



PWL

Expected Investment Returns

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1. Introduction

a. Background

This document is intended to provide up-to-date estimates of the expected returns of asset classes and portfolios for Canadian investors. The methodology underlying these estimates is outlined in a separate document¹.

b. What's an expected return?

An expected return is our best estimate of future investment returns over a 30-to-40-year time horizon. These estimates take into consideration current asset prices and asset class return history. We recognize that these estimates are subject to a substantial margin of error. We view them as a weighted average of all plausible scenarios, rather than a specific prediction.

In general, our expected return estimates are nominal, which means they are built upon an estimate of future Canadian inflation. In addition, our estimates do not take account of the trading costs and management fees.

c. What's in our investment portfolios?

We use market-cap weighted benchmarks to estimate expected returns. We form two global equity portfolios to produce asset mix expected returns; one with 20%, 40% and 40% allocated to Canadian, U.S. and international equity, and the second being split equally between all three asset classes.

Table 1: Asset Class Benchmarks and Global Equity Portfolios

Asset Class	Benchmark Index
Canadian bonds	FTSE Canada Universe Bond
Canadian equity	S&P/TSX60
U.S. equity	S&P500
International equity	MSCI EAFE & EM
Global equity 20-40-40	Combination of the equity indices above
Global equity 33-33-33	Combination of the equity indices above

¹ Bortolotti, Kerzérho. *Great Expectations: How to estimate future stock and bond returns when creating a financial plan*. PWL Capital, 2019.

2. Asset Class Return, Standard Deviation and Correlation Estimates

a. Inflation

The yield spread between fixed-coupon and real-return bonds has declined in recent years. We estimate Canadian CPI inflation at 1.3% over the coming 30 years.

b. Asset Classes

Table 2: Expected Returns and Standard Deviations of Asset Classes

	Expected Return	Expected Standard Deviation
Canadian Bonds	1.85%	4.1%
Canadian Equity	5.95%	14.6%
U.S. Equity	5.30%	12.5%
International Equity	6.70%	13.1%
Global Equity 20-40-40	5.99%	10.6%
Global Equity 33-33-33	5.98%	10.8%

c. Personal Residence

Based on global data dating as far back as 1628, Shiller (2006)² estimates long-term historical real home price appreciation at between 0.2% and 0.4% per annum. Jorda & al. (2017)³ estimates the real annual historical increase of home prices in 16 countries from 1870 to 2015 at 1.1%.

From 2001 to 2019, the S&P CoreLogic Case-Shiller U.S. National Home Price Index grew by a real annualized rate of 1.5%. The Teranet-National Bank Canadian Home Price Index increased by a real annualized rate of 4.8% in the last 20 years. Both the S&P and Teranet indices do not account for maintenance costs and special factors that buoyed price appreciation and may not repeat, in particular as regards the decline of five-year government bond yields from 4.6% to 0.4% in Canada, and from 4.3% to 0.4% in the U.S.

We estimate the expected price gains for personal residences at 0.5% per annum on a real basis and 1.8% on a nominal basis.

² Shiller, Irrational Exuberance, 2005

³ Jorda, Knoll, Kuvshinov, Schularick, Taylor, The Rate of Return on Everything, 1870–2015, working paper, 2017.

d. Correlations

Table 3: Asset Class Correlations

	Canadian Bonds	Canadian Equity	U.S. Equity	International Equity	Global Equity 33-33-33	Global Equity 20-40-40
Canadian Bonds	1.00	0.19	0.06	0.19	0.06	0.07
Canadian Equity	0.19	1.00	0.58	0.71	0.83	0.76
U.S. Equity	0.06	0.58	1.00	0.76	0.89	0.92
International Equity	0.19	0.71	0.76	1.00	0.90	0.93
Global Equity 33-33-33	0.06	0.83	0.89	0.90	1.00	0.99
Global Equity 20-40-40	0.07	0.76	0.92	0.93	0.99	1.00

3. Composition of Expected Asset Class Returns

The asset class return composition describes how the expected returns outlined in section 2 are distributed across interest and foreign dividend income, Canadian dividends, realized capital gains and unrealized capital gains.

By definition, these four components have different tax treatments. Thus, what is important from a financial planning perspective is not only the expected return of the portfolio, but also the composition of this expected return in order to project after-tax wealth.

$$\text{Return} = \begin{array}{l} \text{Interest income} \\ \text{and dividends} \\ \text{from foreign} \\ \text{corporations} \end{array} + \begin{array}{l} \text{Dividend} \\ \text{income from} \\ \text{Canadian} \\ \text{corporations} \end{array} + \begin{array}{l} \text{Realized} \\ \text{capital gains} \end{array} + \begin{array}{l} \text{Unrealized} \\ \text{capital gains} \end{array}$$

Table 4: Composition of Expected Asset Class Returns

Asset Class	Expected Return	Interest & Foreign Dividends	Canadian Dividends	Realized Capital Gains	Unrealized Capital Gains
Fixed Income	1.85%	1.85%	0.00%	0.00%	0.00%
Canadian Equity	5.95%	0.00%	2.91%	1.52%	1.52%
U.S. Equity	5.30%	1.25%	0.00%	2.02%	2.02%
International Equity	6.70%	1.98%	0.00%	2.36%	2.36%

4. Asset Mix Return and Standard Deviation Projections

Table 5: Return and Risk Projection Grid with Global Equity 20-40-40 Portfolio

Asset Mix (Equity/Bond)	Expected Return	Expected Standard Deviation	ESTIMATED RETURN COMPOSITION			
			Interest & Foreign Dividends	Canadian Dividends	Realized Capital Gains	Unrealized Capital Gains
0/100	1.85%	4.05%	1.85%	0.00%	0.00%	0.00%
5/95	2.06%	3.96%	1.82%	0.03%	0.10%	0.10%
10/90	2.28%	3.87%	1.79%	0.06%	0.21%	0.21%
15/85	2.42%	3.91%	1.77%	0.09%	0.28%	0.28%
20/80	2.67%	4.02%	1.74%	0.12%	0.41%	0.41%
25/75	2.90%	4.23%	1.71%	0.15%	0.52%	0.52%
30/70	3.07%	4.44%	1.68%	0.17%	0.61%	0.61%
35/65	3.31%	4.79%	1.66%	0.20%	0.73%	0.73%
40/60	3.51%	5.14%	1.63%	0.23%	0.83%	0.83%
45/55	3.70%	5.50%	1.60%	0.26%	0.92%	0.92%
50/50	3.91%	5.92%	1.57%	0.29%	1.03%	1.03%
55/45	4.11%	6.34%	1.54%	0.32%	1.12%	1.12%
60/40	4.34%	6.83%	1.52%	0.35%	1.24%	1.24%
65/35	4.52%	7.26%	1.49%	0.38%	1.33%	1.33%
70/30	4.73%	7.75%	1.46%	0.41%	1.43%	1.43%
75/25	4.94%	8.24%	1.43%	0.44%	1.53%	1.53%
80/20	5.14%	8.74%	1.40%	0.47%	1.63%	1.63%
85/15	5.37%	9.30%	1.38%	0.49%	1.75%	1.75%
90/10	5.56%	9.79%	1.35%	0.52%	1.85%	1.85%
95/5	5.76%	10.29%	1.32%	0.55%	1.94%	1.94%
100/0	5.98%	10.85%	1.29%	0.58%	2.05%	2.05%

Table 6: Return and Risk Projection Grid with Global Equity 33-33-33 Portfolio

Asset Mix (Equity/Bond)	Expected Return	Expected Standard Deviation	ESTIMATED RETURN COMPOSITION			
			Interest & Foreign Dividends	Canadian Dividends	Realized Capital Gains	Unrealized Capital Gains
0/100	1.85%	4.05%	1.85%	0.00%	0.00%	0.00%
5/95	2.00%	3.98%	1.81%	0.05%	0.07%	0.07%
10/90	2.15%	3.91%	1.77%	0.10%	0.14%	0.14%
15/85	2.45%	3.88%	1.73%	0.15%	0.28%	0.28%
20/80	2.70%	3.99%	1.70%	0.19%	0.40%	0.40%
25/75	2.86%	4.13%	1.66%	0.24%	0.48%	0.48%
30/70	3.10%	4.40%	1.62%	0.29%	0.60%	0.60%
35/65	3.30%	4.67%	1.58%	0.34%	0.69%	0.69%
40/60	3.51%	5.01%	1.54%	0.39%	0.79%	0.79%
45/55	3.70%	5.36%	1.50%	0.44%	0.88%	0.88%
50/50	3.91%	5.77%	1.46%	0.48%	0.98%	0.98%
55/45	4.14%	6.24%	1.43%	0.53%	1.09%	1.09%
60/40	4.33%	6.65%	1.39%	0.58%	1.18%	1.18%
65/35	4.54%	7.13%	1.35%	0.63%	1.28%	1.28%
70/30	4.75%	7.61%	1.31%	0.68%	1.38%	1.38%
75/25	4.96%	8.09%	1.27%	0.73%	1.48%	1.48%
80/20	5.16%	8.56%	1.23%	0.78%	1.57%	1.57%
85/15	5.35%	9.04%	1.19%	0.82%	1.67%	1.67%
90/10	5.58%	9.59%	1.15%	0.87%	1.78%	1.78%
95/5	5.77%	10.06%	1.12%	0.92%	1.87%	1.87%
100/0	5.99%	10.61%	1.08%	0.97%	1.97%	1.97%

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