VIEWPOINT

After the global financial crisis – The five key risks to retirement income

EXECUTIVE SUMMARY

Sharply falling stock markets during the global financial crisis and recession of 2008–2009 led to a great deal of emotional distress and uncertainty among Canadian investors – particularly older Canadians who depend on their savings for income to support the lifestyle they've worked for and deserve in retirement.

As the population ages and the provision of workplace pensions has declined, it is more important than ever for Canadians to recognize the financial risks we face in retirement and to create an objective written plan to mitigate those risks. The good news is that these risks can be managed.

In 2005, Fidelity Canada published a paper identifying the five key risks to retirement income. In the wake of the 2008–2009 crisis, we have revisited those risks, and found that they remain as relevant today as they were then.

Five key risks to retirement income planning

Longevity Canadians are leading longer and healthier lives, which means they need to plan for a retirement lasting 20 or 30 years or even longer.

Inflation Retirees need investment portfolios capable of keeping up with inflation. The fiscal and monetary stimulus used to fight the recession has provoked concerns about higher inflation. Even if the modest 2% inflation average of the past 20 years continues, it could erode the purchasing power of retirement income by 40% over a 25-year retirement. Asset allocation The 2008–2009 crisis heightened anxiety about the stock market. But historically equities have provided long-term growth that is critical to a retirement plan. A diversified portfolio that includes stocks, bonds and cash helps provide growth and protection against market volatility.

Withdrawal rate Increased market volatility highlights the need for conservative withdrawal rates. Fidelity's research indicates that retirees who make annual inflation-adjusted withdrawals of more than 4–5% of the original value of their portfolio at retirement run the risk of running out of money. Health care In the 2010 Fidelity Retirement Survey, retirees listed health concerns as one of the top reasons they retired. Individuals need to understand what health care costs are and are not covered by government health care programs, and what their own needs could be, and plan accordingly.

A written retirement income plan incorporating strategies to manage these risks can bring peace of mind and allow retirees to focus on the things they enjoy most, be it reading good books, volunteering, travelling, golfing, gardening – or, yes, even working, but at a job they want to do rather than have to do.





After the global financial crisis – The five key risks to retirement income

From the peak of the Canadian stock market in June 2008 to the trough in March 2009, the market declined by about 50%. Even as markets have rebounded from their lows and the global financial crisis and economic recession of 2008–2009 recede into memory, some noticeable scars remain.* These scars were caused not just by the drop in global markets but also by the events that precipitated it. Many of these centred on failed credit and risk assessment (mostly avoided in Canada), and most came as an unpleasant surprise, even to the most sophisticated investors. While the full brunt of the crisis was not felt in Canada, we continue to see investors looking for concrete evidence that the recovery is on the right trajectory, both here and abroad.

In the wake of the 2008–2009 crisis, with retirement savings having declined, and for some investors trust in the basic principles of investing having been shaken, the question about how to fund one's retirement has become an even more emotional issue than it would have been otherwise. Investors experience a larger emotional effect from losses than from gains (about 2.5 times as much), and those in or approaching retirement are more vulnerable to market volatility than younger people with longer planning time horizons.¹

One of the best ways to counteract the effects these emotions can have on our investment decisions and ability to cope with market volatility is to create a written retirement income plan. In 2005, Fidelity Canada published a paper examining the five key risks to retirement income that all investors need to include in their retirement plans. Given the breadth and depth of the crisis, it is worth revisiting the five key risks to see how they can be managed to provide secure retirement income.

The five key risks are longevity, inflation, withdrawal rates, asset allocation and health care costs.

It is especially important for all Canadians to learn how to protect their retirement as the country's population ages and as workplace pensions become increasingly less common.

*From this point forward the 2008–2009 global financial crisis and economic recession will be referred to as the 2008–2009 crisis.

The age wave – What happens when the largest generation in history retires?

The 2008–2009 crisis arrived as Canada was beginning to face its largest demographic challenge in history. The birth of the "baby boom" generation and the lower fertility rates that followed have resulted in an aging Canadian population.

A significant portion of our population is, or will soon be, focusing on funding retirement, as the largest generation in Canadian history – the 10 million baby boomers born between the years 1946 and 1965 – enters retirement.² In 2011, the first baby boomers will reach 65. This group is particularly vulnerable to volatility in stock markets, which can affect both their total retirement savings and, almost as important, the consistency of the retirement income generated from their nest egg. A shortfall may force changes to lifestyle, work and family plans.

Demographic changes

Today more than four and a half million Canadians, or just over one in eight, are 65 and over.

- Every day, approximately 1,000 Canadians turn 65.
- The biggest increase in the number of Canadians over 65 will occur over the next 10–20 years.
 Eventually those over 65 will account for about onequarter of the population (see Exhibit 1).³



Exhibit 1 – Canadian population 65 and over

Source: Statistics Canada, CANSIM, table 051-0001, Population by sex and age group. Statistics Canada, "Population by age group and sex, medium-growth – historical trends (1981 to 2008) scenario (M1), Tables 11-1 and 17," May 2010.

Changes in pension coverage

At the same time, individuals are increasingly being forced to shoulder the burden of their own financial security in retirement. There is widespread discussion about reforming Canada's retirement income system in order to reverse declining pension coverage. But that process will likely take a number of years. In the meantime, for many people approaching retirement, planning has become an individual responsibility. As highlighted in Exhibit 2, the percentage of workers covered by a registered pension plan has fallen dramatically since the early 1990s.

Even those who are covered by pensions may be feeling less certain of their financial future. Traditional defined benefit plans, in which the percentage of preretirement income that will be replaced is generally known in advance, are becoming less popular. Defined contribution plans, in which employees

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are required to take greater responsibility for enrolment and investment decisions, and hybrid plans, a combination of defined benefits and defined contributions, are becoming increasingly common.

On the national front, public policy discussions about improving Canada's retirement system have begun. In December of 2010, the federal government proposed introducing Pooled Registered Pension Plans (PRPPs). A PRPP would be a contributory pooled pension plan intended for employees without access to a company pension plan and for those who are self-employed. Businesses and the organizations who manage their pensions are also examining the lessons of the market meltdown to discover how they can make their employees' retirements more secure.

Companies in the financial services industry are working to develop new and flexible ways for investors to maintain a financially comfortable retirement.



Exhibit 2 - Percentage of employees covered by a registered pension plan

Source: Statistics Canada, "Pension plans in Canada and Labour Force Survey."

Fidelity Investments Canada has contributed to the public debate at several national conferences, discussing changes to Canada's retirement system that would make retirement savings vehicles more available and more attractive to Canadians and improve the financial health of retirees.⁴ Ultimately, though, Canadians will have to rely more and more on themselves when planning for retirement income above and beyond their government pensions.

Changes to CPP

The Canada Pension Plan (CPP) is an important part of a Canadian worker's retirement income. The plan aims to replace about one-quarter of an employee's average career earnings, up to a certain amount (\$11,520 is the maximum possible annual CPP benefit in 2011, if taken at age 65). CPP protects against longevity risk, because it provides a guaranteed annual income for life, similar in some ways to a defined benefit pension plan. It also protects against inflation risk, because the payments received are adjusted upwards for inflation on a yearly basis. Most importantly, Canadians today know that CPP will be there for them when they retire. The 24th Actuarial Report of the Canada Pension Plan found that it is on a sound financial footing for the next 75 years.

For those who intend to draw on CPP in the near future, it's important to understand changes that are being phased in starting in 2011.

1. Taking CPP early or late. Canadians can take CPP as early as age 60 or as late as age 70. CPP payments are currently reduced by 0.5% for every month (6% per year) before age 65 that a person receives benefits. Payments are increased by 0.5% for every month after age 65 that benefits begin. With increasing longevity, however, this arrangement was no longer actuarially fair to the plan. To correct the imbalance, the penalty for starting early will increase to 0.6% per month, and the reward for delaying will increase to 0.7%.

The table at right gives an approximate idea of how this change could affect the payments someone could receive, based on 2011 rates.

- 2. **CPP payments while still working.** Individuals will no longer have to stop working in order to start receiving CPP. Instead, they can start partial payments to supplement their earnings or shift more gradually into retirement. However, they and their employers must continue to contribute to the plan.
- 3. **Higher average earnings.** In order to reach a fairer estimate of a person's career earnings, 15% of the lowest income years are dropped when calculating how much that person is eligible to receive from CPP (about seven years for someone who worked from 18 to 65). That percentage will gradually increase to 17% in 2014 (taking roughly an extra year of low earnings out of the calculation), which would generally increase the annual CPP benefit.

In the 2011 Quebec budget, it was announced that the Quebec Pension Plan (QPP) will be phasing in similar changes.

Exhibit 3 – Annual Canada Pension Plan benefits

Old rules vs. new rules based on age when benefits begin

AGE	OLD RULES	NEW RULES		
60	\$8,064	\$7,373		
61	\$8,755	\$8,202		
62	\$9,446	\$9,032		
63	\$10,138	\$9,861		
64	\$10,829	\$10,691		
65	\$11,520	\$11,520		
66	\$12,211	\$12,488		
67	\$12,902	\$13,455		
68	\$13,594	\$14,423		
69	\$14,285	\$15,391		
70	\$14,976	\$16,358		

Source: Department of Finance, Information Paper on Proposed Changes to the Canada Pension Plan, May 25, 2009. Hypothetical illustration based on the maximum rates for 2011. Only examines fully phased in changes to the actuarial adjustment before and after age 65.

The five key risks to retirement income

Each year, increasing numbers of Canadians are shifting to a new phase in their lives, from wealth building – saving and investing – to retirement income – drawing on those savings to provide income for the rest of their lives. In doing so, they face a number of uncertainties. How long will their savings last? What kind of lifestyle can they afford? How will market fluctuations and other unpredictable factors affect their capital? How will their health factor into all of this?

Planning for all the eventualities requires an understanding of the five key risks that can threaten retirement income:



Even though these are risks to retirement income, they need to be considered well before the onset of retirement, as well as during retirement. The consequences of ignoring them can be long-lasting. Yet all of these retirement income risks can be managed, provided people understand them and take action by creating sound plans for post-retirement income.

individual's situation

1. Longevity risk

This risk boils down to a simple sentence: "You need to plan for the possibility that you may live longer than you think." The 2008–2009 crisis depleted many retirement savings accounts at a time when Canadians are living longer than past generations, yet many have ambitions to retire earlier than their parents, making this issue more important than ever.

Most people underestimate how long a retirement they need to plan for. As Exhibit 4 shows, a man who has reached age 65 has a 50% chance of living to age 83 and a one-in-four chance of living to 89. For a 65-year-old woman, those odds rise to a 50% chance of reaching age 86 and a one-in-four chance of living to 92. The odds that at least one member of a 65-year-old couple will live to 90 are 50%. And there is one chance in four that one member of that couple will live to 94. In addition, many people

retire before 65 (the median retirement age in Canada is about 62⁵), further increasing their potential time in retirement.

In thinking about longevity risk, people should be aware that there are important general

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trends in the longevity of Canadians. Statistics Canada has found that life expectancy at birth rose by about six years for men and four years for women between 1980–82 and 2005–07.6 Of course, these life expectancy figures are averages. While some will not live as long as the average, others will live much longer. People entering retirement need to consider the possibility that they may live another 20, 30 or even 40 years, perhaps spending as much time in retirement as at work. Without planning, a longerthan-expected life could easily result in individuals or couples outliving their savings.

THE BOTTOM LINE: For many, the severe market decline during the 2008–2009 crisis increased the risk of outliving their money. As active, healthy lifestyles and medical advances continue to extend life expectancy, people approaching retirement age will have to consider how early they can afford to retire and plan for the very real possibility that they'll need 25 to 30 years of post-retirement income.





Source: Canadian Institute of Actuaries, UP-94 Projected to 2015.

2. Inflation risk

Rising consumer prices cause retirement savings to lose purchasing power. That can have a significant effect on the value of income from traditional pension plans, as well as eroding the value of assets set aside to meet expenses. In Fidelity's 2010 Retirement Survey, inflation was identified by both retirees and non-retirees as their number one financial concern in retirement.⁷

Provided it is low and predictable, inflation isn't necessarily a bad thing for the economy. Modestly rising consumer prices are often an indication of economic expansion. But there is a large difference between low, wellcontrolled inflation and large and unpredictable price increases.

Since the Bank of Canada began to set a target for inflation in 1991, increases in the consumer price index have averaged a little less than 2% per year⁸ – virtually in the middle of the 1% to 3% target band set by the Bank of Canada.

Currently, the very stimulative monetary and fiscal policies used to deal with the 2008–2009 crisis and its aftermath – rock-bottom interest rates, liquidity support to financial markets, large increases in government spending – have raised the concern in many retirees' and investors' minds that we will see a protracted period of much higher inflation. In fact, central banks and governments

What is inflation?

There are several measures of the change of prices of goods and services in Canada, but the Consumer Price Index is the one most widely used.

It measures monthly changes in a basket of approximately 600 goods and services that are typically purchased by a Canadian family. (See Exhibit 5 for breakdown of the components of total CPI.)⁹ The Bank of Canada also looks at a slightly stripped-down version of the Index, in which the prices of eight of the most volatile components are left out: items such as fruit, vegetables and gasoline.

It's not that the Bank of Canada ignores the price changes of these items. Instead, it is trying to get at the underlying inflation trends, and to avoid changing the benchmark interest rate unless there is a good reason.

A good example is the spike in oil prices in the spring of 2008 and the sharp drop later that year. Since the spike in the price of oil was temporary, it wouldn't have been appropriate for the Bank of Canada to raise its benchmark interest rate in response.

Often, people's perception of inflation doesn't seem to correspond with the reported data. One of the main reasons is that none of us actually buys the whole basket of goods and services – all 600 of them – in an individual month. So our personal experience doesn't necessarily coincide perfectly with the CPI. Put another way, the CPI is not a personal cost-of-living index. But over any period of time, the behaviour of the CPI is a good indication of the price changes we face.





Source: Weighting diagram of the Consumer Price Index – 2005 basket at April 2007 prices, Canada, provinces, Whitehorse and Yellowknife. Statistics Canada. Weights have been rounded.



Exhibit 6 - Even low inflation can damage purchasing power

* \$54,104 was the annual average expenditure for a senior couple both age 65+, according to the Statistics Canada Survey of Household Spending in 2009 report. All other numbers were calculated based on hypothetical 2, 3 and 4% rates of inflation to show the effects of inflation over time; actual inflation rates may be more or less. Source: Fidelity Investments Canada ULC.

are well aware of this potential danger and are likely to act to prevent a run-up in inflation. Nevertheless, there is always a risk that public policy might not be able to keep inflation well controlled.

But even in the best of scenarios, inflation in Canada would probably still continue at the same 2% average annual rate of the past 20 years. Inflation, in other words, is the norm rather than the exception. This makes it essential to choose investments that have the potential to beat inflation – especially over the longer lifetimes that today's retirees can anticipate. As Exhibit 6 indicates, even a relatively low inflation rate of 2% can have a significant impact on a retiree's purchasing power. At a 2% inflation rate, the \$54,104 spent by the average senior Canadian family in 2009 would only buy \$32,978 in 25 years. Put another way, if you purchase \$32,978 worth of goods today, you would need \$54,104 to buy the same goods 25 years from now.

By factoring inflation into retirement income planning, retirees have a better chance not only of maintaining their lifestyle in times of average inflation but weathering periods of higher inflation, if and when they occur. **THE BOTTOM LINE:** Inflation is a big concern for many retirees. High inflation, such as that experienced in the 1970s, is unlikely, provided the Bank of Canada continues to take the measures that have proved successful over the past two decades. But even a continuation of the modest 2% annual inflation rate of the past 20 years will significantly erode retirees' purchasing power if not planned for.

3. Asset allocation risk

Asset allocation refers to the mix of equities, bonds and short-term liquid investments (sometimes referred to as cash) that investors hold in their portfolio. Investors need to select a mix of investments that both meets their risk profile and has the best chance of providing the income necessary to meet their needs for as long as they live – in other words, an investment portfolio that is both productive and built to last.

In the wake of the 2008–2009 crisis, there have been questions about generally accepted principles of asset allocation. While market downturns are always cause for pause, and approaches to investing can always be refined, the prescription for retirement investing hasn't changed: retirees need to balance equities, which have high potential returns but can also experience volatility, with fixed-income investments. which tend to exhibit less volatility, but also offer lower potential returns. In some cases, investors may wish to revisit their risk profile in the wake of the recent market downturn. However, they must balance any apparent reduction in portfolio risk against the long-term history of the stock market.

Investment needs change with age

Investors with longer time horizons can wait out the inevitable ups and downs of the stock market, adjusting their savings strategies to get them back on track.

Exhibit 7 shows the performance of the S&P/TSX Composite Index over the past 41 years. Although the market declined by more than 20% on seven different occasions, it grew substantially over the long term. In fact, the market grew about 46-fold over the past 41 years, an important point to remember for those facing longer retirements.¹⁰

But retirees and those close to retirement age will tend to have less time to recover from downturns. That is why financial advisors recommend investors with a shorter investment horizon or lower risk appetite have a more conservative mix of

Exhibit 7 – S&P/TSX Total Return Index, January 1970 – December 2010



9.9% annualized return, or 46 times your investment

The eight up-periods average 52 months and 148% return; seven down-periods (greater than 20% decline) average 11 months and -33% return. Based on the S&P/TSX Composite Total Return Index including dividend reinvestment between January 1, 1970, and December 31, 2010. Uses monthly frequency.

Sources: Morningstar EnCorr.

Understanding the attributes of correlations to lower risk

Investors can use the properties of asset classes to build a diversified investment portfolio that meets their needs. One such property is correlation. The correlation coefficient is a statistic (or number) that measures the linear relationship between two investments' historical returns. A +100% correlation between two asset classes or securities means that they have historically moved in lockstep. A correlation of -100% means they moved in opposite directions, while a correlation of zero means that there is no linear relationship between them. Investors should consider low correlation among asset classes in a portfolio in order to get greater diversification. Doing so will lower the risk that all their investments will act in the same way at the same time. In other words, investors want asset classes that zig when others zag.

The tables below show the correlation coefficients among Canadian, U.S. and international equities, and Canadian bonds and cash, during the past 30-year period.

Two things are clear. First, over the 30-year period, there was little correlation between equities and fixed income. That means that combining these asset classes can offer significant diversification benefits, because they are unlikely to go up or down in value at the same time. These benefits are captured in balanced portfolios that blend equities and fixed income and are less volatile than all-equity portfolios. Second, as expected, the correlation between cash and equities is close to zero, indicating no relationship between the two, because cash holds its value regardless of the market's direction. But cash offers less return potential than other asset classes.

It is important to note that Exhibit 8 highlights the 30-year, longer-term correlation numbers. During the financial crisis, global equities became more highly correlated, because they all sold off at the same time. This was also the case during other market sell-offs highlighted in Exhibit 7, when the S&P/TSX Composite retreated by over 20% on seven occasions. While equities can be quite volatile, differences among countries and economies can allow investors to take advantage of global equity diversification over the longer term.

	CDN CASH (SHORT-TERM SECURITIES)	CANADIAN BONDS	CANADIAN EQUITIES	U.S. EQUITIES	INTERNATIONAL EQUITIES	EMERGING MARKET EQUITIES
CDN CASH (SHORT- TERM SECURITIES)	100%					
CANADIAN BONDS	15%	100%				
CANADIAN EQUITIES	-5%	26%	100%			
U.S. EQUITIES	5%	18%	64%	100%		
INTERNATIONAL EQUITIES	1%	14%	51%	57%	100%	
EMERGING MARKET EQUITIES	6%	12%	61%	54%	58%	100%

Exhibit 8 – Correlation between asset classes 1981–2010

Understanding the correlation table: An asset has a correlation of 100% with itself. Any number under 100% indicates imperfect correlation and an opportunity to reduce risk in combining the assets. For example, from January 1981 to December 2010, the risk as measured by standard deviation of the S&P/TSX Composite Index was 15.9% and 16.1% for the MSCI EAFE Index, in Canadian dollar terms. A portfolio of 50% S&P/TSX Composite Index and 50% MSCI EAFE Index in Canadian dollars had a standard deviation of 13.9%. The 51% correlation between the two asset classes created a portfolio with less risk than the individual risks. Had the correlation been 100%, the combined portfolio would have had a standard deviation of 16%.

Source: Morningstar EnCorr. Asset classes are represented by the following indices – Canadian cash: DEX 91-day T-Bill Index, Canadian bonds: DEX Universe Bond Index, Canadian equities: S&P/TSX Composite Total Return Index; U.S. equities: S&P 500 Total Return Index; international equities: MSCI EAFE Total Return Index; emerging market equities: MSCI Emerging Market Total Return Index. In Canadian dollars. equities and bonds. At times, the wealth-building plans of those preparing for retirement can be set back – and, in some cases, their retirements delayed – if their portfolios are over-concentrated in stocks when there is a significant market correction.

At the same time, given what we know about life expectancies and the effects of inflation, most retirees will need the growth that equities have historically provided in order to fund their retirements. (This is especially important during and immediately after bear markets, when many anxious retirees may be tempted to sell most or all of their equity holdings.)

Each individual's portfolio must be designed with these risks in mind. Most retirees will need to put at least some of their portfolio into equities. Not to do so would be, in itself, a risky strategy.

Balance and persistence

So even in retirement, it seems, the key to long-term success is

Monte Carlo simulations

Part of the analysis used to evaluate asset allocation risk and withdrawal rate risk employs a statistical method called Monte Carlo simulations to estimate the longevity of a portfolio under various capital market conditions. This involves historical performance simulations conducted to determine the probability that a portfolio may experience a certain minimum level of performance. In this paper, we refer to both a 50% confidence level, which is indicative of average market conditions, and a 95% confidence level, indicative of an extended down market – the small probability of several years of adverse market conditions. For more about Monte Carlo simulations, see the appendix on page 20.





Source: Morningstar EnCorr. Assumes a balanced portfolio rebalanced monthly. 50% S&P/TSX Composite Total Return Index, 35% Dex Universe Bond Index and 15% Dex 91-day T-Bill Index. In Canadian dollars.

most likely in a more balanced portfolio – neither all stock, which may carry too much market risk for some investors, nor all bonds and cash, which may have less potential for upside appreciation.

Events – and market behaviour – in 2008 and 2009 underline the point. Exhibit 9 illustrates how the value of a balanced portfolio would have fallen in the 2008–09 market correction. But it also shows how the portfolio's value would have bounced back if the investor had stayed the course.

Asset allocation's role in providing income in retirement is examined further in Exhibit 10. It illustrates how long a portfolio is likely to last at a 5% inflation-adjusted annual withdrawal rate, with different asset allocation strategies. (Withdrawal rates are discussed in greater detail in the next section.) Using Monte Carlo simulations, we have projected the length of time a portfolio may survive under both extended down market conditions and average market conditions. Not surprisingly, as a portfolio's potential for volatility increases, the length of time it may survive in a down market decreases. For example, the most aggressive



Exhibit 10 - The trade-offs of different allocation strategies at a 5% inflation-adjusted withdrawal rate

Source: Fidelity Investments. Hypothetical value of assets held in an untaxed account invested in a portfolio with asset mixes as indicated. Average rates of return on Canadian stocks, U.S. stocks, international stocks, bonds and short-term investments are based on the risk premium approach. Please refer to the Important Legal Information page for additional information. Actual rates of return may be more or less. A constant inflation rate of 2% is assumed; actual inflation rates may be more or less. This chart is for illustrative purposes only and is not indicative of any investment. Past performance is no guarantee of future results.

of the portfolios illustrated, composed of 85% equities, may only last 17 years in a down market scenario, versus 20 years for a conservative portfolio. However, being too conservative may not allow a portfolio to grow enough to last for a lifetime. Under average market conditions, a conservative portfolio may only last 26 years, versus a projected 37 years for the most aggressive portfolio. A moderate portfolio appears to strike a balance between preserving capital during down markets and providing potential for continued growth during retirement. Even if it seems counterintuitive, especially after the 2008–09

equity downturn, historical asset class returns suggest retirees need some stocks for the long haul.

During the 2008–2009 crisis, it was tempting to completely flee equities for the security of fixed income, and unfortunately some investors did so, crystallizing their paper losses in equities and missing the huge runup that followed as the stock market recovered. They have experienced the painful lesson that it is difficult to anticipate when significant stock market downturns and rebounds will occur. Few investors are successful at market timing, and none do it well consistently. The 2008–2009 crisis highlighted the

importance of a well-diversified portfolio whose asset allocation is in line with an individual's time horizon, risk tolerance and specific needs.

THE BOTTOM LINE: Asset

allocation, the mix of equities, fixed income and cash in an investment portfolio, is crucial for every investor. Market volatility during the financial crisis of 2008–09 highlighted the risk of getting the mix wrong. Increasingly longer retirement planning horizons – reflecting greater awareness of longevity risk – make holding some equities vital in the asset mix for portfolios intended to provide retirement income.

4. Withdrawal rate risk

The annual rate of withdrawal from a retirement portfolio - the amount a person takes from savings each year - can dramatically affect how long a portfolio will last. Too low a rate can result in an unnecessarily low standard of living, while too high a rate raises the danger that the portfolio will not last long enough. Like asset allocation, this risk to retirement income is largely within the retiree's control: withdrawal rates can be adjusted to take into account the savings accumulated, volatility in the markets, a person's age

and health, the desire to leave a financial legacy and many other variables.

Age is one of the most important variables: keeping the withdrawal rate lower early in retirement increases the likelihood that a portfolio will last the required time.

Determining the right rate

Achieving an appropriate withdrawal rate depends partly on good preparation well before the actual retirement date. Those preparing for retirement should periodically project the value of their portfolio at retirement

Exhibit 11 - Impact of withdrawal rates on a portfolio

Number of years a portfolio may last, based on percentage of assets withdrawn each year (95% confidence level, 50% equity portfolio)



Source: Fidelity Investments. Hypothetical value of assets held in an untaxed account invested in a portfolio of 30% Canadian stocks, 10% U.S. stocks, 10% international stocks, 35% bonds and 15% short-term investments with inflation-adjusted withdrawal rates as specified. Average rates of return on Canadian stocks, U.S. stocks, international stocks, bonds and short-term investments are based on the risk premium approach. Please refer to the Important Legal Information page for additional information. Actual rates of return may be more or less. A constant inflation rate of 2% is assumed; actual inflation rates may be more or less. This chart is for illustrative purposes only and is not indicative of any investment. Past performance is no guarantee of future results.

and the income that could be generated, and compare that with projected expenses in retirement. Variables such as savings rate, retirement date and retirement expectations can then be adjusted.

As Exhibits 11 and 12 demonstrate, retirees need to carefully consider just how much they can really afford to withdraw. Exhibit 11 shows how long a balanced portfolio of 50% stocks, 35% bonds and 15% short-term instruments would last if its owner withdrew between 4% and 10% a year of the original value of the portfolio (adjusted upwards annually to keep up with inflation). When creating this exhibit, numerous possible return scenarios were considered at a 95% confidence level (e.g., assuming an extended down market).

Exhibit 11 shows that at a 10% inflation-adjusted withdrawal rate, a retiree could only count on the portfolio lasting eight vears. At a 4% withdrawal rate, however, the investment portfolio would last for at least 25 years – long enough to provide a 65-year-old with an income stream to age 90. Moving that rate up to just 6% would risk exhausting those assets by age 80, an age that a majority of 65-year-olds are expected to see.¹¹ Therefore, retirees should carefully consider their withdrawal rate, especially in their early retirement

Exhibit 12 - Prudent withdrawal rates can extend the life of a portfolio

If a couple retired in 1972 with \$500,000



Source: Morningstar EnCorr. Probabilities of a couple surviving to various ages are based on UP-94 Projected to 2015 from the Canadian Institute of Actuaries. Please refer to the Important Legal Information page for additional information. This chart is for illustrative purposes only and is not indicative of any investment. Past performance is no guarantee of future results. This hypothetical illustration assumes an untaxed account of \$500,000 invested in a portfolio of 30% Canadian stocks, 10% U.S. stocks, 10% international stocks, 35% bonds and 15% short-term investments with inflation-adjusted withdrawal rates as specified. The exhibit uses historical monthly performance from January 1972 through December 2010: Canadian stocks, U.S. stocks, international stocks and short-term investments are represented by S&P/TSX Composite, S&P 500 (CAD), MSCI EAFE (CAD), and DEX 91-Day T-Bill Index, respectively. Bonds are represented by DEX Long Bond Index prior to January 1980 and DEX Universe Bond Index from January 1980 forward.

years. If their portfolios hold up well as they age, retirees may then decide to increase their withdrawal rate without putting their future income at risk. (Fidelity considers a 4% to 5% inflation-adjusted annual withdrawal rate a good benchmark for determining the appropriate rate for an individual.)

Exhibit 12 looks at the effect that a range of inflation-adjusted withdrawal rates would have had on a \$500,000 portfolio of 50% stocks, 35% bonds and 15% short-term investments over the period from 1972 to 2010. This period includes the great bull market of the late 20th century – roughly 1982 to 2000. But it also encompasses three of the worst bear markets in history, five recessions, the inflationary outbreak (also one of the worst in Canadian history), the painfully tight monetary policy of the late 1970s and early 80s and the 2008–2009 crisis. This exhibit uses the actual historical returns over that period. At a 6% withdrawal rate, the initial pool of \$500,000 would have been exhausted by 1990. A 65-year-old couple who retired in 1972 with this portfolio would face more than an 83% probability of having one member survive to see those assets completely drained away. withdrawal rates and longevity are interrelated. It also shows the power of equities, given enough time, and the critical importance of selecting withdrawal rates that give the investor the opportunity to benefit from those powerful returns.

A 4–5% withdrawal rate does not offer magical security or assure asset immortality. But it is clear that higher rates begin, fairly quickly, to increase the risk of outliving one's retirement savings. The risk of outliving one's investments rises significantly with withdrawal rates over 4–5%. Retirees should consider a conservative withdrawal rate in the early years of their retirement. Those who have planned wisely and preserved their investments may be able to increase their withdrawal rates later in retirement, with less risk of depletion.

With a more modest 5% withdrawal rate, the portfolio could have continued to generate income for over 28 years. But it still would have run out when there was a 31% chance that one member of the couple would still be alive. In stark contrast, a 4% withdrawal rate – \$20,000 in the first year, then adjusted upwards in later years for actual, historical inflation - would have done more than just sustain the asset pool. It would have left enough assets intact to benefit strongly from the long bull market that began in 1982. Indeed, this portfolio would actually have increased to \$2.4 million at the market crest in 2000 before falling back to just about \$2 million by the end of 2010.

This exhibit illustrates how the risks of inflation, market volatility,

During the heady markets of the 80s and 90s, some came to believe that a withdrawal rate of 8%, 9% or even 10% was quite achievable. More sober times have, hopefully, created more realistic expectations. A 4–5% withdrawal rate does not offer magical security or assure asset immortality. Real-world outcomes depend on market performance, so a good financial plan in retirement must be flexible. But it is clear that rates over 4–5% begin, fairly quickly, to increase the risk of outliving one's retirement savings.

THE BOTTOM LINE: The degree of volatility experienced during the crisis may have led some retirees to rethink how much they can safely withdraw from their savings on a yearly basis.

5. Health care expenses

Lively debate about whether and how Canadians could afford their current health care system was underway long before the 2008–2009 crisis erupted. Now additional government spending used to fight the recession has increased the strain on government financial resources. Even as federal and provincial governments work to reduce their deficits, the increased health care costs associated with the aging of the Canadian population will put government finances under pressure over the next decade. Whatever policies emerge, it behooves the Canadian citizen approaching retirement to understand what the current health care system does and doesn't cover and what options he or she may want to save for. Particularly since Canadians age 65 and over accounted for over 44% of all government spending on health care in 2008, despite representing only about 14% of the population.¹²

Public versus private

Government health plans for older Canadians cover basic needs such as visits to doctors, hospital in-patient services and most prescription drugs. Government programs also cover part of the cost of longterm care, as well as some community health services. That still leaves many items and services that are not covered, and eligibility criteria such as age, income and level of illness or disability also determine what and how much individuals receive.

Health care costs paid for by individuals generally fall into three categories:

- more of certain services than are available through government plans, for example, more nursing or rehabilitation care, in order to stay at home
- enhanced services such as a private room in a retirement home or an electric wheelchair rather than a manual one
- different services than those available through government plans, for example, drugs that are approved for sale in Canada but not available through government drug benefit programs

What are the potential costs?

While there is not a lot of data readily available about the specific private health care expenses of older Canadians, studies by the Canadian Institute for Health Information show health care costs for the overall population is split 70/30 between the two sectors, public and private (out of pocket or by a private insurance plan).¹³ Exhibit 13 shows that the cost of dental care, prescription drugs and stays in nursing homes and other longterm care facilities makes up about 57% of total private out-ofpocket health care costs.

While the ratio between private and public health care spending has remained fairly stable in recent years, and may well remain so, the real costs to individuals are rising. The cost of the privately funded portion of health care expenses was expected to rise 5.5% in 2009 and 5.7% in 2010, well in excess of overall Canadian inflation.¹⁴

Exhibit 13 – Breakdown of private out-of-pocket health care expenses for the total population in Canada



Source: Canadian Institute for Health Information (CIHI), "National Health Care Expenditures 1975 – 2010," 2010. Note: Figures have been rounded.

Allowing for long-term care

One of the most important and potentially expensive issues is long-term care. One research paper on the topic states that close to half of retirees now turning 65 will be admitted to long-term care facilities at some point in their lives. Nearly 25% will stay there one year or more, and almost one in ten will stay five years or more.¹⁵ Others may stay at home but need assistance. Government health programs pay only a portion of long-term care or assisted living costs, unless retirees have no assets of their own. So if the individual is not financially prepared, there can be significant financial hardship for the individual and/or the family.

Retirees and those approaching retirement should take a close look at long-term care (LTC) and critical care insurance. An LTC policy may pay most or all of the costs for stays in long-term care facilities, and many policies also pay for care at home or in other community settings.

The 2010 Fidelity Retirement Survey suggests that many Canadians already recognize the potential financial fallout of health problems in retirement. Fifty-two percent of non-retirees and 39% of retirees believe health care costs not covered by federal and provincial programs could deplete their savings and lower their standard of living. Retirees also list health concerns as one of the top reasons they retired.¹⁶ THE BOTTOM LINE: While health care expenses in retirement are difficult to predict, they should be included in retirement income planning. The combined burdens of government budget deficits incurred because of the 2008–2009 crisis and the increased health care costs of an aging population will put government finances under pressure over the next decade. Retirees should understand what is and is not covered by the health care system and realize that their responsibility for covering health care expenses may change over the coming years.

Conclusion

There is no question the global financial crisis and the economic recession of 2008–2009 caused both financial and emotional distress for Canadian investors, and older Canadians in particular. But it hasn't changed the risks to retirement income planning, which all Canadians need to consider. Rather, it has highlighted the need for greater individual risk assessment and the need for a written retirement income plan that incorporates strategies to mitigate the effects of those risks.

For retirees, this means that the five key risks to retirement income – longevity, inflation, asset allocation, withdrawal rates and health care costs – remain as relevant to retirement planning today as when Fidelity first discussed them in 2005.

If risks surrounding longevity, inflation and health care seem out of one's control, remember they can be managed with conservative withdrawal rates from savings and a diversified portfolio asset allocation that takes into account investment time horizon, risk tolerance and financial goals.

Governments and the financial services industry are working hard to improve the environment, planning tools and financial vehicles for saving, investing and drawing income for and in retirement.

A trusted financial advisor can provide an objective look at one's retirement plans and help with risk assessment and portfolio asset allocation.

Retirement shouldn't be a time for stress, but rather for enjoying the personal freedoms we worked hard to achieve. A sound, written financial plan is one of the most important steps to getting there.

The flaw of averages

In dealing with the five key risks, retirees need to recognize that they can no longer base their planning on long-term averages.

Typically, investors will consult historical average returns, and then project those averages out in a linear manner for 20 years or more. Provided they can stick to their plans and look past any short-term volatility, there will be plenty of time to correct mistakes and overcome any market downturns, arriving at retirement with the savings they need. Retirees, however, cannot afford to rely on the luxury of longterm results. Relying on a linear projection of average returns can create a misleading sense of security about a portfolio's chances of success. The real world of markets and investments is much more variable and unpredictable.

In retirement planning, relying on long-term averages is a bit like deciding to wade across a river based on the average depth: the average may be four feet, but that won't help you when you're in the middle of a section that's 12 feet to the bottom.

An alternative approach to planning uses Monte Carlo simulations, probability pattern generators that show the full range of possible results for a given portfolio.

Instead of a single answer based on historical average returns, such as "You can draw down 6% of your portfolio per year," a Monte Carlo simulation will examine hundreds of possible

Exhibit 14 – Building a retirement plan around average returns can give a false sense of security



Hypothetical 5% withdrawal rate, adjusted for inflation

Source: Fidelity Investments. Please refer to the Important Legal Information page for important information about the methodology used in this chart and for source and other information. Hypothetical value of assets held in an untaxed account of \$500,000 earning a hypothetical 5.45% rate of return with an inflation-adjusted withdrawal rate of 5% per year. A constant inflation rate of 2% is assumed; actual inflation rates may be more or less. The hypothetical 5.45% rate of return assumes a steady return throughout the entire period. This chart is for illustrative purposes only and is not indicative of any investment. Past performance is no guarantee of future results.

Exhibit 15 – Monte Carlo simulations can give a more complete picture

Hypothetical 5% withdrawal rate adjusted for inflation



Source: Fidelity Investments. Hypothetical value of assets held in an untaxed account of \$500,000 invested in a portfolio of 30% Canadian stocks, 10% U.S. stocks, 10% international stocks, 35% bonds and 15% short-term investments with an inflation-adjusted withdrawal rate of 5% per year. Average rates of return on Canadian stocks, U.S. stocks, international stocks, bonds and short-term investments are based on the risk premium approach. Please refer to the Important Legal Information page for important information about the methodology used in this chart and for source and other information. Actual rates of return may be more or less. A constant inflation rate of 2% is assumed; actual inflation rates may be more or less. The hypothetical 5.45% rate of return line assumes a steady return throughout the entire period. This chart is for illustrative purposes only and is not indicative of any investment. Past performance is no guarantee of future results.

future outcomes for a portfolio, based on past market actions or even on hypothetical events that range beyond past experience, and show the probabilities of reaching a specific goal.

These two ways of assessing a portfolio produce dramatically different results. For example, in Exhibit 14, we see a hypothetical illustration of a portfolio's performance over 30+ years, based on a 5% inflation-adjusted withdrawal rate and assuming that historical average returns of 5.45% occur smoothly.

The implication is that this portfolio will likely deliver a

reliable income stream over that period. And it might. In fact, it might return even more. But running the same portfolio with the same withdrawal rate through a Monte Carlo simulation model tells a dramatically different story, as demonstrated in Exhibit 15, because the simulation uses hundreds of possible historical returns for the portfolio and shows a very wide range of possible outcomes.

More importantly, it shows that in real market conditions, this portfolio, which looked rocksolid, based on projecting past averages into the future, actually has only a 66% chance of delivering income for 25 years through age 90, and only a 46% chance of delivering income to age 95. Perhaps more troubling, it also has a significant chance of failing in less than 20 years, a possibility that a projection based on averages completely masks.

While it does not provide any specific investment solutions, working with Monte Carlo simulations gives retirees a much more realistic understanding of their financial situation and underlines the need for financial planning and flexibility, even in retirement.

Endnotes

- Investors react more strongly to losses than to gains: Hersh Shefrin, "Beyond Greed and Fear," 2002.
- ² Statistics Canada defines baby boomers as those born between 1946 and 1965: Statistics Canada, "The Daily: 2006 Census: Age and Sex," July 17, 2007.
- ³ Canadians aged 65 and over: Statistics Canada, CANSIM, table 051-0001, Population by sex and age group. Canadians 65 and over in 2061 (projection): Statistics Canada, Population by age group and sex, medium-growth – historical trends (1981 to 2008) scenario (M1), Tables 11-1 and 17, May 2010.
- ⁴ Institute for Research on Public Policy conference, "Avenues for reforming the Canadian retirement income system," Toronto, Ontario, May, 2010. Queen's University, "Retirement Policy Issues in Canada", Kingston, Ontario, October, 2006.
- ⁵ Median retirement age in Canada in 2009 was 61.6: Statistics Canada, Table 282-0051.
- ⁶ The change in life expectancy at birth between 1980–82 and 2005–07: Statistics Canada, "Life expectancy at birth, by sex, by province," April 16, 2010.
- ⁷ Inflation the top financial concern in retirement among non-retirees and retirees: 2010 Fidelity Retirement Survey.

- ⁸ Average annual inflation between April 1991 and April 2010 was 1.82%: Bank of Canada, May 2010.
- ⁹ Definition and components of the Consumer Price Index: Bank of Canada, May 2010.
- ¹⁰ Downturns in the S&P/TSX Composite Index: Morningstar Encorr, December 31, 2010.
- ¹¹ Life expectancy at age 65: Statistics Canada, "Deaths 2007," February 23, 2010.
- ¹² Health care spending in Canada: CIHI National Health Expenditure trends 1975 – 2010.
- ¹³ Ibid.
- ¹⁴ Ibid.
- ¹⁵ Roughly 50% of retirees turning 65 will be admitted to a long-term care facility, etc.: Brenda C. Spillman and James Lubitz, "New Estimates of Lifetime Nursing Home Use: Have Patterns of Use Changed?" Medical Care, Volume 40, Number 10, 2002.
- ¹⁶ Percentage of retirees and nonretirees who felt that health care costs will deplete their retirement savings and reduce their standard of living and percentage of retirees who retired due to health concerns: 2010 Fidelity Retirement Survey.

Important legal information

Exhibits 7, 8, 9, 10, 11, 12, 14 and 15 are not intended to project or predict the present or future value of the actual holdings in a participant's portfolio or the performance of a given model portfolio of securities. The calculations and results generated for Exhibit 12 are based upon historical performance analysis of the stated asset groups, goals and assumptions.

Investors may be charged fees when investing in an actual portfolio of securities, which are not reflected in illustrations using returns or market segments.

For Exhibits 10, 11 and 15, several hundred financial market return scenarios were run to determine how the asset mixes may have performed. For Exhibit 10, the average market and extended down market results are based on 50% and 95% confidence levels, respectively. The results for the average market highlight the number of years the hypothetical portfolio would have lasted in 50% of the scenarios. The results for the extended down market are based on a 95% confidence level highlighting the number of years the portfolio would have lasted in at least 95% of the scenarios generated.

For Exhibit 11, a 95% confidence level was used, indicating that the percentage of assets withdrawn annually could have been supported for the number of years noted in 95% of the historical scenarios that were generated.

The estimated returns for the stock and bond asset classes are based

on a "risk premium" approach. The risk premium for these asset classes is defined as their historical returns relative to a Canada tenyear benchmark bond. Risk premium estimates for stocks and bonds are each added to the ten-year benchmark bond yield. Short-term investment asset class returns are based on a historical risk premium added to an inflation rate which is calculated by subtracting the Canada Real Return Bond yield from the Canada ten-year benchmark bond yield. This method results in what we believe to be an appropriate estimate of the market inflation rate for the next ten years. Each year (or as necessary), these assumptions are updated to reflect any movement in the actual inflation rate.

Volatility of the stocks (Canadian, U.S. and international), bonds and short-term asset classes is based on the historical annual data from 1954 through 2009. Canadian stocks are represented by the S&P/TSX Composite Total Return Index from Morningstar EnCorr starting in 1970 and the Toronto SE-300 Total Return Index from Global Financial Data prior to 1970. U.S. stocks are represented by the S&P 500 Total Return Index from Morningstar EnCorr starting in 1960 and from Global Financial Data prior to 1960. International stocks are represented by the MSCI EAFE + EM Total Return Index from Morningstar EnCorr beginning in 1988 and the MSCI EAFE Total Return Index between 1970 and 1988. Prior to 1970 a synthetic EAFE that was constructed using individual EAFE country total returns from Global Financial Data.

weighted by historical gross domestic product for each country prior to 1970, is used. Short-term investments are represented by the DEX 91-Day T-Bill Index. Bonds are represented by the DEX Long Bond Index prior to January 1980 and the DEX Universe Index from January 1980 forward. Annual returns assume the reinvestment of interest income and dividends, no transaction costs, no management or servicing fees and the rebalancing of the portfolio every year.

For Exhibits 7, 8, 9, 10, 11, 12, 14 and 15, which highlight varying levels of stocks, bonds and shortterm investments, the purpose of the hypothetical illustrations is to show how portfolios may be created with different risk and return characteristics to help meet a participant's goals. You should choose your own investments based on your particular objectives and situation. Remember, you may change how your account is invested. Be sure to review your decisions periodically to make sure they are still consistent with your goals. You should also consider all of your investments when making your investment choices.



After the global financial crisis – The five key risks to retirement income

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