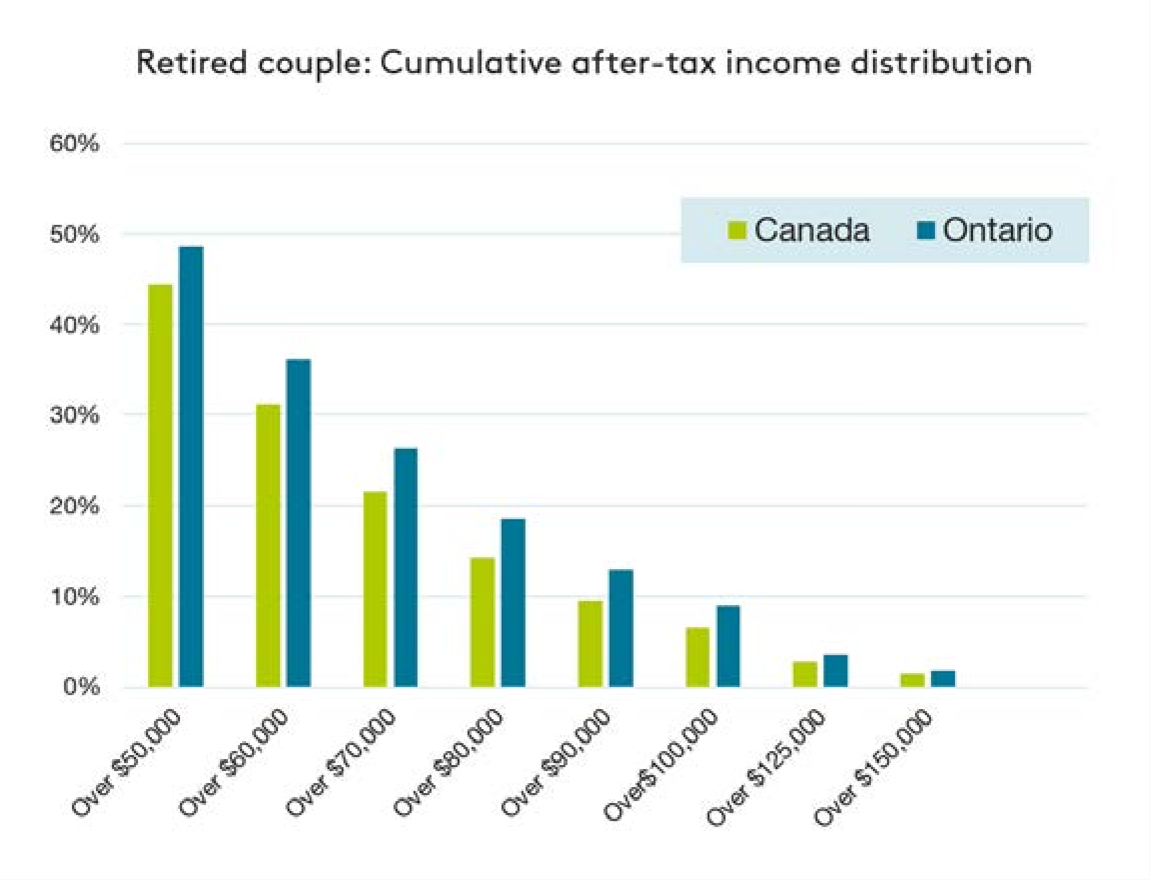
Source: PWL calculations using the 2018/2010 tax calculator at www.taxtips.ca

We have constructed our example so Betty and Alice have the same amount of money available for consumption. To achieve this, Betty requires only 61% of Alice's pre-tax income. If both Alice and Betty had a spouse who had no income then the ability of Betty to split pension income would lower the household tax so that she would need only 51% of Alice's income to enjoy the same level of consumption.

Figure 1 below reinforces this point. It shows the actual distribution of after-tax income for households with two members over 65, both not earning employment income. In Ontario, if you have an after-tax income of $90,000 or more, you're in the top 13% of similar households.

The preceding discussion may reassure you that a comfortable retirement is within reach even if your pre-tax retirement income is 50% to 60% of your employment income. Of course, individual circumstances will vary and some retirees may have a different objective than simply maintaining consumption through retirement.

FIGURE 1



Source: Statistics Canada—2016 Census. Catalogue Number 98-400-X2016128.

The bottom line is that most mid- and high-income retirees should be able to maintain their lifestyle with less than 70% of what they earned during their final working years, a conclusion supported by Canadian actuaries and retirement experts Fred Vettese and Malcolm Hamilton.

In his excellent book *Retirement Income for Life*, Vettese cites a study showing that **"the vast majority of those from middle-income households who retired with enough income to replace 65% to 75% of their final average earnings end up with a *higher* standard of living in retirement. An astounding four households out of five in this category improved their living standard by 20% or more."**[5]

Having looked at how much money you might need in retirement, the next challenge is to figure out how to convert your savings into a steady stream of income that will last for the duration of your retirement. Let's look at some recent research on this topic.

[5] The study Vettese cites is MacDonald, B., Osberg, L., & Moore, K. How Accurately Does 70% Final Employment Earnings Replacement Measure Retirement Income (In)Adequacy? Introducing the Living Standards Replacement Rate, ASTIN Bulletin: The Journal of the International Actuarial Association, 2016, vol. 46, issue 03, 627-676

From accumulation to decumulation: A change of mindset

During the years you accumulate retirement savings, your focus is on growing your nest egg. How much have you already saved? How much can you add in a given year? What's your rate of return? Your goal is to make your pot of savings as big as possible to draw upon one day, together with your employer and government pensions, to make your retirement income.

As retirement nears, your focus naturally shifts to the actual mechanics of creating a stream of income from your savings. You are now confronted by the thorny decumulation problem. On one hand, you want to make sure your pool of savings provides a stable income for what will probably be a long retirement. On the other, you want to avoid limiting your spending to the point where you don't fully enjoy the retirement you've earned.

One possibility is to purchase a lifetime annuity, a vehicle offered by life insurance companies. In exchange for a lump sum payment, an annuity will provide you with regular, guaranteed payments for the rest of your life.

The steady stream of income an annuity provides is what you want in retirement. However, most people resist buying annuities for a variety of reasons. These include the irrevocable nature of the decision to buy them and the fact that at current low interest rates they offer meagre payouts. Many people also don't like giving up the possibility of seeing their investments grow in the future if markets are favourable.

Another approach to income generation that many find attractive, but we don't recommend, is dividend investing.

BEWARE OF THE ALLURE OF DIVIDEND INVESTING

The idea behind dividend investing for retirement is usually expressed along the following lines:

> **"I'll hold some good dividend paying stocks and live off the dividends without touching the principal. I can do this for as long as I live. There is no decumulation, and I don't have to worry about running out of money."**

This may sound appealing, but it's important to consider this strategy's limitations and risks.

- It takes a lot of savings to produce a small amount of income. The dividend yield from Canadian stocks at writing was 3.1%. That represents annual income of $31,000 from an investment of $1 million, or just 0.7% more than 5-year GIC would pay. If you need to withdraw more money because the dividend payout is insufficient, you will either have to eat into your pool of savings or opt for higher yielding stocks.
- Your income may be reduced by dividend cuts. Higher yielding stocks often are at a greater risk of cutting their dividend, but even apparently strong companies may reduce or eliminate their dividends. This is especially true during recessions as we saw during the 2008-09 financial crisis.
- You are exposed to heavy capital losses. If all of your savings are in the stock market, you will suffer heavy losses on paper during corrections. If you panic and sell, you will turn those paper losses into real losses, eroding your retirement nest egg.

Dividends stocks may be part of a retirement solution, but they provide limited income security and should not be a substitute for holding safer fixed income securities in your portfolio.

Once annuities and relying only on dividends are off the table, you're left to grapple with the uncertainties of decumulation that flow from unknown longevity and market returns.

- How should you divide your money between stocks and safer investments to maximize your sustainable income while minimizing your risk of running out of money?
- How much can you prudently spend each year?

Traditionally, the responses to these challenges have been static, set-it-and-forget-it strategies. Our research indicates these approaches produce less favourable outcomes than strategies that involve dynamically optimizing your asset mix and withdrawals throughout retirement.

Before turning to those strategies, let's take a brief look at the traditional approaches used by most retirees today to decide on their stock market exposure and withdrawal rates.

We'll then dive into how you can optimize your outcomes by adapting both your asset mix and your withdrawal strategy in response to market fluctuations during the course of your retirement.

Conventional approaches to funding your retirement

Traditional ways to decide on your stock market exposure

In retirement, your goal should be to find an optimal mix of investments that will give you the best chance of meeting your target income requirement while taking the least possible risk. Expressed simply, the question is: How much should you put into the stock market where returns are volatile but historically much higher than more conservative assets such as bonds and GICs? As an example, the long-term annual average real return from safe U.S. Treasury bills is a paltry 0.46% compared with 8.80% from the U.S. stock market.

Since most people need higher returns than they can get from bonds or GICs to have a comfortable income, they need some exposure to stocks. But stock returns are uncertain while your expenses in retirement are mostly fixed. The mismatch between needing a certain income from investments that produce uncertain returns is at the heart of the retirement challenge.

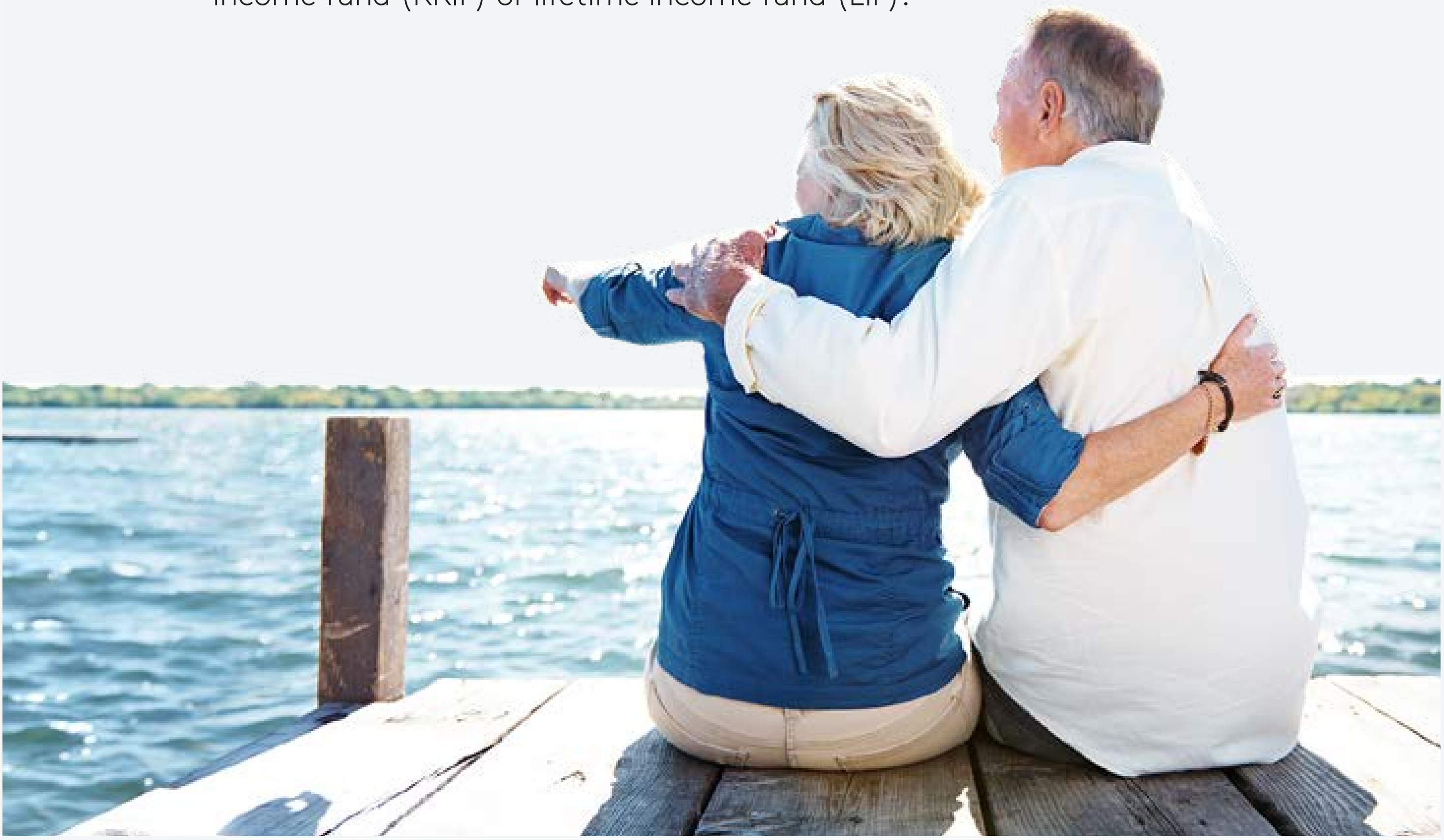
Traditional approaches to dealing with this challenge include using a pre-defined split between stocks and bonds, such as 50%-50%. Another possibility is to use a simple rule-of-thumb such as subtracting your age from 100 or 110 to get the percentage that should be invested in stocks with the rest in conservative investments.

A variation on these themes has emerged in recent years in the form of so-called target date funds. These funds provide for a high exposure to the stock market in your earlier years that is reduced as you move into retirement. This "glide path" approach to asset allocation is enormously popular in defined contribution pension plans, attracting more than 50% of pension contributions in the U.S.[6]

Traditional ways to decide how much you can withdraw

Meanwhile, when it comes to deciding how much you can safely withdraw from your savings each year during retirement, there are also a number of static, rule-of-thumb strategies.

A popular one is to withdraw 4% annually from your nest egg. Other strategies include withdrawing only dividends and interest or making only the minimum withdrawals required by the government from your registered retirement income fund (RRIF) or lifetime income fund (LIF).



[6] R. Myers, U.S, Retirement Market Trends: Assets Continue to Pour into IRAs, Target-Date Funds, Stable Times, Stable Value Investment Association, 2018. https://stablevalue.org/news/article/u.s.-retirement-market-trends-assets-continue-to-pour-into-iras-target-date

Pre-determined approaches are risky

While these kinds of pre-determined, one-decision approaches to managing your savings are popular, they fail to take into account your actual investment experience during retirement. So, it's not surprising they leave much to be desired in achieving a financially secure retirement.

For example, when the 4% rule was proposed by researchers in the late 1990s, it probably would have allowed you to avoid running out of money if the stock market performed as expected. However, with today's lower expected returns, we believe the market would have to perform better than anticipated for you to be assured of not running out of savings using the rule. Certainly, sticking stubbornly to the rule, or another constant withdrawal strategy, when markets perform poorly—especially at the beginning of your retirement—could lead to a depleted nest egg. On the other hand, if markets perform very well, these rules may lead you to leave an unintentionally large bequest to your heirs.

The same problems apply to maintaining a fixed, predetermined mix of stocks and conservative investments in your portfolio—it may work out for the best or it could lead to very serious trouble. This includes target date funds. Despite their intuitive appeal, several authors have found that following a preset glide path produces no better results than opting for a fixed asset allocation.

Fortunately, there are better ways to manage your savings that will allow you to spend with confidence throughout your retirement. Let's look at those strategies.

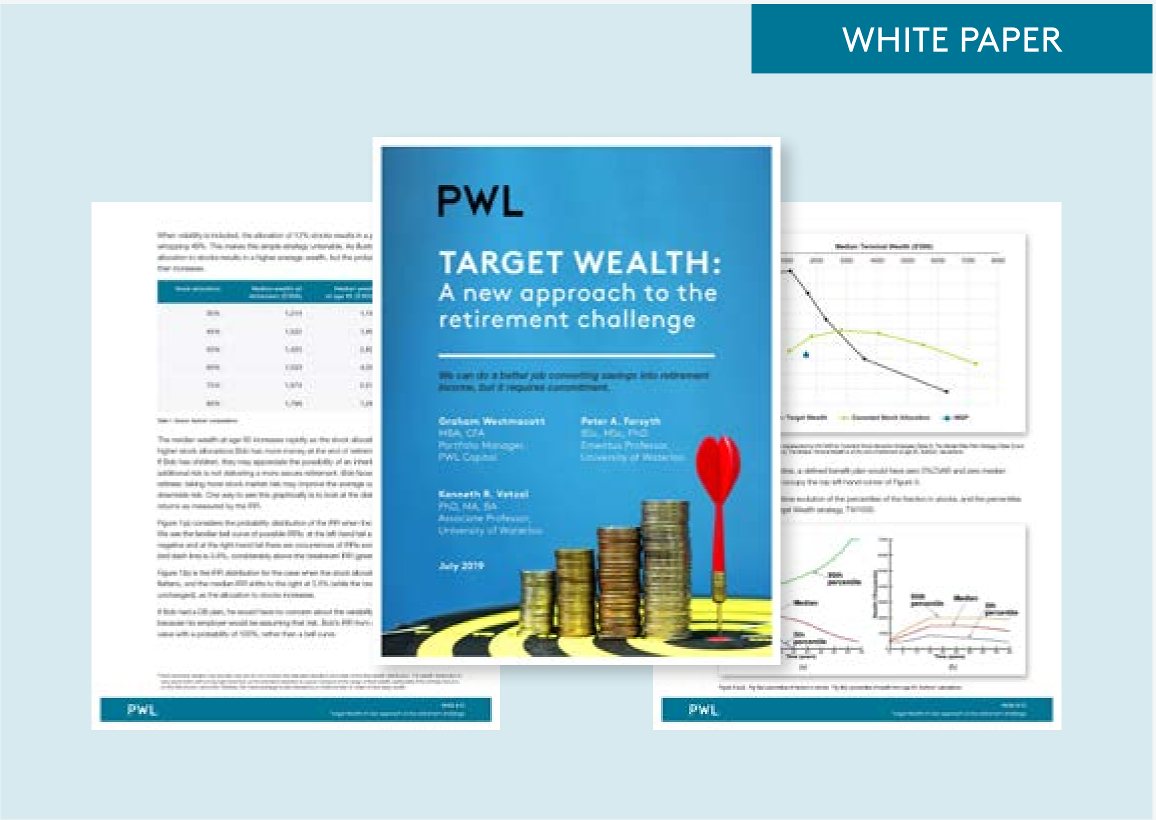
[7] https://en.wikipedia.org/wiki/Trinity_study

Optimization: A new way to a more secure retirement

Adapt your asset mix to stay on target

The alternative to a fixed, pre-determined mix of stocks and fixed income investments is an adaptive strategy where asset allocation is personalized and optimized according to your progress toward a wealth goal.

With this approach, you target an amount of money that would be left at the end of retirement—what we refer to as your target wealth in [a white paper](https://www.pwlcapital.com/resources/target-wealth-new-approach-retirement-challenge/) we published on the topic.[8] Then, every year before and during retirement, you



[8] P. Forsyth, K. Vetzal, G. Westmacott, Target Wealth: A New Approach to the Retirement Challenge, PWL Capital, 2019. https://www.pwlcapital.com/resources/target-wealth-new-approach-retirement-challenge/

calculate the optimal allocation to stocks to minimize the risk of a shortfall in retirement income.

A key part of how you can do this is by using a measure called conditional value at risk (CVAR). CVAR answers the following question: If things turn out badly, how bad are they likely to be? A common practice is to focus on the worst 5% of outcomes.

If, for example, your investment strategy was designed to fund your retirement to age 95 and you had a 5% CVAR of minus $100,000, then 5% of the time, you could expect to have a $100,000 shortfall at 95. A positive value for 5% CVAR indicates you would expect a surplus, even in the worst 5% of cases.

In our white paper, we present a fictional case where Bob is trying to figure out how best to invest his savings to enjoy a comfortable retirement. He wants a steady stream of income that mimics as closely as possible a defined benefit pension plan, while minimizing the risk of running out of money before age 95.

> To achieve this outcome, we fix the target wealth we want to achieve and then ask each year, **"How does the allocation to stocks have to evolve to maximize the chance of reaching this target, while taking the minimum risk?"**

Using the 5% CVAR measure, we show that in the median case, Bob's stock market allocation is 30% at retirement and continues to decline throughout retirement—a level of exposure to the stock market many retirees would welcome.

Of course, there are other possible outcomes on either side of the median. Good years in the markets would allow Bob to exit the market altogether while poor returns would force him to increase his stock market exposure to minimize his risk of running out of money.

A survey by a large insurance company found that 61% of respondents were more afraid of outliving their assets than they were of death.[8] The target wealth approach reduces this risk by 80% as we see in Table 2. It gets retirees closer to the experience they would have from a defined benefit pension plan. In the example of our imaginary retiree, Bob, he experiences a constant income stream, with an 80% lower expected cost of failure than a conventional 55% stock, 45% fixed income portfolio.

TABLE 2

INVESTMENT STYLE	EXPECTED SHORTFALL (5%CVAR)
Fixed asset allocation (55% stocks, 45% bonds)	$255,000
Target Wealth	$59,000

Source: Target Wealth: A New Approach to the Retirement Challenge, PWL Capital. https://www.pwlcapital.com/resources/target-wealth-new-approach-retirement-challenge/

In both cases Bob withdraws $40,000 per year, for 30 years indexed to inflation. With a fixed asset allocation Bob has an expected shortfall of $255,000, which is the average shortfall in the worst 5% of cases. Target Wealth, using dynamic optimization, reduces this shortfall to $59,000. In an ideal world, we would like zero shortfall which is what a defined benefit pension offers. However, in reality, there is always a risk of prolonged stock market declines, and we can only plan to minimize this impact on retirement income. In such a worst case, retirees have the option of adjusting their spending or using equity from their house as fallback strategies.

The key takeaway here is that continuous monitoring of your investment portfolio in retirement leads to a higher sustainable income at a lower risk of running out of money. This requires a periodic (usually annual) reassessment of the allocation to stocks.

[8] Allianz Life Insurance Company, Reclaiming the Future. https://www.allianzlife.com/-/media/files/allianz/documents/ent1194nfinal201601thegap.pdf?la=en&hash=42C4F5EBDE90A3A704EFF7AC60BB4A8B3451394F

Vary your withdrawals from savings

Now, let's turn to optimizing the rate at which you withdraw money from your savings in retirement. Here again, there is an adaptive approach you can use to decide how much to take each year.

Recall that the 4% rule and other static withdrawal strategies come with no guarantee you won't outlast your money, or, conversely, that you won't leave behind an unintentionally large pot of money. Our research indicates you can do much better with an approach called ARVA, an acronym for annually recalculated virtual annuity.

ARVA uses the same calculations an insurance company does in deciding how much to pay out on an annuity for the remainder of your life. The trick with ARVA is you make those calculations each year, based on how much money is left in your pool of retirement savings. In other words, you use annuity math to do an annual recalculation and decide how much to spend in the coming year.

By varying your withdrawals, ARVA allows you to avoid the risk of running out of money, on one hand, or leaving behind a large unintended surplus, on the other. But it does more than that. It turns out that adjusting your withdrawals according to ARVA can enhance your total income throughout retirement. Moreover, you can dictate the shape of your withdrawals. So, for example, you may prefer to withdraw more in the active phase of retirement, rather than later.

ARVA won't protect you against the vagaries of the stock market, but it does provide prudent protection against overspending or underspending as markets fluctuate.

In a white paper, titled Getting More Without Saving More, we looked at the impact of using ARVA with the savings of a fictional retired couple.[9] For Alice and Bob, allowing year-to-year variations in spending of just 5% using ARVA means an additional 25% withdrawal over the retirement period. The impact was to boost withdrawals throughout a 30-year retirement period by an amount equivalent to an additional 1.25% investment return.

Why does ARVA generate more income? In all scenarios, ARVA converts all the assets into income whereas to protect against a small risk of running out of money, fixed withdrawal rules, such as the 4% rule, leave a significant surplus, on average.

In our white paper, we also look at other valuable strategies to secure your retirement recommended by Fred Vettese in *Retirement Income for Life*. These include waiting until age 70 before starting your Canadian Pension Plan payouts and relaxing the need to index for inflation your withdrawals from your retirement savings when planning your retirement.

[9] G. Westmacott, Getting more without saving more, PWL Capital, 2019. https://www.pwlcapital.com/resources/getting-more-without-saving-more/

OF THESE STRATEGIES, OUR RESEARCH CONFIRMS VETTESE'S OBSERVATION, THAT, IN MOST CASES, VARIABLE WITHDRAWALS WILL MAKE THE MOST IMPORTANT CONTRIBUTION TO INCOME ENHANCEMENT.

CONCLUSION

A better way to keep your finances on track

Drawing down savings to fund your retirement can be a nerve-racking experience for Canadians. Many fear running out of money and end up living more frugally than necessary. Or, they just keep their fingers crossed and hope everything will work out. They either have no plan or depend on rule-of-thumb strategies that may not deliver the lifestyle they desire while exposing them to significant risk.

Fortunately, there is a better way to fund your retirement as we've seen in this eBook.

The first piece of good news we saw is that many retirees will not need as much income as some people suggest. Indeed, most middle- and upper-income retirees will have sufficient income to meet their needs if their savings are properly managed. The next piece of good news is that you can get more retirement income without taking more risk by using dynamic, adaptive strategies to manage your savings.

For most people, it makes intuitive sense to adjust their stock market exposure and savings withdrawals in response to the ups and downs of the markets and the size of their nest egg. After all, we're used to adjusting our spending in our everyday lives in response to changing circumstances and expenses.

However, it's important to remember that staying on track in retirement requires continuous monitoring and adjustments to reflect market fluctuations, your age, the tax treatment of different income streams and your changing circumstances and priorities.

We know the strategies presented in this eBook work because we use them every day with our clients. With the right advice, you too can have the peace of mind to spend your savings with confidence, achieve your goals and enjoy the retirement you hoped and planned for.

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