Office of the Superintendent of Financial Institutions Canada
Bureau du surintendant des institutions financières Canada
Office of the Chief Actuary
Bureau de l'actuaire en chef

Canada Pension Plan Investment Assumptions

Presentation to the National Academy of Social Insurance Seminar: "What Stock Returns are Reasonable to Expect for Social Security Accounts or Investments Over the Long term?"

13 May 2005

OSFI BSIF

Canada

Presentation

- **Canadian Retirement System**
- **Replacement Rates**
- **1998 CPP Amendments**
- **CPP Investment Assumptions**
- **Steady-State Funding**

CPP Securing the Canada Pension Plan

Canadian Income Retirement Security

Canadian retirement system with mixed funding approaches is well recognized in the world for its capacity to adapt rapidly to changing conditions

- Full funding (RPP/RRSP)
- Partial funding (CPP/QPP)
- Pay-as-you-go funding (OAS/GIS)

Income Replacement Rate – Canada & U.S.

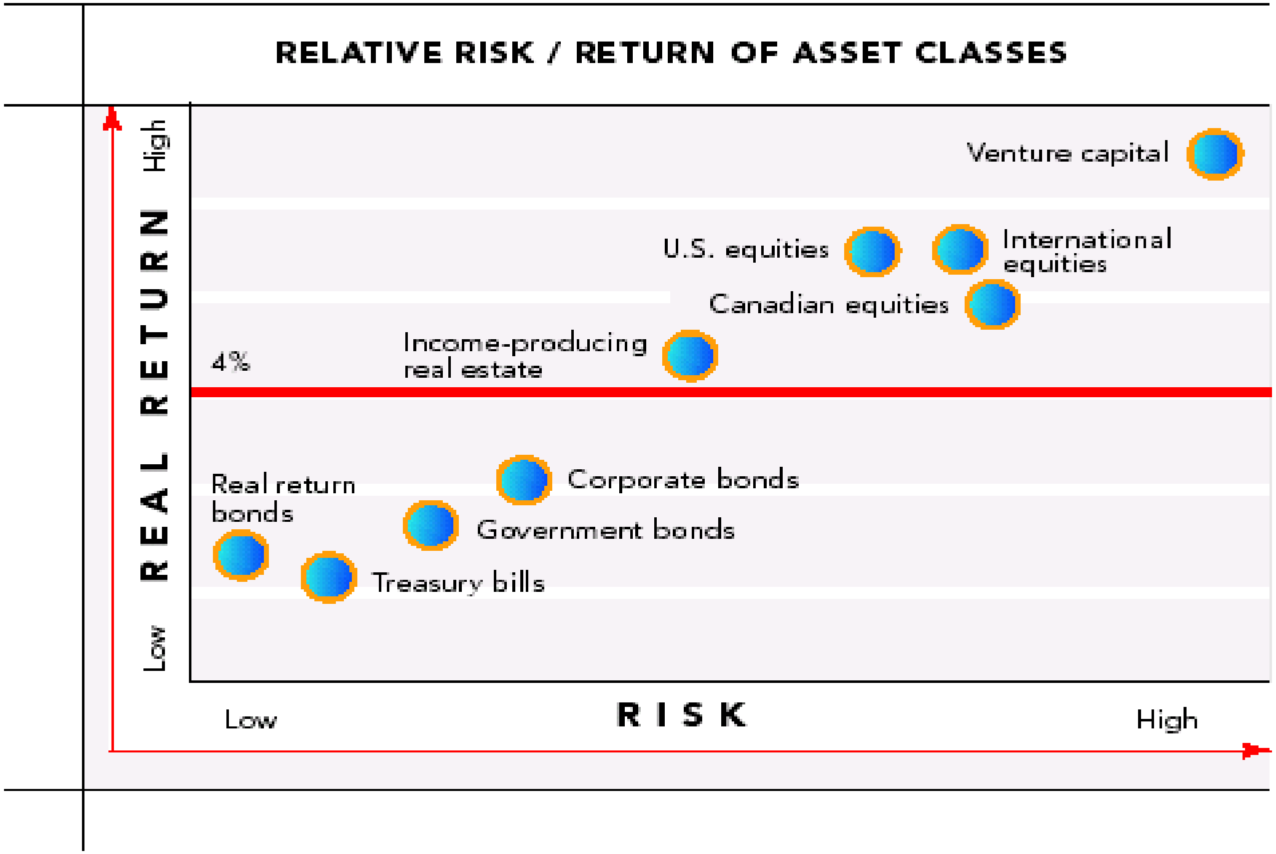
CPP 1998 Amendments

- Principles to guide the federal-provincial decisions on the CPP:
  - The CPP must be affordable and sustainable for future generations. This requires fuller funding and a contribution rate no higher than the already legislated future rate.
  - CPP must be invested in the best interest of plan members, and maintain a proper balance between returns and investment risk.
  - Available on the CPP website at http://www.cpp-rpc.ca/princips/principe.html

CPP 1998 Amendments

- Increase the contribution rate by 65% over 6 years (1997-2003) and keep the same rate thereafter
- Moderate the future growth of benefits by 10% on a long-term basis (in 2050).
- Creation of the CPP Investment Board in order to diversify the CPP reserve fund and increase investment returns (www.cppib.ca)

Risk/Return of Asset Classes



CPP Diversified Investments

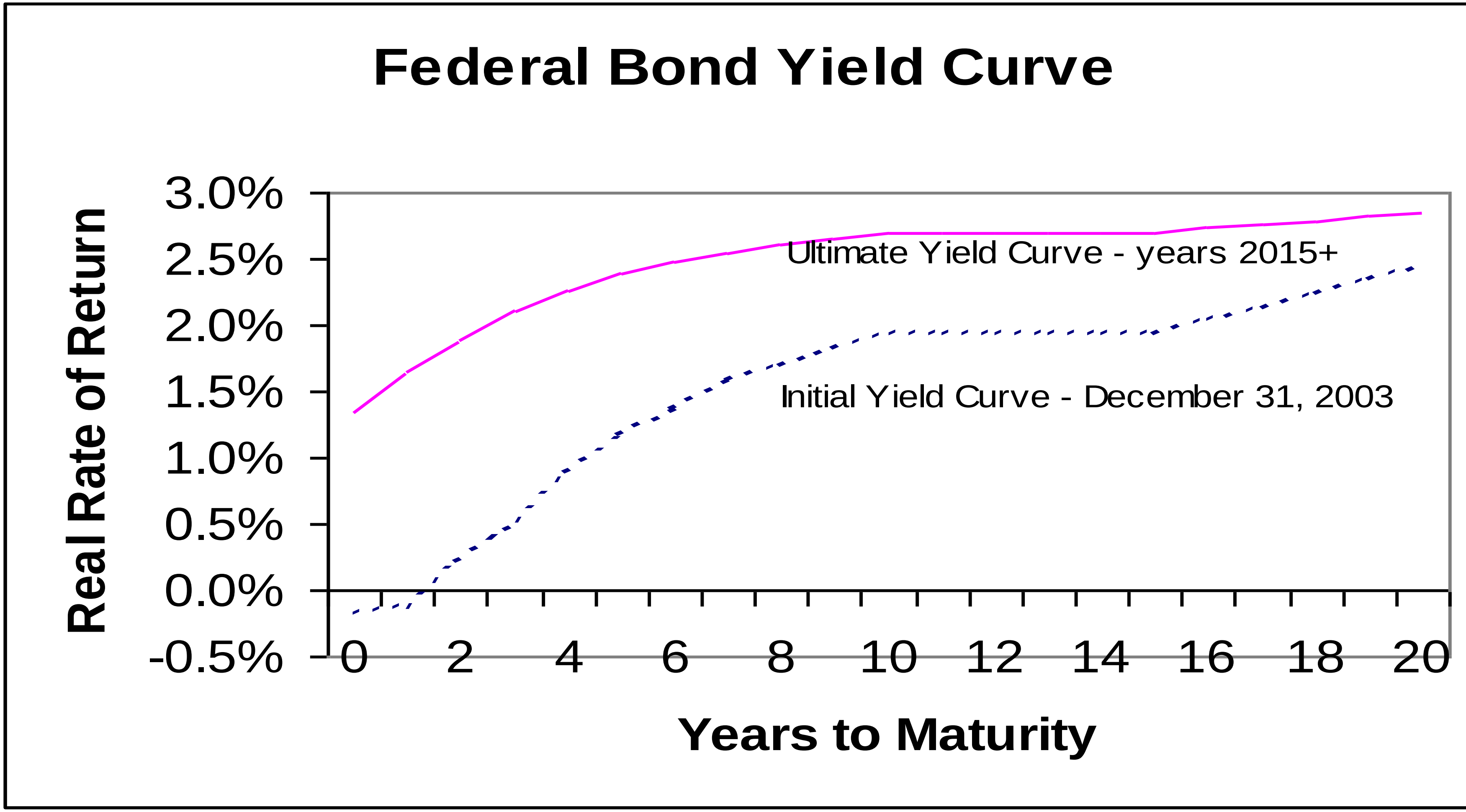
Assumed Mix for 2005-2020

- 65% Equities (Variable Income)
  - 25% Canadian Equity
  - 30% Foreign Equity
  - 10% Real Estate & Infrastructure
- 35% Fixed Income
  - 34.5% Bonds
  - 0.5% Cash

Assumed Mix for 2025+

- 55% Variable Income
  - 15% Canadian Equity
  - 30% Foreign Equity
  - 10% Real Estate & Infrastructure
- 45% Fixed Income
  - 44.5% Bonds
  - 0.5% Cash

Real Rate of Return



Real Rate of Return: Bond Portfolio

	Spread Over Federal Bonds	Proportion in Bond Portfolio
• Federal	-	20%
• Provincial	+40 bps	40%
• Corporate	+100 bps	40%

- Ultimate real rate of return: 3.4%

Equity Risk Premium (ERP)

- ERP is the expected excess return on equity over a long-term fixed income investment, such as riskless Government of Canada bonds
- Recent articles have the expected ERP varying between –1% and 4.25%
- CPP Equity Risk Premium
  - Return on long-term Gov't Bonds = 2.85%
  - Return on Equity = 4.8%
  - ERP = 4.8% - 2.85% = 1.95%
- Equity Risk Premium over the last 50 years:
  - Canada (S&P/TSX): 2.6%
  - U.S. (S&P 500 in CDN$): 4.5%

Real Rate of Return: Ultimate Assumptions

	Real Rate of Return	Asset Mix
Canadian Equities	4.6%	15%
Foreign Equities	5.0%	30%
Real Estate & Infrastructure	4.0%	10%
Marketable Bonds	3.4%	44.5%
Cash	1.5%	0.5%
Real Rate of Return	**4.1%**	

Independent Peer Review Report

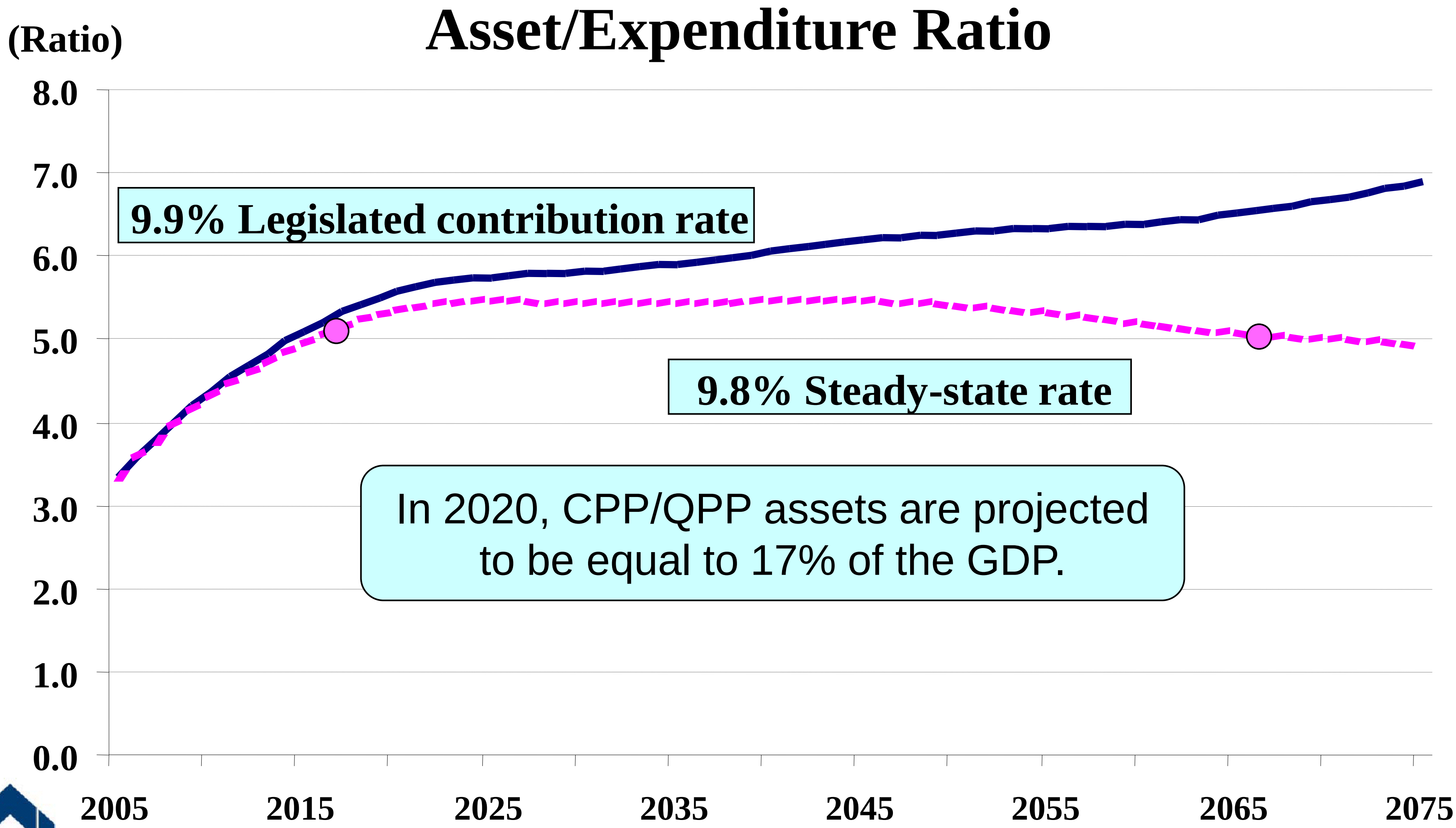
- Recommended Gross Rates of Return
  - Canadian Equity: 6.0%
  - Foreign Equity: 6.0%
  - Real Estate & Infrastructure: 5.0%
  - Bonds: 3.3%
  - Cash: 1.5%
- Results in a real rate of return of 4.6% (net of investment expenses)
- Equity risk premium = 3.3%

Expectations of the CPPIB

- CPPIB has diversified the CPP reserve fund
- The following is taken from the CPPIB 2004 Annual Report:

  "As a result of this diversification, the CPP Investment Board expects to earn a 4.5 per cent real rate of return (that is, above inflation) over the long term…"

CPP Steady-State Funding



CPP Steady-State Funding

- If the legislated contribution rate is higher than the steady-state rate, the funding status of the plan will increase over time.

- The higher this rate is set above the steady-state rate, the faster the plan will become more funded.

- SS rate under 21st CPP Report at 31 Dec 2003: 9.8%

- Current legislated rate from 2003: 9.9%

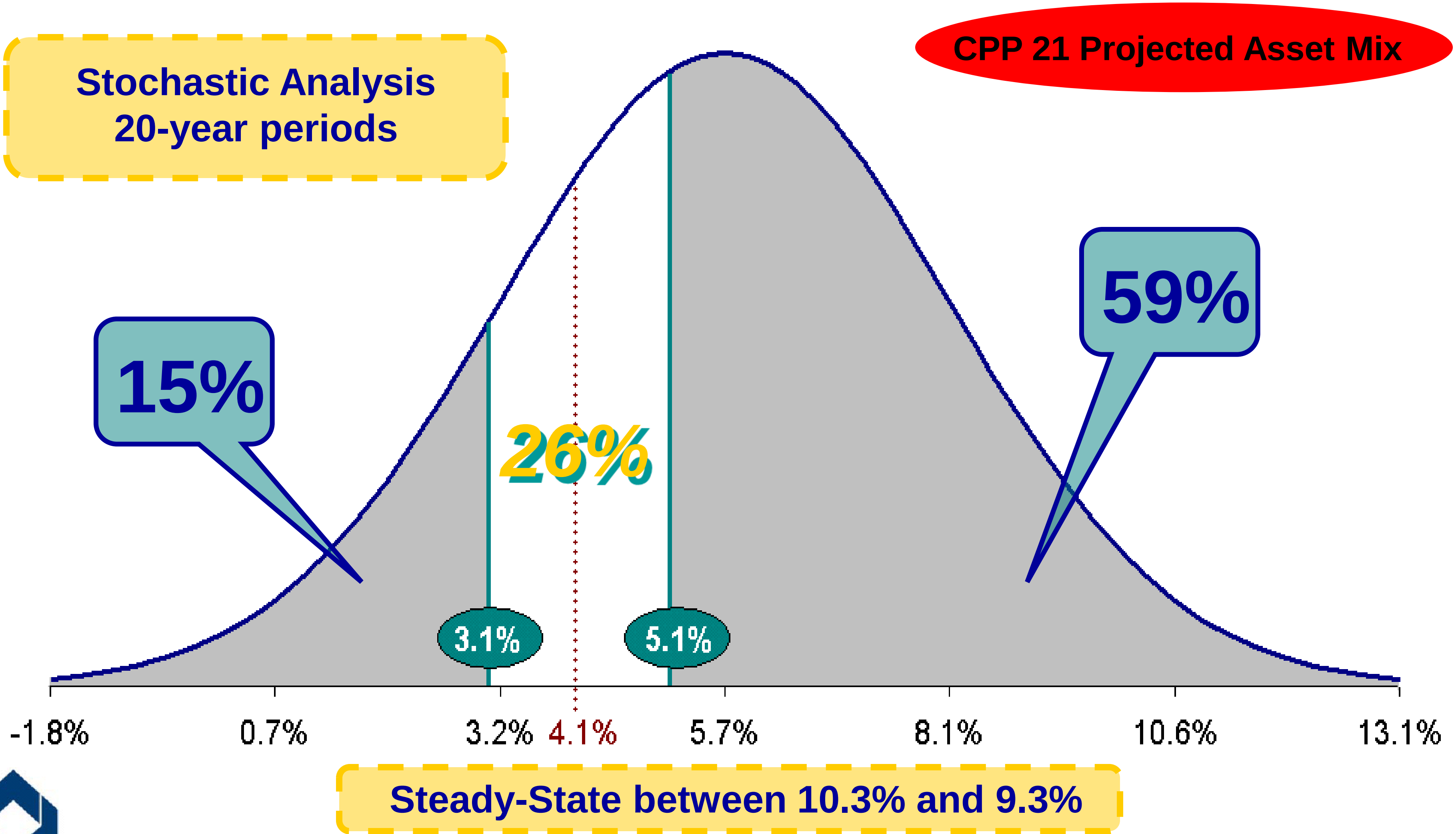
CPP Steady-State Funding

- If the steady-state rate is higher than the legislated contribution rate AND if finance ministers cannot reach agreement on solution, then:
  - Contribution rate increased by ½ of excess over three years, subject to maximum increase of 0.2% per year
  - Benefits frozen
  - At end of three years, next review performed to determine financial status of Plan.

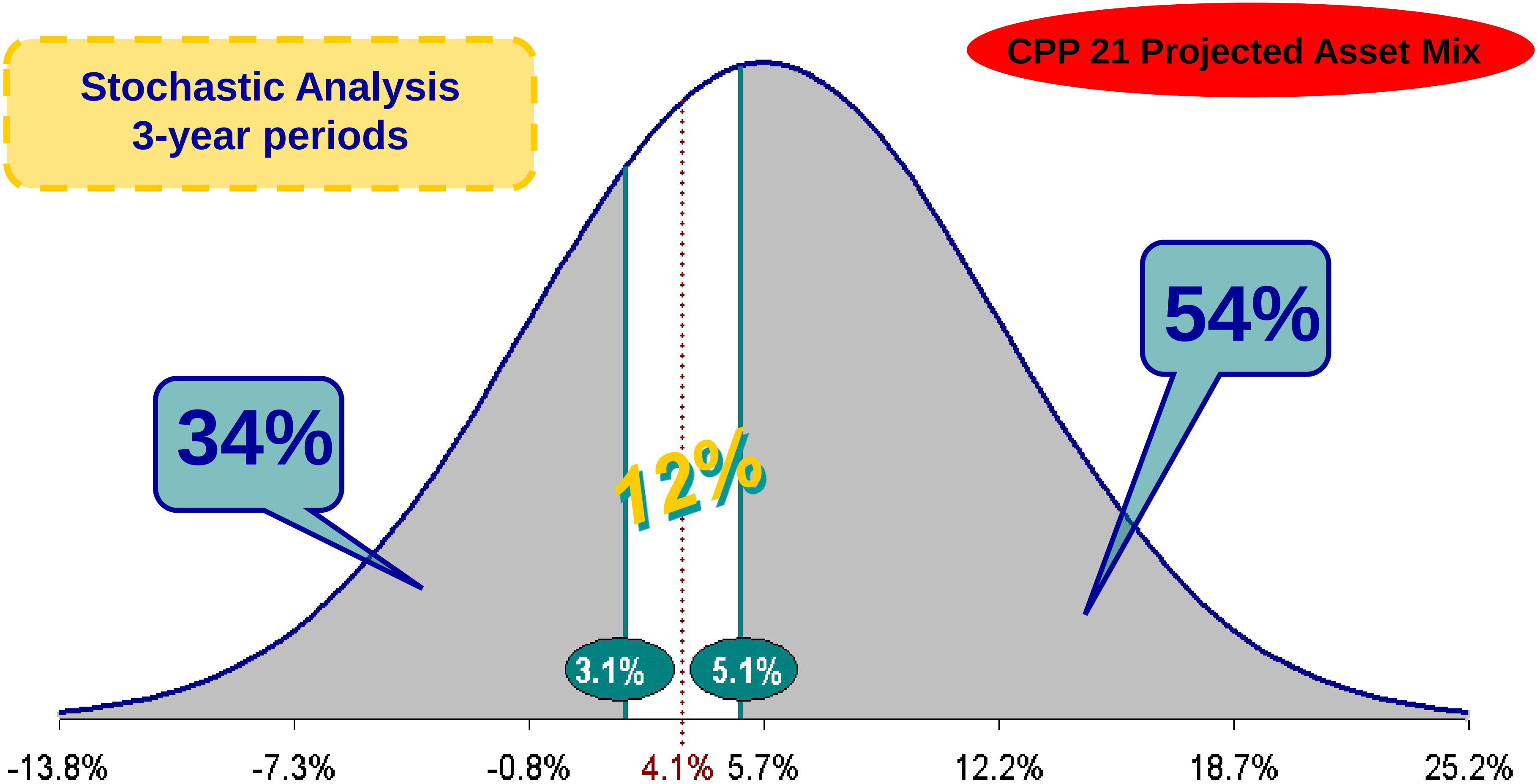
Projecting Diversified Investments

- CPP Assets invested solely in long-term federal bonds will lead to a steady-state rate of 10.5%.
- Our expected investment policy of 65% variable income securities and 35% fixed income securities will lead to a steady-state rate of 9.8%.
- Two years of negative equity returns:
  - -10% (2005 & 2006) → steady-state rate = 9.9%,
  - -10% (2017 & 2018) → steady-state rate = 10.0%.
- Two years of positive equity returns:
  - +20% (2005 & 2006) → steady-state rate = 9.7%,
  - +20% (2017 & 2018) → steady-state rate = 9.6%.

Appendix: Real Rates of Return (1939-2003)



Appendix: Real Rates of Return (1939-2003)



Steady-State between 10.3% and 9.3%