McGill International Portfolio Challenge

2023 Edition

Maple Leaf Pension Plan:

Developing an Inflationary Resilient Decumulation Strategy

Disclosure

The case for the 2023 edition of the McGill International Portfolio Challenge was written by the students of FINE 464/664 – Pension Funds and Retirement Systems (Winter 2023), under the direction of Professor Sebastien Betermier at McGill University's Desautels Faculty of Management. Authors of the case include Anthony Bello (lead), Joseph Abounohra, Guillaume Boero, Samuel Guertin ,David Iacono, Arjun Kapur, JiPeng Li, Lauren Li, Fernando Ochoa Martinez, Izabella Tyc, Collin Wang, and Tianshi Yuan.

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Preface

The 7th edition of the McGill International Portfolio Challenge centres on Maple Leaf Pension Plan (MLPP), a fictional Canadian pension plan with nearly C$60 billion in assets under management (AUM). Since its inception 30 years ago, MLPP has grown to become one of the larger defined contribution (DC) plans in Canada, with over 200,000 members. MLPP's continued success and member growth can be attributed to its ability to create value through internal management and offer cost-effective investment products.

Recently, a global surge in inflation has posed significant challenges to both investors and pension plan members, making retirement security more uncertain as rising costs erode the value of future retirement benefits. An additional challenge is that retirees are unsure how to effectively use, or decumulate, their hard-earned savings. To mitigate these concerns, MLPP is set on developing a new product that will provide members with managed withdrawal planning and inflation hedging during their retirement. The purpose of this case is to advise James C. Brown, Chief Executive Officer of MLPP, on designing this product. Although MLPP is fictional, real data from Canada is used to frame the discussion surrounding current social and economic conditions.

Maple Leaf Pension Plan

Founded in 1994, Maple Leaf Pension Plan was created to responsibly manage and invest the retirement savings of workers in the Canadian automotive industry. Since its inception, MLPP has been a managed defined contribution plan where members and their various employers contribute to the investment funds administered by MLPP. MLPP's mission has always been to provide a simple, low-cost, and straightforward retirement option for its members, so it only offers two investment funds for members to choose from: 1) its main fund, which is a balanced growth fund, and 2) a simple bond and cash portfolio. For both of these options, members are not permitted to withdraw until they reach the age of retirement.

Over the years, MLPP has significantly developed its in-house asset management team and now invests in a wide range of global asset classes. Being a DC plan with access to long-term capital and no defined benefit liabilities, MLPP is able to invest in more illiquid, private assets to seek higher risk-adjusted returns. Its main fund strategy has proven successful, achieving a 10-year 8.5% net annualized return after fees of approximately 70 basis points.

The Importance of Inflation Resiliency and Effective Decumulation

By mid-2021, rising inflation began to make headlines around the world, with countries such as Canada and the United States reaching inflation levels not seen in over a decade.[1] [2] This new global inflationary phenomenon was an abrupt change to the historic low and even negative inflation rates seen just a year prior as a result of the COVID-19 recession.[3] Inflation continued its upward trend in the following months, reaching a 39-year high of 8.1% in Canada on a year-over-year basis in June of 2022.[4] While inflation levels have gradually come down since then, the threat of persistent inflation still remains.

Concerned by the impact of high inflation on their savings, more than half of non-retired Canadians aged 55-64 plan to delay their retirement in order to keep up with rising prices. Clearly, soon-to-be and even current retirees are worried that their savings will not last through retirement.[5] However, even with these concerns, many retirees struggle with actually spending their retirement savings, often decumulating too slowly and at the wrong times.[6] The uncertainty surrounding decumulation and how to effectively draw

down assets in retirement is an increasingly significant problem for the large group of baby boomers that begin to plan for the retirement phase, and is being made worse by inflation risks.
In response to these issues, MLPP's senior management team is keen on adjusting its pension model to better provide for its members during retirement. Currently, members that retire and wish to withdraw from their individual DC accounts have limited options. Retirees could invest in a group annuity at market rate, which is a safe but expensive decumulation option. Secondly, retirees can stay invested in the MLPP funds and withdraw capital progressively throughout retirement. The main issues with this second option are two-fold: 1) both funds have been structured mainly for the accumulation phase, and 2) members are unsure how much to regularly withdraw, especially now with high and potentially persistent inflation.

MLPP's New Decumulation Product

The senior management team of MLPP is set on creating a comprehensive decumulation product for retirees, particularly for the large baby-boomer group that has already started retirement or will be retiring soon. In an effort to stay true to its mission of being simple and straightforward, MLPP will not consider complex longevity-risk group solutions such as annuities, as MLPP's member base is not prepared to lose ownership of their accumulated savings. Furthermore, the member base already benefits from the CPP public annuity that provides an indexed defined benefit pension of about one-fourth of their wages throughout retirement. In addition, MLPP and the employers are not willing to bear the financial and legal risks associated with owning rather than managing members' assets.

The new decumulation product offered by MLPP will provide members with a stream of retirement income taken from their accumulated capital until the capital runs out. MLPP will perform all relevant calculations to determine what these payments should be based on a variety of factors, most notably life expectancy, inflation, and investment performance. A newly created fund will be created in conjunction with the decumulation product with its own asset mix. Members will have the choice to opt-in to the new fund and can choose to invest any fraction of their wealth from the original MLPP plans into the new product at any time. Once capital is invested in the new decumulation fund, members will not be able to withdraw early, although the capital will still belong to them or their beneficiaries. Given strong expected demand, MLPP's leadership predicts that the fund will be sufficiently popular that it will be able to invest in all asset classes.

Developing the new decumulation product and incorporating inflation resiliency into the asset allocation requires extensive strategic planning and an in-depth analysis of the key trade-offs that have a material impact on the fund and its members. Before moving forward with their ambitious aspirations, MLPP's senior management team wants to ensure that they have all the necessary information required to make the best decision for their fund's future. In hopes of finalizing their strategy as soon as possible, they have come to you and your team of consultants to provide a detailed recommendation and external viewpoint.

Objective of the Case

James C. Brown has contacted your team to help with the design of the new product's withdrawal and investment strategies. A successful proposal from your team will address the challenges and trade-offs associated with inflation resiliency, and will answer two key questions:

- What will MLPP's **withdrawal rules and indexation policy** look like for its decumulation product?
- How should MLPP develop its new fund's **investment strategy** to best hedge the risks associated with **persistent inflation** and meet the product's objectives?

The following sections of this case provide further context on inflation, decumulation strategies, and associated challenges and trade-offs.

Inflation in Canada and its Impacts

Inflation Measurement in Canada

When people think of inflation, they often think of the consumer price index, or CPI. It is the most widely used measure of inflation which tracks the changes in prices of a basket of several consumer goods in Canada. Price data is compiled monthly by Statistics Canada for eight major products and services groups including food, shelter, household operations, transportation, healthcare, and more, which is then compared to previous time periods to determine the 12-month inflation rate.[7] However, there is no such thing as one single inflation metric. In reality there are a multitude of different inflation calculations that are still relevant and useful in economic analysis.

Since the CPI "shopping basket" of goods and services is comprehensive, there are many variations of CPI that are used to measure other, more long-term trends, such as core inflation. CPI-trim is one such example which aims to determine core inflation by excluding CPI components whose rates of change are located in the bottom and top 20% of the overall distribution of price changes. This adjustment helps to remove transitory movements in prices caused by short-term factors. CPI-median and CPI-common are two other frequently used metrics that employ similar methods to determine long-term inflation trends. In addition to these statistics-based methods, more ad-hoc methods are commonly used to filter noise from CPI data, such as completely removing typically volatile CPI components like food and energy.[8]

History of Inflation in Canada

Before the recent post-COVID surge, low and consistent inflation has been the norm in Canada, with many not paying much interest to CPI changes. However, this period of controlled inflation is a relatively new phenomenon. Since Statistics Canada began calculating CPI over 100 years ago, Canada has experienced a wide variety of price change movements, with long periods of high inflation. For example, the First World War brought rapidly changing price changes, with annual inflation reaching its highest level since CPI recording began of nearly 18% in 1917, and its lowest level of around -12% in 1920. Additionally, after the economic boom following the Second World War, stagflation took hold in Canada from the mid-1970s to the early 1980s, with steeply rising oil prices pushing consumer prices higher as economic growth stagnated. Inflation sometimes surpassed 10% and remained well above 5% for this period as input prices climbed. More details can be seen in Figure 1.[9]

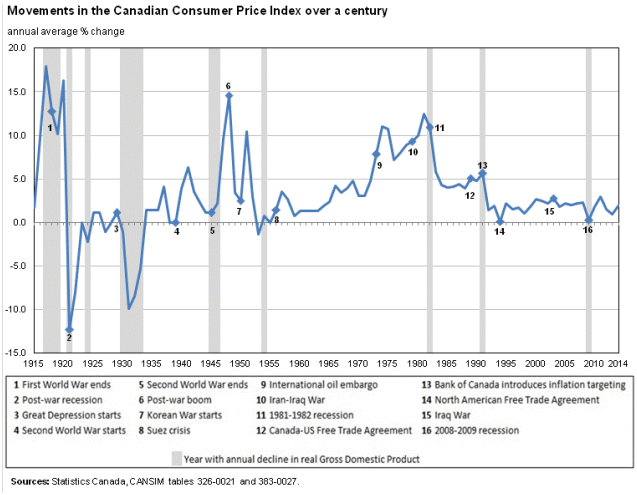


Figure 1

Following these periods of volatile prices, the Bank of Canada and the federal government of Canada agreed in 1991 to aim for an inflation target of 2%. Since then, inflation has remained relatively stable, rarely moving outside of the 1-3% central bank target range. These nearly 25 years of low and consistent inflation were disrupted just a couple of years ago, when CPI inflation surpassed the 3% upper boundary in April 2021 and peaked at over 8% in June 2022, as shown in Figure 2, with CPI-trim reaching 5.6%.[10]

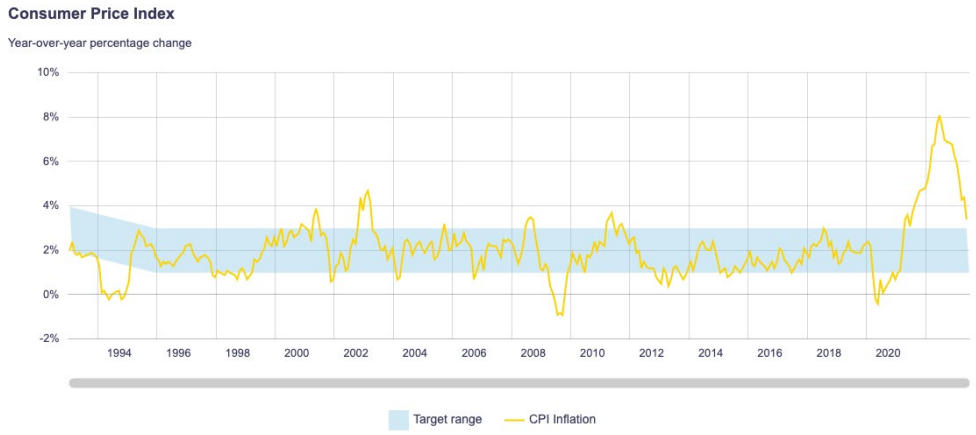


Figure 2

Current Situation of Elevated Inflation

While current levels of inflation may seem not particularly high compared to what has been observed throughout Canada's history, inflation is clearly elevated when compared to the past two to three decades. Although CPI inflation has decreased rather significantly in recent months, the year-over-year change for July 2023 was 3.3%, still above the Bank's target range. Canada's current situation is not unique, with several countries around the world experiencing similar or higher levels of inflation over the past two years. Its closest neighbour and economic partner, the USA, has followed a similar inflationary path as Canada, with inflation peaking at 9.1% in June 2022 and currently at 3.2% as of July 2023.[11] Figure 3, which plots harmonized inflation (standardizing the consumer basket across countries), shows how most developed countries have experienced similar inflationary trends, with regions such as the E.U. and the U.K. surpassing 10% annual inflation.[12]

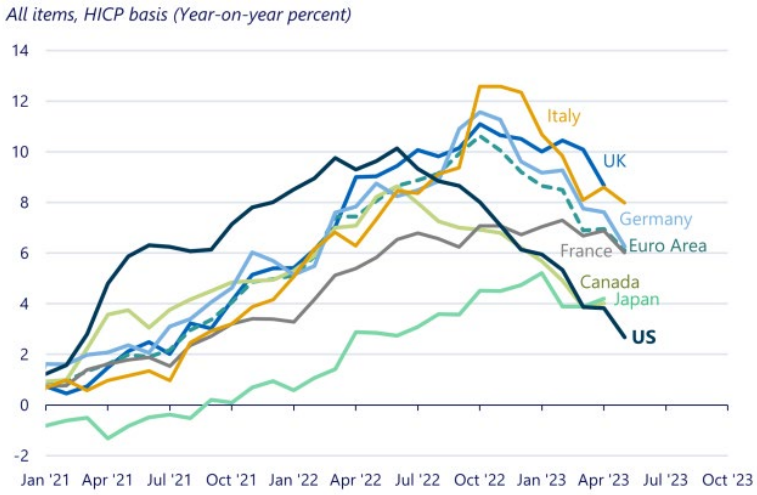


Figure 3

This inflationary trend seen in Canada and globally can be explained by a combination of factors, both from the demand and supply side. With the start of the pandemic and ensuing lockdowns, consumer demand largely shifted away from services to goods, putting pressure on strained supply chains as they struggled to keep up with increased global demand. As a result, prices began to markedly increase, exacerbated further by surging consumer demand after lockdowns were lifted. Russia's invasion of Ukraine in February 2022 added to this price surge, pushing up commodity prices which are a key input in numerous products and services.[13] Like in many other countries, rising energy prices (+22.5% in 2022), transportation costs (+10.6% in 2022), and food prices (+8.9% in 2022) were the major drivers behind Canada's accelerated CPI increases.[14]

While inflation continues to be historically high globally, falling commodity prices and recovering global supply chains are helping to cool inflation, especially over the past few months. These changing macro factors coupled with the Bank of Canada raising rates from just above 0% to 5% in just over a year have brought Canada's inflation closer to the desired 1-3% target range.[15] However, core inflation metrics are still elevated, with CPI-common rising 4.8% year-over-year and CPI-median and CPI-trim increasing 3.7% and 3.6%, respectively, as of July 2023. These three core inflation gauges have remained relatively stable since May 2023 and have not fallen as much as the comprehensive CPI metric.[16]

Inflation Expectations and Implications

Even though inflation has slowed in 2023, there is still concern surrounding continued high inflation in Canada. Many economists are expecting inflation to remain above recent historical levels for longer than expected, and the Bank of Canada recently forecasted inflation reaching its target of 2% by only mid-2025, six months later than previously forecast. Rising housing costs along with continued excess demand amongst Canadian consumers are keeping inflation elevated, even as the central bank continues to raise its policy rate to levels not seen in decades.[17] [18]

According to a recent survey by the Bank of Canada, businesses still expect to raise prices more than normal over the next 12 months. Although labour shortages have eased in recent months, businesses expect wage growth to remain strong, putting further upward pressure on prices. Figure 4 shows when Canadian businesses expect inflation to fall back to the Bank's 2% target. Over 40% expect that inflation will decrease closer to 2% by at least 2026, compared to 20% last year at this time. Clearly, there is still significant uncertainty about future levels of inflation, with several businesses expecting high inflation to persist until 2028 and beyond.[19]

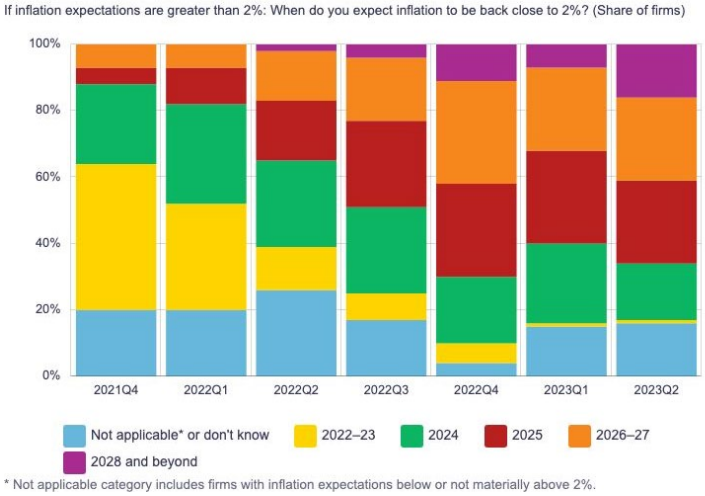


Figure 4

Structural Inflation and Other Inflationary Pressures

There is a non-trivial possibility that inflation remains elevated in the long term. Some economists predict that larger structural changes such as climate change and increasing trade barriers will continue to push up inflation in Canada and around the world for several years, and even decades, to come.[20]

The effects of the pandemic have accelerated these global structural changes. A marked decrease in globalization with more reshoring of production may boost goods inflation in the long term, which has typically been lower than services inflation in Canada, except since the pandemic. Additionally, an aging global population may continue to add to the labour imbalances and shortages experienced as a result of the pandemic, driving inflation from the supply side. Finally, the energy transition fueled by climate change will cause immense changes to both Canada and the global economy, as resources become limited and demand and supply relationships become imbalanced.[21]

One worrying implication of these new global inflationary trends is that the Bank of Canada's interest rate hikes may become less and less effective at controlling inflation. For example, if the price of energy is driven up by decarbonization regulation and net-zero commitments, or by tightening trade barriers or geopolitical conflicts, raising domestic interest rates may do little to bring these costs down. As one Canadian economist puts it, interest rate hikes are "not going to make it rain in Brazil", in reference to rising imported food costs that have caused a surge in Canadian grocery bills.[22]

Impact on Demand for Inflation Protection

As high inflation causes a surge in the cost of living across Canada, millions of Canadians are increasingly concerned about the impact that inflation will have on both their current situation and their retirement. According to a survey by Fidelity Investments Canada, 60% of older Canadians have already delayed their retirement as of late last year as inflation erodes the value of their savings and makes living with reduced income all the more uncertain.[23]

Recent surveys show that rising cost of living is a concern for 70% of Canadian pre-retirees, up 15% from 2021, and the threat of income not keeping up with inflation is a concern for 66%, up 17% from 2021.[24] Given these concerns, nearly 70% of Canadian workers would prefer taking a lower pay in exchange for a better pension during retirement, even as current costs significantly rise, demonstrating the increasing demand for inflation protection and retirement security.[25] Clearly, inflation resiliency is still top of mind for the millions of Canadians that rely on pension savings to support their retirement.

Pension indexation was introduced in Canada and the United States in the 1970s following the period of high inflation spurred by the oil crisis.[26] Today, there is again a high demand from pensioners for inflation protection given the high inflation experienced following the pandemic. Apart from the federal government's indexed CPP and OAS pensions, the majority of Canadians do not have reliable and inflation-protected income that can sufficiently support their retirement goals.

Retirement Plans in Canada and the Importance of Decumulation

Retirement planning can be split into two main phases: accumulation and decumulation. The accumulation phase, which occurs in the years before retirement, is focused on saving and building wealth for retirement. Investments in this phase are geared towards capital growth and strategies are often more long term in nature. The goal of the decumulation phase, which occurs during retirement, is to determine how to best invest and more importantly withdraw the capital saved during the accumulation phase. Unlike the accumulation phase, decumulation strategies should be combined with investment plans that are focused more on capital preservation and inflation protection so that retirees have access to a sustainable income stream for the entirety of their retirement from their accumulated capital.[27]

Retirement Income Sources Available in Canada

There are three main sources of retirement income in Canada, with the first being publicly administered pension plans. The most notable of these government plans is the Canada Pension Plan (CPP), which is designed to replace one-fourth of the average earnings of Canadian workers throughout their retirement. This defined benefit pension is fully indexed to CPI and provides retirees with income for life. While the standard age to start receiving CPP benefits is 65 years old, an individual can choose to start receiving payments as early as 60 years old or as late as 70 years old. Benefits are reduced by 7.2% each year CPP is taken before 65 and increased by 8.4% each year CPP is taken after 65.[28] Two other important federally-operated plans are the Old Age Security (OAS) Program and the Guaranteed Income Supplement (GIS). These operate similar to the CPP, but provide lower monthly benefits on average and are subject to clawbacks depending on an individual's income in retirement.[29]

The second main source of retirement income for Canadians is employment-based pension plans, which include DB, DC, and hybrid-type plans. Defined benefit plans have long reigned as the most common type of pension plan offered by employers to employees in Canada. In this arrangement, employees are entitled to guaranteed benefits for life during retirement based on a prescribed pension benefit formula. The most typical plan would offer employees a retirement benefit equivalent to 2% of their best or final average earnings for each year of service to the company. For an employee with a 35-year tenure, this would mean a pension equal to 70% of salary guaranteed throughout retirement, which is also frequently indexed to inflation.[30]

While still common in the public sector, defined benefit plans have drastically declined in popularity amongst private sector employers over the past two to three decades, with only 9.3% of private sector workers covered by a DB plan, down from 20.3% in 2001.[31] Many private sector companies have chosen to opt for defined contribution plans for their employees, where both the employer and employee contribute a defined amount each year to be invested for retirement. Unlike defined benefit plans, employees are not guaranteed any form of income during their retirement with DC plans.[32]

DB and DC plans can be thought of as at the extreme ends of the pension spectrum. With DB plans, the employer bears the full risk and responsibility of retirement planning, whereas with DC plans, the employee fully bears this risk and responsibility. For managed defined contribution plans such as MLPP, while this risk still falls on the employee, some of the responsibility is shifted away from the employee as they are no longer responsible for self-directing their retirement investment portfolio, leaving these decisions instead to MLPP's management. This feature means that MLPP and other managed DC plans are not exactly at the extreme end of the pension spectrum, but rather more towards the middle. Pension schemes with characteristics of both DB and DC plans are known as hybrid plans, which have grown significantly in popularity amongst Canadian employees and employers. Many of these hybrid plans are created with the intention of sharing the risks and responsibilities of retirement planning amongst employees, employers, and plan managers, to various degrees.

The third pillar of the Canadian retirement system is personal retirement savings, where individuals have the opportunity to grow their investments tax-free to prepare for retirement. There are a variety of tax-advantaged accounts available to Canadians, including registered retirement savings plans (RRSPs) and tax-free savings accounts (TFSAs). These private savings vehicles are designed to provide income during retirement. For example, RRSPs must be converted to a registered retirement income fund (RRIF) when an individual is between 65-72 years old, meaning that individuals are required to withdraw a minimum percentage of their accumulated savings each year. These minimum withdrawal rates increase progressively, reaching a high of 20% for those 95 and older.[33]

The Need for Decumulation in DC Pension Plans

In the past, both accumulation and decumulation concepts were less important in the retirement planning of many individuals since DB pensions provided virtually guaranteed, inflation-indexed income for life depending on an individual's years of service to their employer. Now, as defined contribution plans have become the pension scheme of choice for private employers, individuals have to ensure that 1) they have enough money for retirement, and 2) this money is put to best use and will last throughout the entirety of their old age. While managed defined contribution plans such as MLPP have significantly helped prepare individuals for retirement during the accumulation phase by taking responsibility of investment decision making, there are still limited options for retires entering the decumulation phase.

Many DC pension plans in Canada are starting to see a wave of baby boomers that need to decumulate billions in retirement assets over the next couple of decades. With inflation and market uncertainty at top of mind for these current and soon-to-be retirees, many are unsure how to properly decumulate their assets during retirement, even if they have accumulated a large amount of savings. Recent studies from the U.S. show that retirees are increasingly turning away from markets and putting their retirement savings into cash, which due to inflation may be an even riskier investment in the longer term.[34] For those under managed defined contribution plans like MLPP, one of the biggest challenges for retirees centres around budgeting the appropriate amount for withdrawals to ensure they will be making the most out of their accumulated savings.

In addition to the research shared in prior sections, data from the Canadian Public Pension Leadership Council shows that nearly all Canadian survey respondents (97%) would prefer a predictable retirement income and 90% would be willing to pay more for it. These responses are consistent across all age groups, demonstrating the high demand for modern pension options that provide protection against factors such as high inflation that simple accumulation-focused DC plans cannot adequately provide.[35]

Current Decumulation Patterns Amongst Retirees

As soon as individuals retire, the focus should switch relatively quickly from accumulation to decumulation strategies. However, research compiled by BlackRock demonstrates that an overwhelming majority of retirees continue to remain in the accumulation mindset, sometimes for the entirety of their retirement. Across all wealth levels, current retirees on average were found to still have 80% of their pre-retirement savings nearly two full decades after they retired. Additionally, over one third of retirees grew their total assets during their retirement, ending up with more wealth than when they stopped working. These patterns demonstrate that many retirees' deeply rooted behavioural biases regarding the importance of saving and accumulating wealth may limit them from drawing down capital and enjoying their hard-earned savings during retirement. Figure 5 shows the percentage of assets remaining after 17-18 years of retirement across different wealth levels.[36]

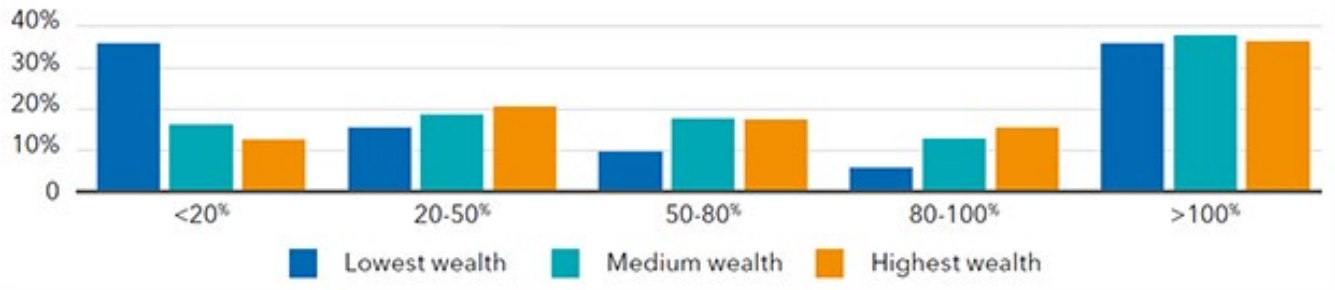


Figure 5

A key issue is that retirees do not know how to effectively decumulate their savings. The average registered retirement savings account (RRSP) balance for those about to enter retirement (ages 55-64) is just over $350,000, which doesn't include the amount held in defined contribution pension plans like MLPP.[37] The requirement to withdraw a minimum amount of retirement savings each year as explained above helps ensure Canadians are progressively decumulating their assets as they age. However, a study conducted by SunLife found that around one-third of Canadians choose to only take the minimum withdrawals from their RRIFs, meaning that these retirees may still see their capital grow through retirement if investment returns are strong or withdrawals are not spent.[38]

Benefits of MLPP's Decumulation Proposal

MLPP's proposed product will bring several benefits to retirees. First, by providing a guided withdrawal strategy, the product will help individuals to effectively decumulate their savings.

Second, by managing retirees' pension savings through one decumulation product, MLPP can take advantage of the benefits associated with investing large amounts of longer-term capital. For example, MLPP will be able to seek investments in alternative and more illiquid asset classes that offer higher risk-adjusted returns and inflation protection since there is no risk that members will withdraw their money early from the decumulation fund.

Third, members will not have to convert 100% of their accumulated savings into the new product. Instead, members will have the freedom and flexibility to choose what allocation they are comfortable with depending on their current and future needs. For example, a new retiree who would like to keep more of their pension savings in a cash-like investment to prepare for upcoming expenses can choose to only invest 70% of their capital into the new decumulation fund. In the future, the retiree could always invest more in the new fund as their needs change. This flexibility is advantageous to those who are not comfortable with investing all their savings into one particular product.

Key Trade-Offs for MLPP

Given the many complex trade-offs associated with the development of a decumulation product, it is difficult to determine the correct strategy that MLPP should pursue. Below are some of the key questions and trade-offs that are pertinent to consider when building MLPP's decumulation proposal.

Should the product commit to full plan indexation even if it lowers current benefits?

With inflation still at high levels in Canada, retirees are concerned that rising prices will erode their purchasing power during retirement. However, fully indexing payments to CPI can prove costly if withdrawals start too high and capital is drawn down too fast, leaving retirees with no savings in their later years.

Several funds have implemented more flexible indexation policies to address this issue. For instance, the Ontario Municipal Employees Retirement System (OMERS) has a capped inflation adjustment of 6% above which excess inflation is carried forward to later years when inflation is lower, thus allowing for the fund to smooth out increased payments.[39] Other pension funds such as the Colleges of Applied Arts and Technology (CAAT) Pension Plan and the Ontario Teachers' Pension Plan (OTPP) have conditional inflation indexation, which provides cost-of-living adjustments to retirees only when the plan can afford it.[40] [41]

Your team is encouraged to investigate innovative alternatives for withdrawal payment indexation. This can include, for example, indexing to a proportion of a multi-year moving average CPI, which would allow for more flexibility and smoothing out payments over time. However, the fundamental question remains: should MLPP decumulate retirees' assets at a low initial withdrawal rate with full indexation or at a higher initial rate with little to no indexation, or something in between?

Should the product preserve retiree purchasing power or their relative income position?

Indexing to CPI allows retirees to maintain their purchasing power, and is thus the method of choice for large and well-funded Canadian pension plans.[42] Also, because wages tend to grow faster than prices in normal times, CPI indexation may be more cost effective for pension funds compared to an indexation mechanism based on wage increases. However, when prices soar during inflationary periods as seen in the past couple of years, indexing to CPI becomes more costly than anticipated. Wage indexation in these scenarios could provide an attractive alternative since this indexation metric aims to maintain the relative income position of retirees. Although MLPP itself will not incur any costs related to cost-of-living adjustments or indexation, it still needs to ensure that its chosen methodology provides retirees with real, inflation-protected income. With these different options available, should withdrawal payments be adjusted in line with prices, wages, or a mix of both?

Examples of global adjustment metrics can be found in Figure 6 on the next page. Pension indexation methodologies vary significantly from country to country.

Country	Targeted Adjustment
Australia [43]	Highest of prices or cost of living for pensioners
France [44]	Prices, although not always indexed
Germany [45]	Wages
Japan [46]	Prices for those aged 68+, wages otherwise, with curbing mechanism
New Zealand [47]	Prices and periodically net average wage increase
Norway [48]	50% wages, 50% prices
United Kingdom [49]	Highest of prices, wages, or 2.5% (“triple lock”)

Figure 6

Should the fund sacrifice expected returns to hedge inflation directly?

Treasury Inflation-Protected Securities (TIPS) are issued by the U.S. government and hedge against inflation since the principal value of TIPS increases in conjunction with CPI. However, while they offer a direct hedge, TIPS are expensive and often yield negative real returns during normal periods.[50] Therefore, should a pension structure guarantee inflation protection using TIPS, the plan would need to start with lower initial payments to afford this guarantee.

For Canadian pension funds like MLPP, matters are further complicated. Late last year, the Canadian government decided to no longer issue Real Return Bonds (RRBs), the Canadian equivalent of TIPS, citing low demand. [51] An alternative way to hedge Canadian inflation is by using U.S. TIPS. However, this would form an imperfect hedge when Canadian inflation and U.S. inflation diverge, which has been the case over the past couple of years, as shown in Figure 7. In 2022 for instance, average annual inflation was 6.8% in Canada versus 8.0% in the U.S.[52] [53] Additionally, investing in TIPS exposes Canadian funds to currency risk.

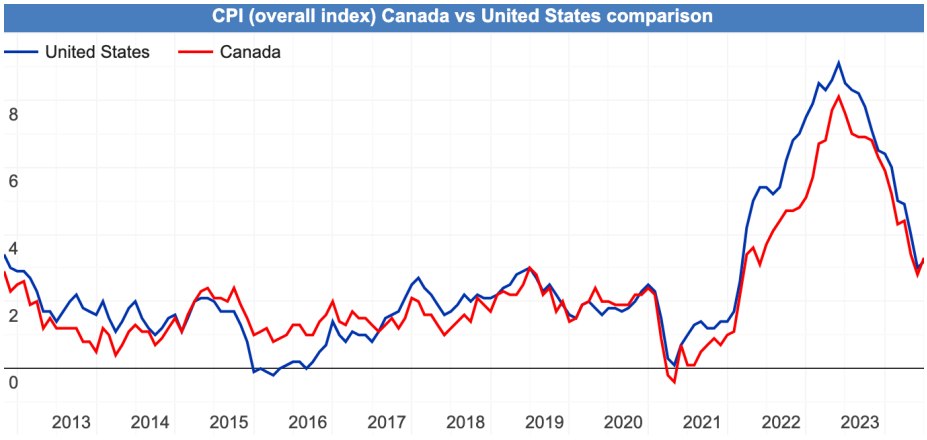


Figure 7

How should the fund navigate inflation exposure from different asset classes?

Another challenge is to identify the mix of assets that achieves optimal risk-adjusted returns and protection during times of high inflation. An overview of some asset classes that could potentially be used to construct an “inflation-resistant” portfolio is given below.

Alternative Investments

According to a recent survey by the Official Monetary and Financial Institutions Forum (OMFIF), half of large, global public pension funds plan to increase their exposure to alternative investments.[54]

- Real assets include infrastructure and real estate. These assets have historically offered an effective although imperfect hedge against inflation. Real assets also provide diversification benefits. However, these assets are less liquid given large transaction sizes, extended development times, and lack of central exchanges. Funds with exposure to real assets would need to manage their liquidity carefully to prevent a sudden need to sell.

- Although not as clear-cut as real assets, private equity may be able to provide inflation protection in times of rising prices. For example, private equity investors could target companies with more pricing power and market leadership, which have the ability to pass on prices to customers during periods of high inflation.[55] This being said, the long-term nature of private equity deals may mean that these inflation hedging benefits are not captured until farther into the future.

- Similar to private equity, private credit is an increasingly popular asset class that provides more direct inflation protection to pension funds. Many private debt contracts are tied to floating rates such as the LIBOR or SOFR, which often increase during inflationary periods.[56] However, lending in international markets using non-Canadian floating rates results can result in an imperfect inflation hedge.

Commodities

Commodities can offer direct protection against high and unexpected inflation. However, commodity prices are highly volatile and dependent on demand and supply factors, which may be idiosyncratic and hard to predict.[57]

Derivatives

Derivatives such as inflation swaps can be used to hedge directly against inflation. An inflation swap is a contract that transfers inflation risk from one party to another, with a pension fund typically paying a fixed rate cash flow in exchange for receiving cash flows linked to an inflation index. While appealing, these instruments carry counterparty risks, may be expensive, and may not be liquid.[58]

How should the fund maintain adequate diversification?

Another challenge is that stock and bond correlations tend to increase during periods of high inflation and high future inflation expectations. Long-term inflation has historically been an important driver of changing stock/bond correlations since rising inflation directly raises expected future short rates and inflation-related bond risk premiums, hurting bonds, while simultaneously raising the discount rate used in equity valuation, hurting stocks. As a result, when inflation is low, stock and bond correlations are negative, but when inflation remains elevated for long periods, correlations tend to turn positive.[59]

This effect has major implications for portfolio construction because the diversification benefits of holding equities and fixed income are diminished. 2022 was a perfect example of positive stock/bond correlations, as both stocks and bonds suffered significantly, proving difficult for investors employing traditional 60/40 “diversified” portfolios.[60] As such, what strategies should funds put in place to maintain a diversified portfolio across public asset classes? Would these strategies decrease returns?

Illustrative Examples of Decumulation Pathways

Given the many complex trade-offs and challenges associated with building an inflation-resilient decumulation product, how can MLPP create the most effective decumulation product? The following section outlines three possible proposals that demonstrate some of the trade-offs and complexities that arise during the decumulation phase. Each of the three proposals shows how the chosen withdrawal and investment strategy affect the hypothetical retiree's decumulation fund balance. Specifically, we plot for each proposal two possible scenarios based on realized portfolio return and inflation dynamics. Withdrawals are plotted in real terms. For simplicity, CPP and OAS defined benefit pension payments, as well as other potential sources of income, are ignored in the simulations.

We emphasize that these proposals are highly simplified and shown strictly for illustrative purposes. James Brown is looking to receive from your team a more sophisticated set of recommendations that will ultimately guide the design of the decumulation product.

Model Inputs

Initial Decumulation Fund Balance: The retiree is age 65 and has contributed $750,000 into MLPP's new decumulation product.

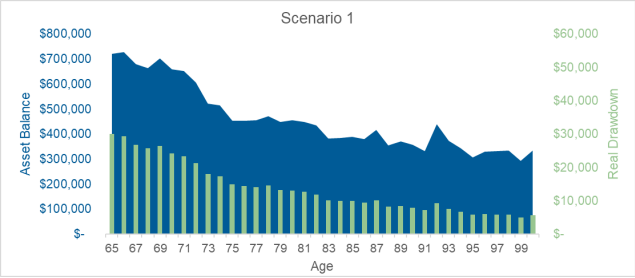
Balanced Portfolio: The annual portfolio return is assumed to follow a normal distribution with a mean of 5% and a volatility of 10%.

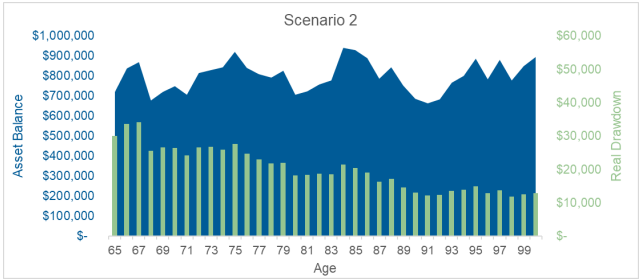
Inflation: Annual inflation is assumed to follow a normal distribution with a mean of 3% and a volatility of 1%. Inflation is measured using the year-over-year change of the Consumer Price Index (CPI).

TIPS: For simplicity, yearly nominal returns on TIPS are assumed to equal the inflation rate minus 0.5%.

Proposal 1: 4% Constant Withdrawal Rate, 100% Investment in Balanced Fund

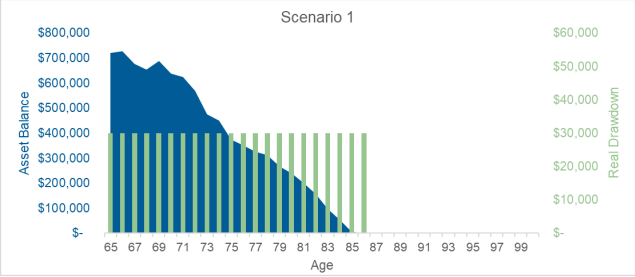
The first proposal is a simple drawdown of 4% of the fund balance each year – a commonly used strategy in decumulation – combined with a 100% investment in the balanced fund. The withdrawal rate is not linked to any inflation metric and stays at 4% regardless of the realized portfolio return. As can be seen in the figures below, real withdrawals tend to decrease over time but fluctuate significantly from one year to the next. Final asset balances can increase over time since the portfolio's expected return of 5% is higher than the 4% drawdown rate.

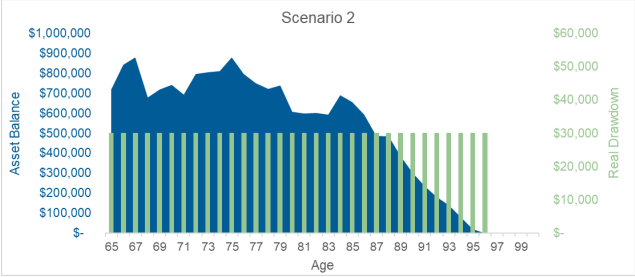




Proposal 2: 4% Original Withdrawal Rate, Full Indexation, 100% Investment in Balanced Fund

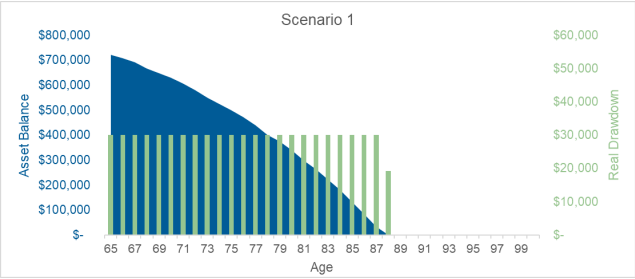
The second proposal builds on the first, keeping the same asset allocation and initial withdrawal percentage of 4%, but adds an indexation mechanism that adjusts withdrawals upwards by inflation experienced in the prior year. Because of the sustained indexation of the withdrawals, the capital is drawn down faster. However, because the capital in invested in risky assets, there is uncertainty about the date at which the capital runs out. In the figures below, the capital runs out at age 85 in scenario 1 but extends to age 95 in scenario 2. This shows that adding an indexation mechanism that is indexed to CPI is costly. A higher rate of return or a lower initial withdrawal is required if the retiree wishes to have more capital in the later stages of retirement.

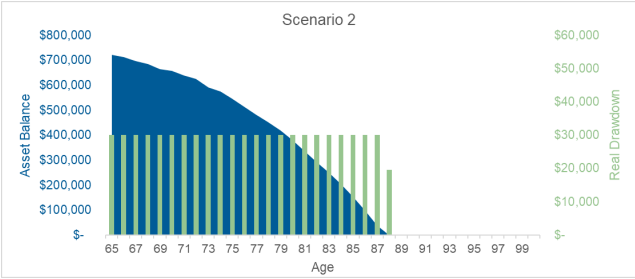




Proposal 3: 4% Original Withdrawal Rate, Full Indexation, 100% Investment in TIPS

Similar to the second proposal, the third proposal provides retirees with fully-indexed income to maintain their real purchasing power. To support this full indexation policy directly, the decumulation fund is invested 100% in TIPS. Since TIPS have a lower return than the balanced portfolio, affording this 4% withdrawal combined with full indexation is possible only until the retiree is 87 years old. The benefit of investing in TIPS is that they provide a perfect hedge against inflation risk, which removes uncertainty about the withdrawal amount and the date at which capital runs out. Both scenarios below are identical.





These proposals are only a starting point. Your team is encouraged to look into other methods of decumulation, such as incorporating a target end date to retirement, utilizing more dynamic and flexible withdrawal rules and indexation strategies, and building a more comprehensive portfolio. A retiree's other sources of income, such as CPP payments, can also be considered in strategic planning of the decumulation phase. James Brown and MLPP's leadership team are keen to hear your insights.

Report Guidelines

For their proposals, participants should submit a 1-page executive summary and a detailed report. The report should not exceed 7 pages (excluding the executive summary, references, and appendices). Participants are free to format the report as they wish (i.e. no required font, margin, spacing ,etc…) The report will be evaluated based on its content, clarity, presentation, and conciseness.

The submission should not contain any indication of the participants' university to avoid any bias from the judges. Instead, participants should create an alternative team name for their investment consultancy firm working with MLPP. The alternative name should also bear no link to the team's university name nor location to ensure fairness amongst participants of the competition.

Participants are expected to propose a comprehensive decumulation product for MLPP that outlines both the withdrawal and investment strategies. The case is designed to be open-ended. Participants should feel free to make assumptions wherever needed and use any data they see fit. All facts presented in the case merely act as guiding points, so participants are free to incorporate only the sections that they need.

We strongly recommend that participants take a look at the 1) pedagogical notes about past winning proposals available on the MIPC website, and 2) the post-mortem documents from previous MIPC editions. These documents will give participants many clues as to what judges look for in winning proposals.

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