

Projection Assumption Guidelines

Institut québécois de planification financière (IQPF)
Financial Planning Standards Council (FPSC)

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1. INTRODUCTION

An important facet of the financial planner's work is to make a variety of projections (retirement needs and retirement income, insurance needs, children's education funding needs, etc.). In making projections, financial planners are bound by method, rather than results. The purpose of this document is to map out the assumptions to use in the preparation of these projections.

These Guidelines are intended as a guide and are appropriate for making medium- and long-term financial projections that are free from the potential biases of financial planners. Predicting the direction the economy will take and how financial markets will evolve is a difficult exercise requiring the integration of a large number of variables and highly sophisticated valuation models. To protect themselves and their clients, financial planners should deviate from these Guidelines when the client's own attributes justify doing so.

In all cases, sensitivity analyses illustrate the impact of changes in assumptions on the projections made.

a) Updating and useful life of the Guidelines

The Guidelines are updated annually in the spring. Although some of the assumptions set out in these Guidelines may change from time to time, this does not mean that projections based on previously published assumptions are no longer valid. In fact, projections are considered valid at the time of preparation.

b) Use of and compliance with the Guidelines

The use of and compliance with these Guidelines is strongly encouraged and should be disclosed using a statement such as the following:

- ♦ *Projection prepared using the IQPF and FPSC Projection Assumption Guidelines.*
- ♦ *Analysis prepared using the IQPF and FPSC Projection Assumption Guidelines.*
- ♦ *Study prepared using the IQPF and FPSC Projection Assumption Guidelines.*
- ♦ *Calculation made using the IQPF and FPSC Projection Assumption Guidelines.*

c) Effective date of the Guidelines

The Guidelines for 2015 come into effect on April 30, 2015.

2. CONSIDERATIONS FOR ESTABLISHING THE GUIDELINES

a) Use of external sources

These Guidelines were established using a variety of reliable external sources. They, therefore, reflect the range of analyses carried out in Canada and do not represent the individual opinion of the members of the task force, IQPF or FPSC.

Using numerous sources also eliminates the potential effect of bias that may be introduced by a single source.

b) Aim of stability

The fact that some of the sources used change less frequently than others – such as the assumptions used for the Quebec Pension Plan and Canada Pension Plan actuarial analyses – ensures the Guidelines will remain stable.

As well, to ensure that assumptions more closely reflect the underlying data and are more stable from year to year, we have moved from rounding to the nearest .25% (in the 2009 to 2014 IQPF Projection Assumption Guidelines) to rounding to the nearest .1%¹ for 2015.

c) Limitations

These Guidelines in no way represent a short-term prediction about future returns and should not be used for this purpose. The Guidelines are prepared for projections and analyses over several years (for example, retirement income projections or life insurance needs).

Because every case is different, projections or analyses based on assumptions that differ from the Guidelines may be used. However, justification of the differences should be provided to support the decision.

As an example, cost projections, such as for cost of education, that are impacted by local market differences may justify using an inflation rate that differs from the Guideline.

As well, in the context of immediate or imminent disbursements, the rate of return Guidelines may be set aside in favour of the real return on the investments held (such as guaranteed investments or bonds held to maturity).

In order to avoid publishing too many guidelines, these Guidelines cover only the main asset classes. Using the adjustment options in Section 3, financial planners can draw on the guidelines in Section 4 to work out other consistent assumptions (for municipal bonds, for example).

¹ By rounding to the nearest .25%, a 3.10% result would generate a guideline of 3.00%, while a result of 3.15% would generate a guideline of 3.25%. By rounding to the nearest .1%, a 3.10% result would maintain the guideline at 3.10%, while a result of 3.15% would generate a guideline of 3.20%.

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Accordingly, no guideline has been set for changes in the real estate market for the following reasons:

- ♦ Separate guidelines would have been required for residential, commercial and industrial buildings.
- ♦ A regional index would also have been necessary (the real estate market behaves differently in Montréal, Québec City, Toronto and Vancouver).

The use of an inflation-based assumption for real estate is appropriate, with a suitable explanation to the client on the sensibility of this approach.

3. ASSUMPTIONS SUBJECT TO THE GUIDELINES

Two types of assumptions are subject to guidelines: financial assumptions (inflation, changes in the year's maximum pensionable earnings (YMPE or MPE), short-term returns, returns on fixed-income securities, Canadian equity returns and borrowing rate) and demographic assumptions (life expectancy).

a) Inflation

This assumption is central to the preparation of long-term projections. The inflation assumption is made by combining the inflation assumptions issued by the following five sources (each weighted at 20%):

- ♦ assumption used in the most recent Quebec Pension Plan (QPP) actuarial analysis
- ♦ assumption used in the most recent Canada Pension Plan (CPP) actuarial report
- ♦ result of the Towers Watson annual portfolio managers' survey, weighted as follows: 1/15 of the short-term projection, 4/15 of the medium-term projection and 10/15 of the long-term projection
- ♦ general assumption of the Aon Hewitt (formerly Aon Consulting) index
- ♦ current Bank of Canada target inflation rate

The result of this calculation is rounded to the nearest 0.10%².

A discussion was also held about the use of separate inflation rates for older individuals or high earners. Two studies by Radu Chiru of Statistics Canada³ demonstrate that there are small differences in inflation for these two groups of Canadians as compared to others, but these differences are not deemed to be material.

i) Wage increases

The inflation assumption can be used to project wage increases by adding a maximum of 1.00% to reflect productivity gains, merit and advancement. In the QPP actuarial valuation as at December 31, 2012, a final margin of 1.10% between wage increases and inflation was applied.

However, where the client is reaching the end of his or her career or is in a position with no real chance of advancement, it may be wise to factor in a growth rate equal to or less than inflation.

² From 2009 to 2014, the calculations were rounded to the nearest 0.25% to obtain the guideline.

³ Is Inflation Higher for Seniors? (2005) Catalogue no. 11-621-MWE2005027 and Does Inflation Vary with Income? (2005) Catalogue no. 11-621-MWE2005030

ii) QPP and CPP parameter changes

In order to project increases in the year's maximum pensionable earnings (YMPE), the inflation assumption plus 1.00% should be used. QPP and CPP benefits grow with inflation.

b) Nominal returns (before fees)

Three return assumptions have been established, one for short-term investments (91-day T-bills), a second for Canadian fixed-income securities, and a third for total returns (including dividends) on Canadian equities. These assumptions represent gross nominal returns (including inflation).

These Guidelines were set by combining assumptions from the following sources (each weighted at 20%):

- ♦ assumption used in the most recent QPP actuarial analysis, weighted as follows: 50% of the medium-term assumption (2013 to 2022) and 50% of the long-term assumption (2023 and later)
- ♦ assumption used in the most recent CPP actuarial report (2019 and later)
- ♦ result of the Towers Watson annual portfolio managers' survey, weighted as follows: 1/15 of the short-term projection, 4/15 of the medium-term projection and 10/15 of the long-term projection
- ♦ general assumption of the Aon Hewitt (formerly Aon Consulting) index
- ♦ historic returns on these asset classes over the 50 years ending the previous December 31 (adjusted for inflation according to what follows).

The historical component is based on the S&P/TSX (Canadian equities) index, the DEX Universe Bond™ index (Canadian bonds), the DEX 91-day T-bill index and their predecessors. For the sake of consistency, the aforementioned indices expressed in real returns (returns reduced by the total CPI inflation index as published by the Bank of Canada) are increased by the future inflation assumption (before rounding) for this year.

The following considerations or adjustments are also applied:

i) Fixed-income securities

For the QPP and CPP fixed-income security assumption, a margin of 0.75% is deducted to convert a long-term bond assumption (theirs) into a traditional bond portfolio assumption.

ii) Canadian equities

For investments in Canadian equities, a safety margin of 0.50% is deducted from the result obtained by weighting the different sources in order to compensate for the non-linearity of the long-term returns.

iii) Foreign equities

The same assumption should be used for equities that are not Canadian. However, an additional annual return of a maximum of 1.00% could also be used. In terms of changes in the respective value of currencies, no guideline was set since the net long-term effect is generally nil.

iv) Type of equity return

In a non-registered investment environment, a projection must obviously take income taxes into account. For significant sums, it might be appropriate to divide the return into two categories: dividends and capital gains. Historically, from 25% to 50% of overall equity returns has been made up of dividends. It therefore seems reasonable to assume that 33% of the overall equity return will be made up of dividends and that the rest will be capital gains.

v) Guaranteed investment certificates (GIC)

A comparative analysis over more than 40 years reveals a slight premium for GICs over T-bills. An additional annual return of a maximum of 0.25% over the guideline for short-term investments could be used for five-year GICs.

c) Considerations concerning fees

The investment management fees paid by the client have to be subtracted to obtain the net return. Depending on the type of management the client uses (direct, pooled, private, etc.), these fees can easily range from 0.5% to 2.5%, except for GIC investments, since the fees are included in the rate. When the client's portfolio is made up of a wide variety of mutual funds with different management expense ratios, an average fee ratio per asset class may be used.

Finally, the assumptions are not adjusted to reflect the manager's potential to add value nor to underperform relative to the market.

d) Borrowing rate

A great number of factors influence the client's borrowing rate, such as the type of loan and the client's credit history. However, consider the following relationships:

- ♦ There is a very strong correlation between the target overnight rate and the 91-day T-bill rate.
- ♦ The bank rate is set by adding 0.25% to the target overnight rate.
- ♦ The prime rate is set by adding 1.75% to the bank rate.

For an individual with an average credit rating, the borrowing rate assumption is equal to the return assumption for short-term investments set out in paragraph b) plus 2.00% .

e) Life expectancy

All income projections representing disbursement of an asset must factor in the life expectancy of the individual at the current age. We therefore use a mortality table.

There are several different mortality tables, each based on a specific target group. The following factors are examples of target group characteristics:

- ♦ gender
- ♦ smoker or non-smoker status
- ♦ place of residence (e.g., province, country)
- ♦ evidence of good health (for life insurance pricing)
- ♦ being retired

The Statistics Canada Generation 1951 mortality table for Quebec (91F0015MPF) is used as the basis of calculation. Life expectancy is drawn from this table. However, using an individual's life expectancy as the target date for asset depletion is risky since about 50% of people will surpass this age, which means that 50% of people will outlive their capital.

We strongly suggest using an asset depletion age where the probability of survival is less than 50%. The minimum projection should be no more than a 25% survival risk. Other probabilities of survival are nevertheless proposed (from 10% to 50%) to allow financial planners to better illustrate their point for their clients.

Forecasting a longer disbursement period offers protection from future improvements in mortality. The Canadian Institute of Actuaries also published new mortality tables (CPM2014) in February 2014 that indicate an increase in life expectancy along with a narrowing of the gap between men and women. An analysis is underway to determine whether this new mortality table should be used to develop the 2016 guidelines.

The table below sets out the assumptions for 2015:

Life expectancy based on various survival risks

Age	10%			15%			20%			25%			30%			35%			40%			45%			50%		
	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
10	95	99	99	93	97	98	91	95	97	90	94	96	89	93	95	87	92	94	86	91	93	84	89	92	83	88	91
15	95	99	99	93	97	98	91	95	97	90	94	96	89	93	95	87	92	94	86	91	93	84	89	92	83	88	91
20	95	99	99	93	97	98	91	95	97	90	94	96	89	93	95	87	92	94	86	91	93	84	89	92	83	88	91
25	95	99	99	93	97	98	91	96	97	90	94	96	89	93	95	87	92	94	86	91	93	84	89	92	83	88	91
30	95	99	99	93	97	98	91	96	97	90	94	96	89	93	95	87	92	94	86	91	93	85	90	92	83	88	91
35	95	99	99	93	97	98	92	96	97	90	94	96	89	93	95	87	92	94	86	91	93	85	90	92	83	88	91
40	95	99	99	93	97	98	92	96	97	90	94	96	89	93	95	88	92	94	86	91	93	85	90	92	83	88	91
45	95	99	100	93	97	98	92	96	97	90	94	96	89	93	95	88	92	94	86	91	93	85	90	92	84	88	92
50	95	99	100	93	97	98	92	96	97	90	94	96	89	93	95	88	92	94	86	91	93	85	90	92	84	89	92
55	95	99	100	93	97	98	92	96	97	90	94	96	89	93	95	88	92	94	87	91	93	85	90	93	84	89	92
60	95	99	100	94	97	98	92	96	97	91	95	96	89	93	95	88	92	94	87	91	94	86	90	93	84	89	92
65	95	99	100	94	97	98	92	96	97	91	95	96	90	94	95	89	93	95	88	91	94	86	90	93	85	89	92
70	96	99	100	94	97	99	93	96	98	92	95	97	90	94	96	89	93	95	88	92	94	87	91	93	86	90	93
75	96	99	100	95	98	99	93	97	98	92	95	97	91	94	96	90	93	95	89	92	95	88	91	94	87	90	93
80	97	100	101	95	98	99	94	97	98	93	96	97	92	95	97	91	94	96	91	93	95	90	92	95	89	91	94
85	98	100	101	97	99	100	96	98	99	95	97	98	94	96	98	93	95	97	92	94	96	92	94	96	91	93	95
90	100	101	102	98	100	101	98	99	100	97	98	100	96	98	99	96	97	99	95	97	98	95	96	98	94	95	97
95	102	103	104	101	102	103	100	101	102	100	101	102	99	100	101	99	100	101	99	99	101	98	99	100	98	99	100
100	105	106	106	104	105	106	104	104	105	103	104	105	103	103	104	103	103	104	102	103	104	102	103	104	102	102	103

The table shows that a projection for a 65-year-old retiree is valid if the capital is not depleted before the age of 91 for a man and 95 for a woman (25% column). With a 65-year-old couple, the capital should last to the age of 96. The life expectancy for a couple illustrates the likelihood that one of the members will survive to this age.

It is important to remember that this table reflects the average mortality for the entire population. People who do not use tobacco, people from younger generations, people who are more financially comfortable, and people who have shown evidence of good health are more likely to be in the 10% survival group.

The use of tobacco has a significant impact on life expectancy. A Statistics Canada publication from 2001⁴ concludes that a 45-year-old smoker will survive 20% to 25% fewer years, depending on sex, than a non-smoker of the same age. This could be

⁴ Impact of smoking on life expectancy and disability <http://www.statcan.gc.ca/daily-quotidien/010622/dq010622a-eng.htm>

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taken into consideration by using the 30% column in the above table for smokers and the 20% column for non-smokers.

The above table is not the final word on survival risk, because there will always be some people who live a very long time. Since even planning until the age of 100 cannot eliminate the longevity risk, financial planners are encouraged to incorporate a “life annuity” component to take it into account.

4. GUIDELINES FOR 2015

The Projection Assumption Guidelines for 2015 are the following:

- a) **Inflation rate** 2.00%
- b) **Return rates**
 - Short term: 2.90%
 - Fixed income: 3.90%
 - Canadian equities: 6.30%
- c) **Borrowing rate** 4.90%
- d) **Growth of the YMPE or MPE** 3.00% (inflation + 1%)
- e) **Life expectancy** See table in 3 e)

5. SAMPLE APPLICATION

By way of example, for a projection prepared in 2015 for balanced portfolios broken down based on different scenarios in a mutual fund environment where the management expense ratios are variable, we could use the following return assumptions:

Portfolio return assumptions based on allocation				
Investor profile:		Conservative	Balanced	Aggressive
Allocation	Short term:	5%	5%	5%
	Fixed income:	70%	45%	20%
	Canadian equities:	25%	50%	75%
Gross return:		4.45%	5.05%	5.65%
Fees⁵:		1.61%	1.80%	1.99%
Net return:		2.84%	3.25%	3.66%
Rounded net return:		2.80%	3.30%	3.70%

Note that the results of all these calculations are rounded to the nearest 0.10%⁶. These assumptions also depend on the investor’s profile not changing over the years. If the profile is likely to change, it might be preferable to consider using an “average target allocation.”

Fees represented in the above table are for illustration purposes only. Net portfolio returns will depend on actual product and portfolio related fees.

⁵ Average management fees for a mutual fund based on annual fees of 2.25% for the Canadian equity portion and 1.50% for the fixed-income security portion.


⁶ The calculations were rounded to the nearest 0.25% from 2009 to 2014.

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6. FINANCIAL GUIDELINES FOR PREVIOUS YEARS

The following table lists the financial guidelines for previous years along with their effective dates (the current guidelines are shown for comparison purposes):

	Effective date	Inflation	Growth of the YMPE or MPE	Return			Borrowing rate
				Short term	Fixed income	Canadian equities	
2009	Feb. 17	2.25%	n/a	3.75%	4.75%	7.25%	5.75%
2010	April 12	2.25%	n/a	3.75%	5.00%	7.25%	5.75%
2011	April 8	2.25%	n/a	3.50%	4.75%	7.00%	5.50%
2012	April 12	2.25%	n/a	3.25%	4.50%	7.00%	5.25%
2013	April 30	2.25%	n/a	3.25%	4.25%	7.00%	5.25%
2014	April 25	2.00%	n/a	3.00%	4.00%	6.50%	5.00%
2015	April 30	2.00%	3.00%	2.90%	3.90%	6.30%	4.90%

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