

Risk, Return and Accountability:

How the CPPIB Manages Your Money

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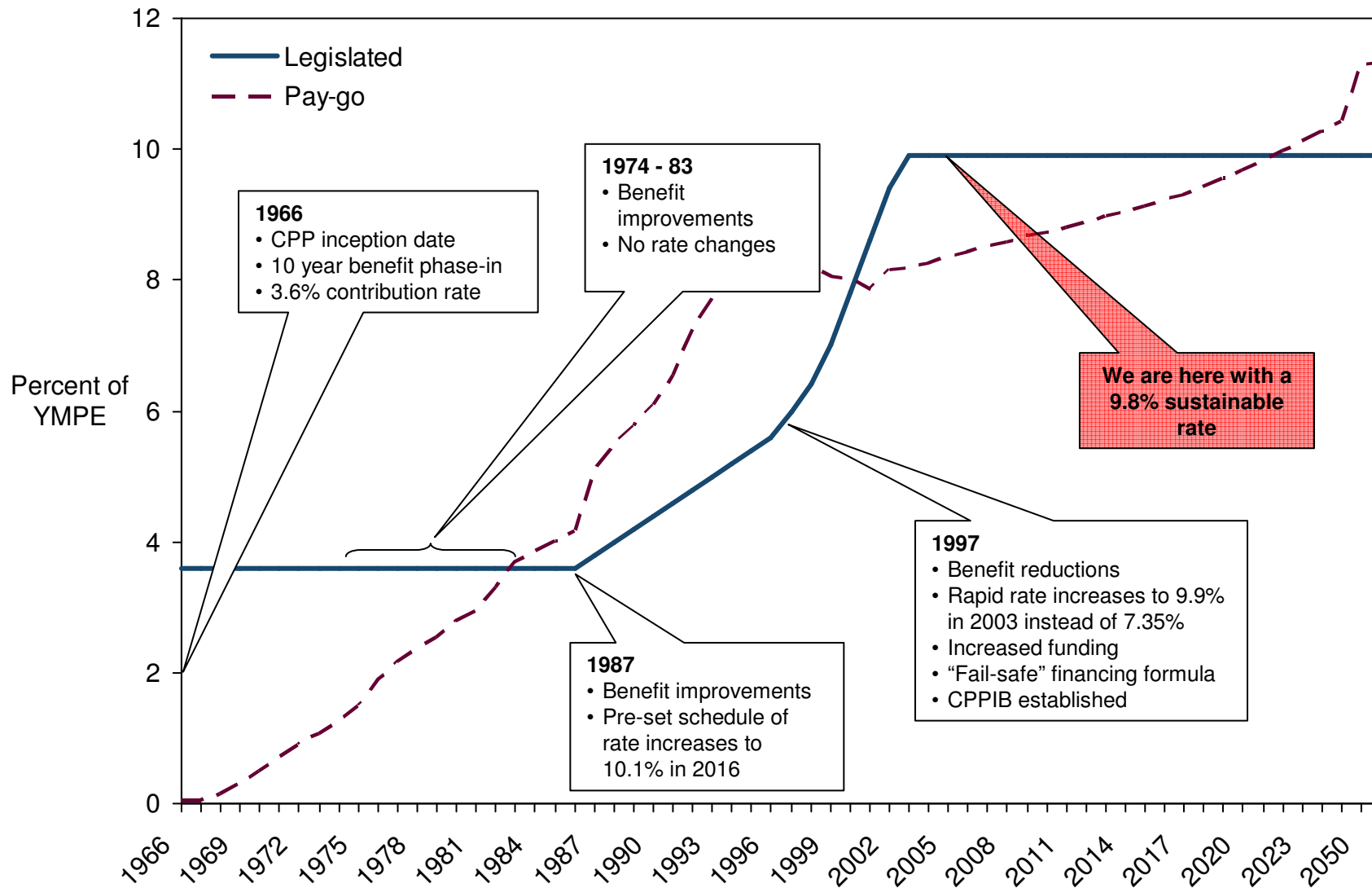
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May 4, 2006

1 Background

- 1 Our Investment Mission
- 1 Risk-Return-Accountability Framework
- 1 Judging Long-Term Success
- 1 Economic Value of CPP Benefits

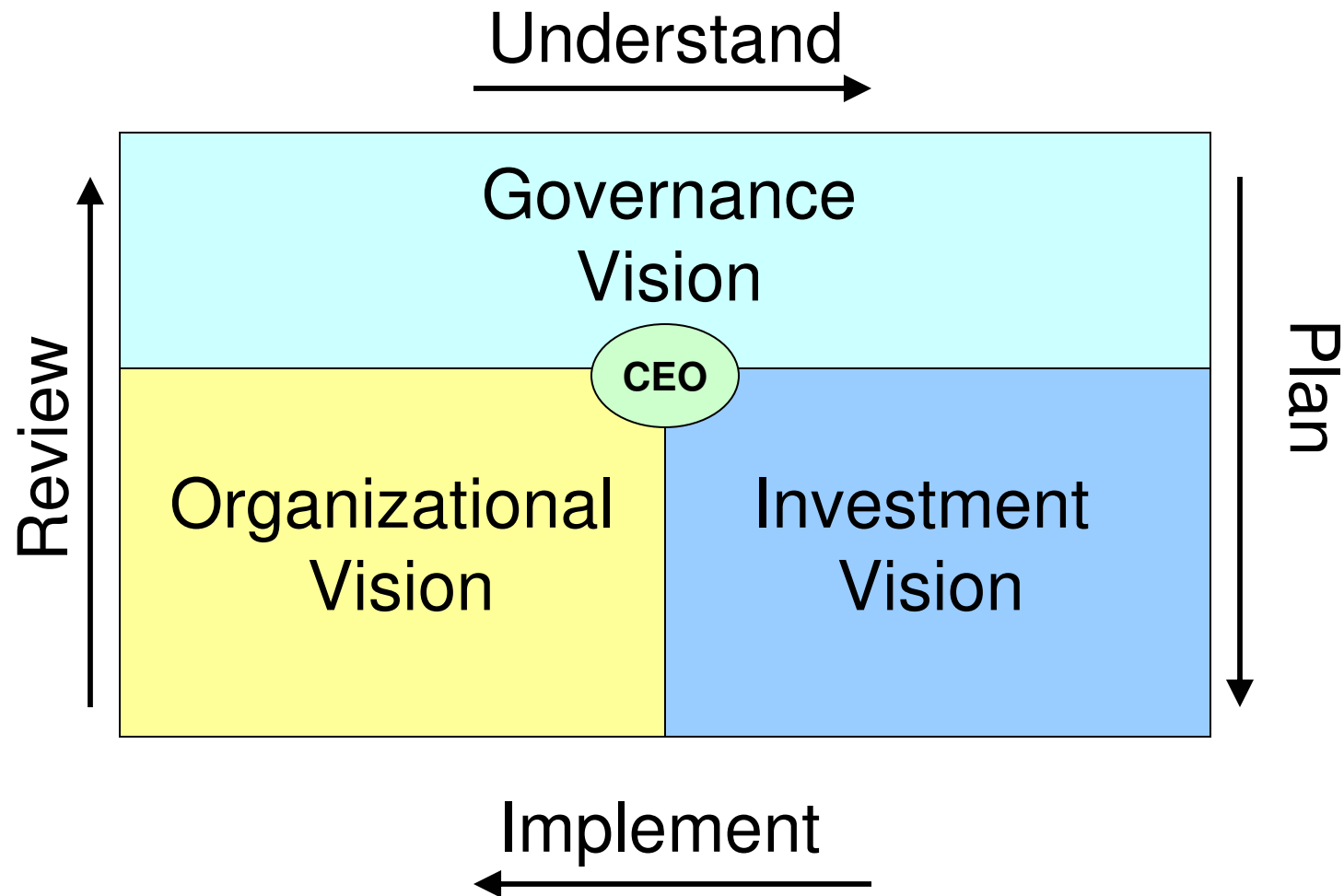
CPP Rate And Benefit Changes



Sustainable Rate

- 1 Lowest contribution rate sufficient to maintain the Plan without further increases, under a given set of economic, investment and demographic assumptions
- 1 As at December 31, 2003, the estimated sustainable rate was 9.8% of YMPE, using the Chief Actuary's "best estimate" assumptions
- 1 Capital market behavior only one factor that drives sustainable rate estimates:
 - September 1997 9.92% (AR16 – used for Reform)
 - December 1997 9.76% (AR 17)
 - December 2000 9.80%
 - March 2003 9.84%
 - December 2003 9.77%
 - June 2005 9.74%
- 1 In the CPP Actuarial Report the sustainable rate is called "steady-state contribution rate"

Three Visions



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Steward-Designed

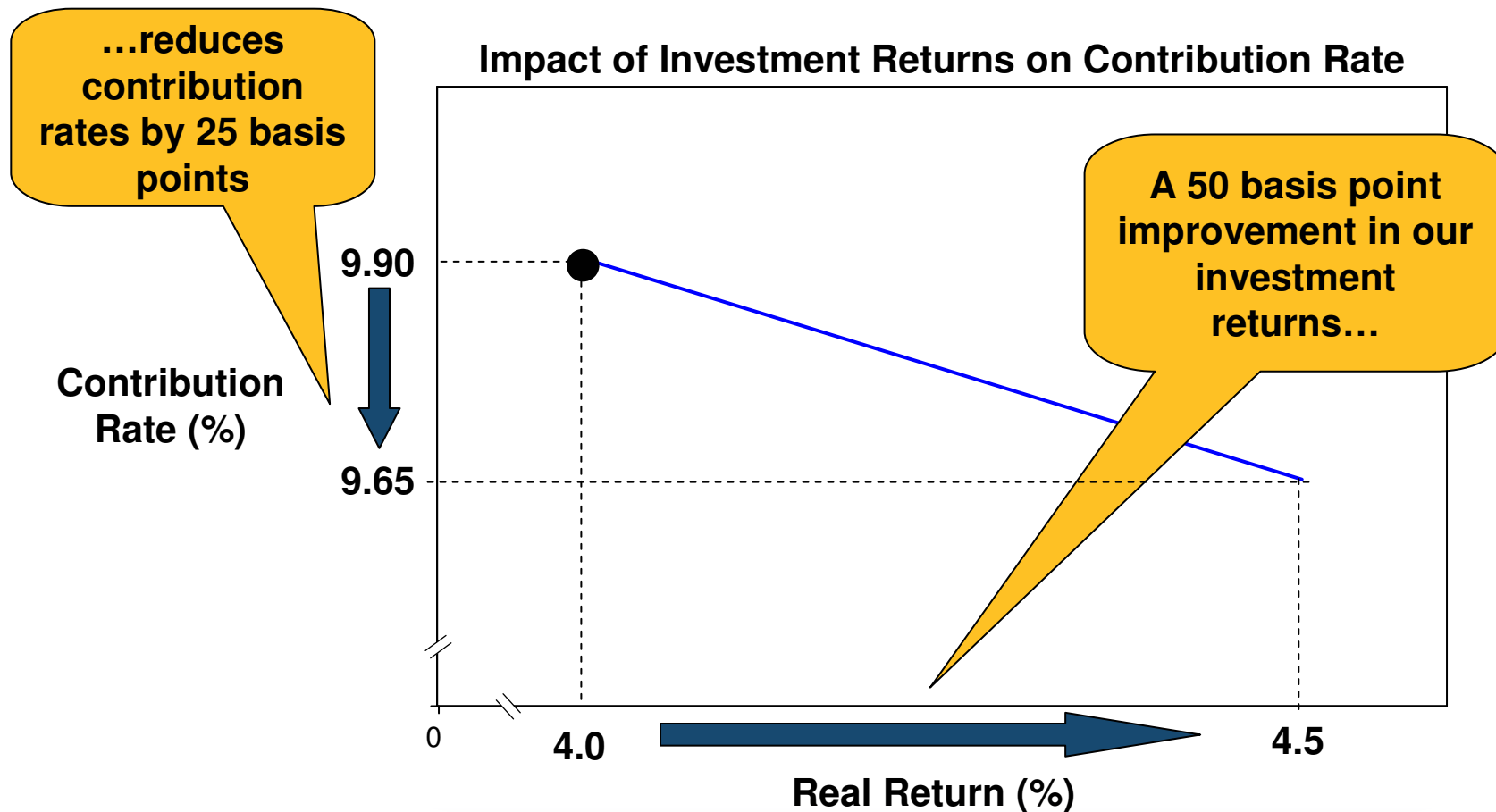
- *Help lower future contribution rates by diversifying into higher returning assets*
 - Stewards do not want sustainable rate to exceed 9.9%
 - Provided guidelines and context
 - ; Investment policies similar to large Canadian pension plans should earn return
 - ; Returns can be captured by passive management
 - ; Sustainable rate also driven by non-investment factors: demographics and economics
 - ; Regular monitoring required

Self-Imposed

- *Improve performance with beta diversification and active management*
 - Board-approved management initiative (2000)
 - Improved performance will further lower future contribution rates

Impact of Investment Returns on Contribution Rate

50 Basis Points of Long-term Value Added Has Meaningful Impact on 16 Million Canadians



Board required management to design, adopt and implement a risk-return-accountability framework for measuring success

1 Background

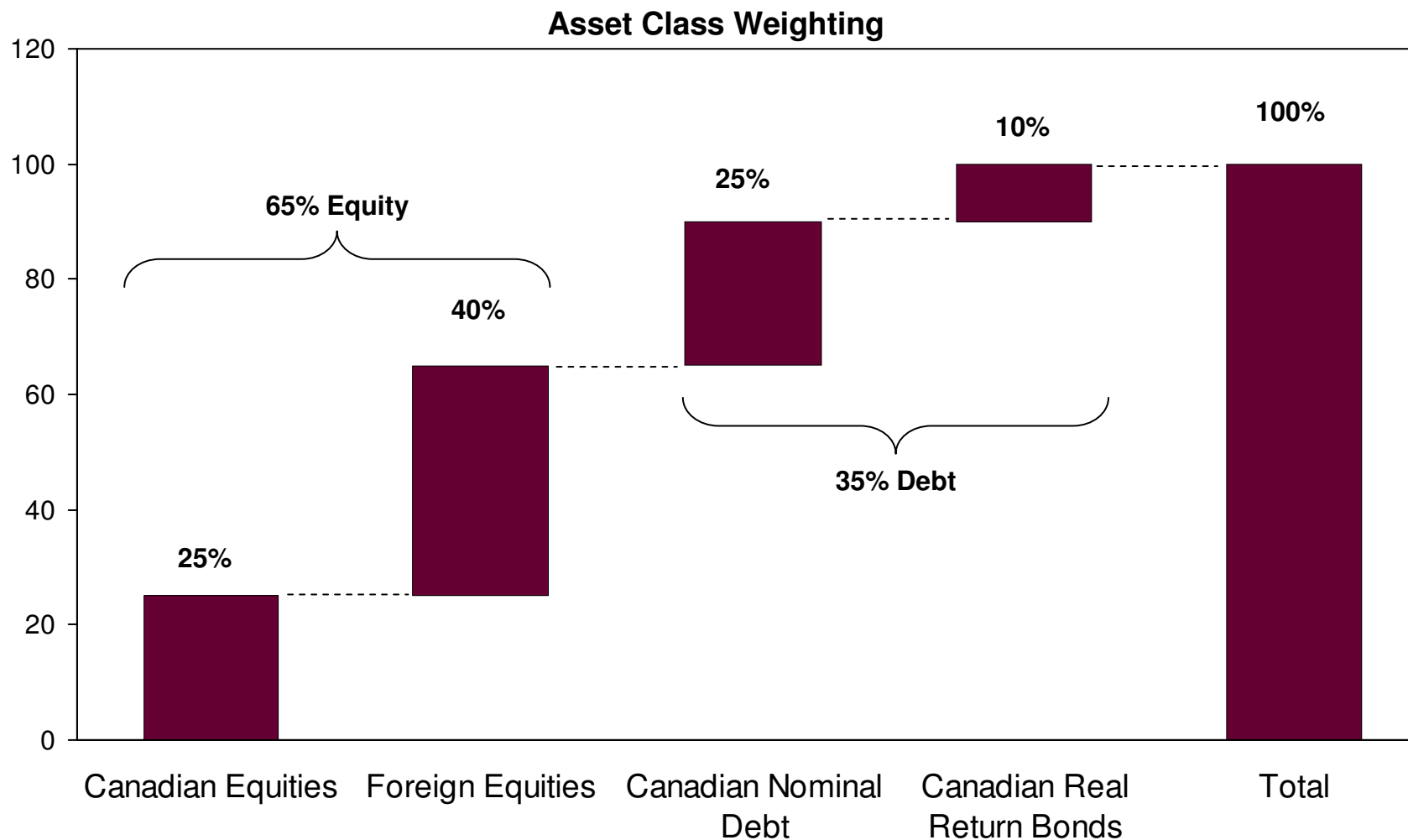
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Step 1: Introduced a “CPP Reference Portfolio”



Functions as the starting point for our actual portfolio decisions

Why 40% Foreign Equity? Why Unhedged?

- 1 High long-term expected return
- 1 Diversifies total portfolio volatility
- 1 Mitigates risk of lower than expected wage growth, which would increase sustainable contribution rate
- 1 Currency exposure magnifies risk mitigating properties of foreign equity

Advantages of CPP Reference Portfolio

Embodies return requirement and risk exposure envisioned by federal-provincial stewards

Partially matches CPP net liabilities

Low cost, low complexity but viable strategic option

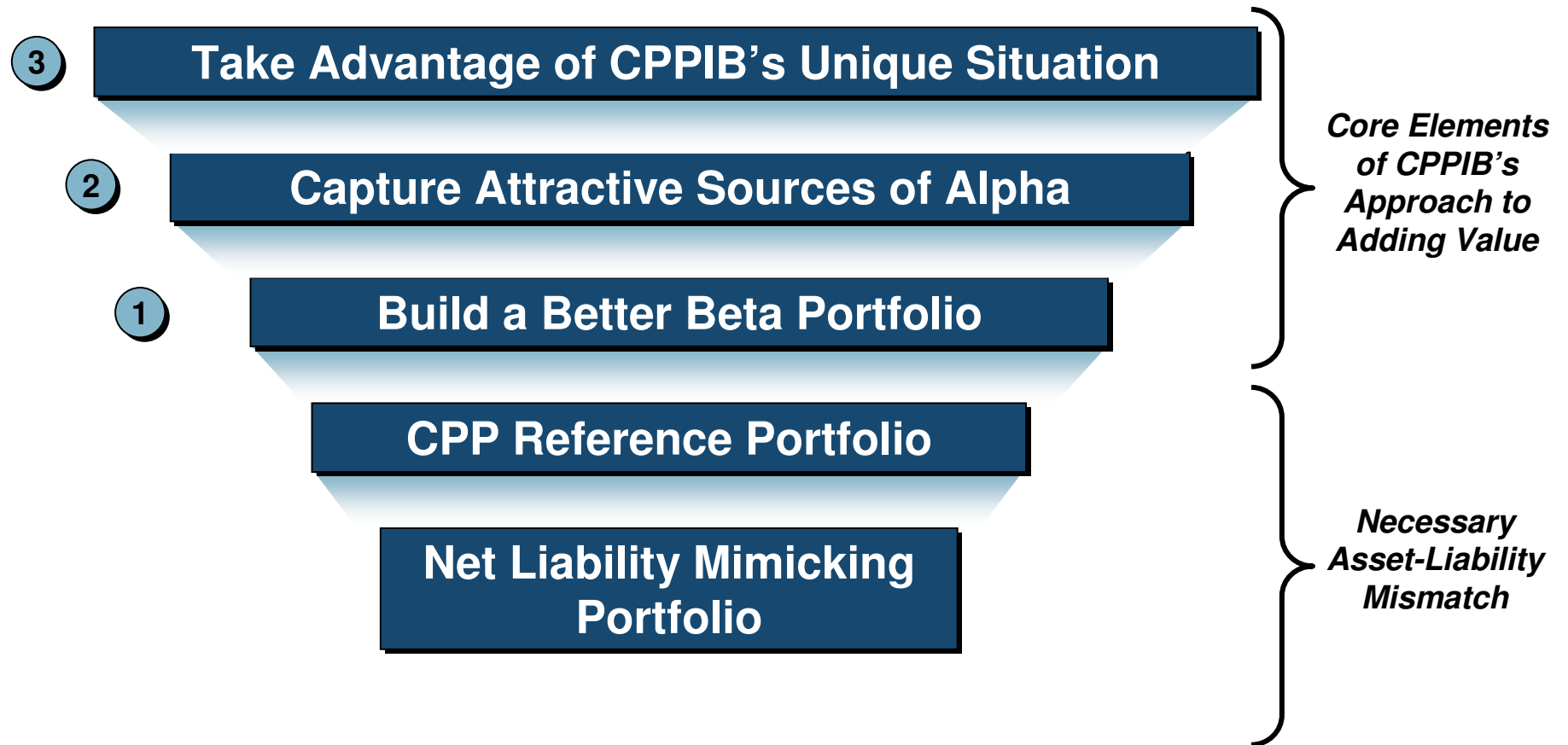
Easy to evaluate management decision-making

Easy to understand by stakeholders

Step 2: Explained Sources of Expected Improved Performance

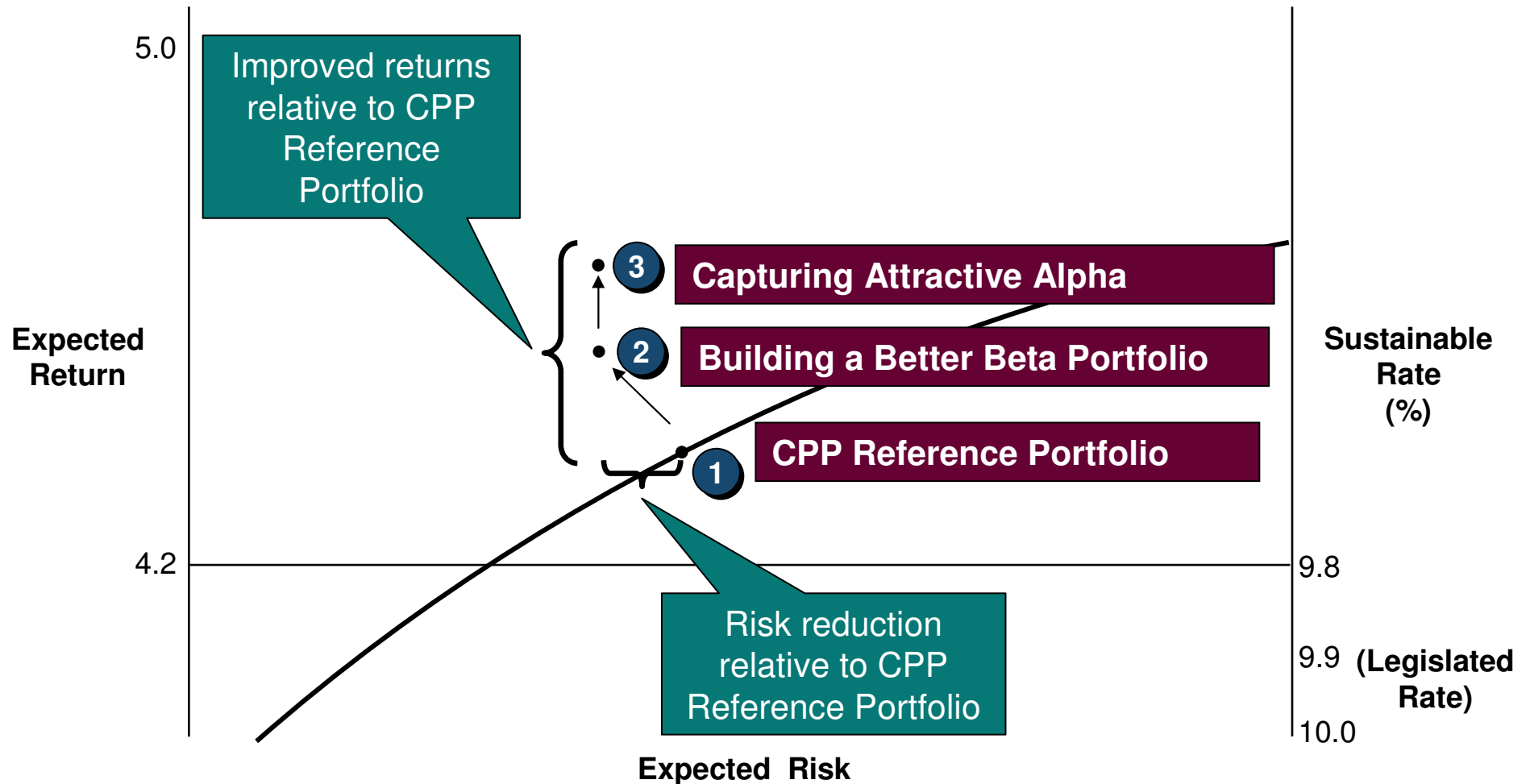


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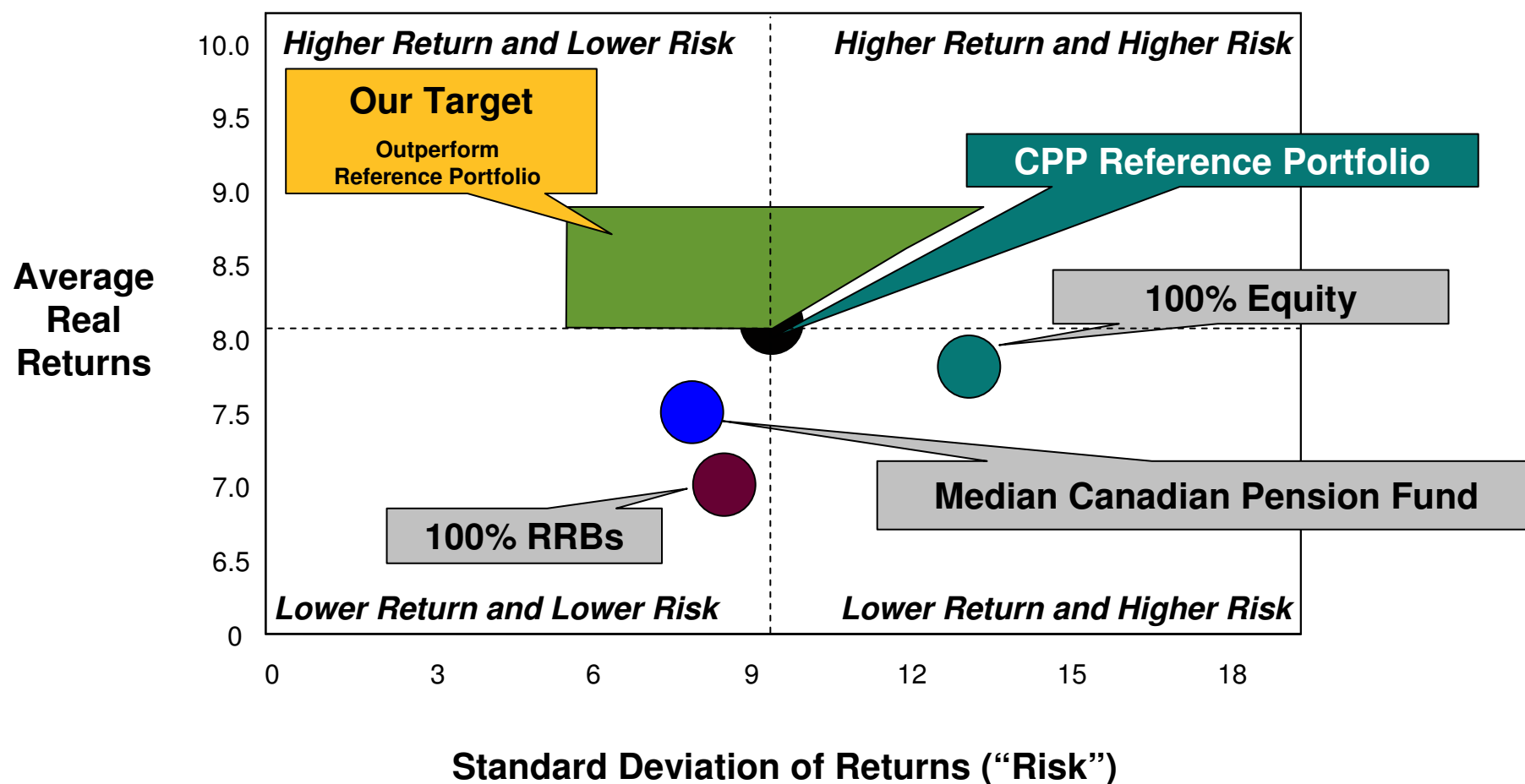


Step 3: A System to Measure and Report Success

Illustrative (Not to Scale)



Return-Risk Target Zone and Illustrative Portfolio Performance, 1992-2004

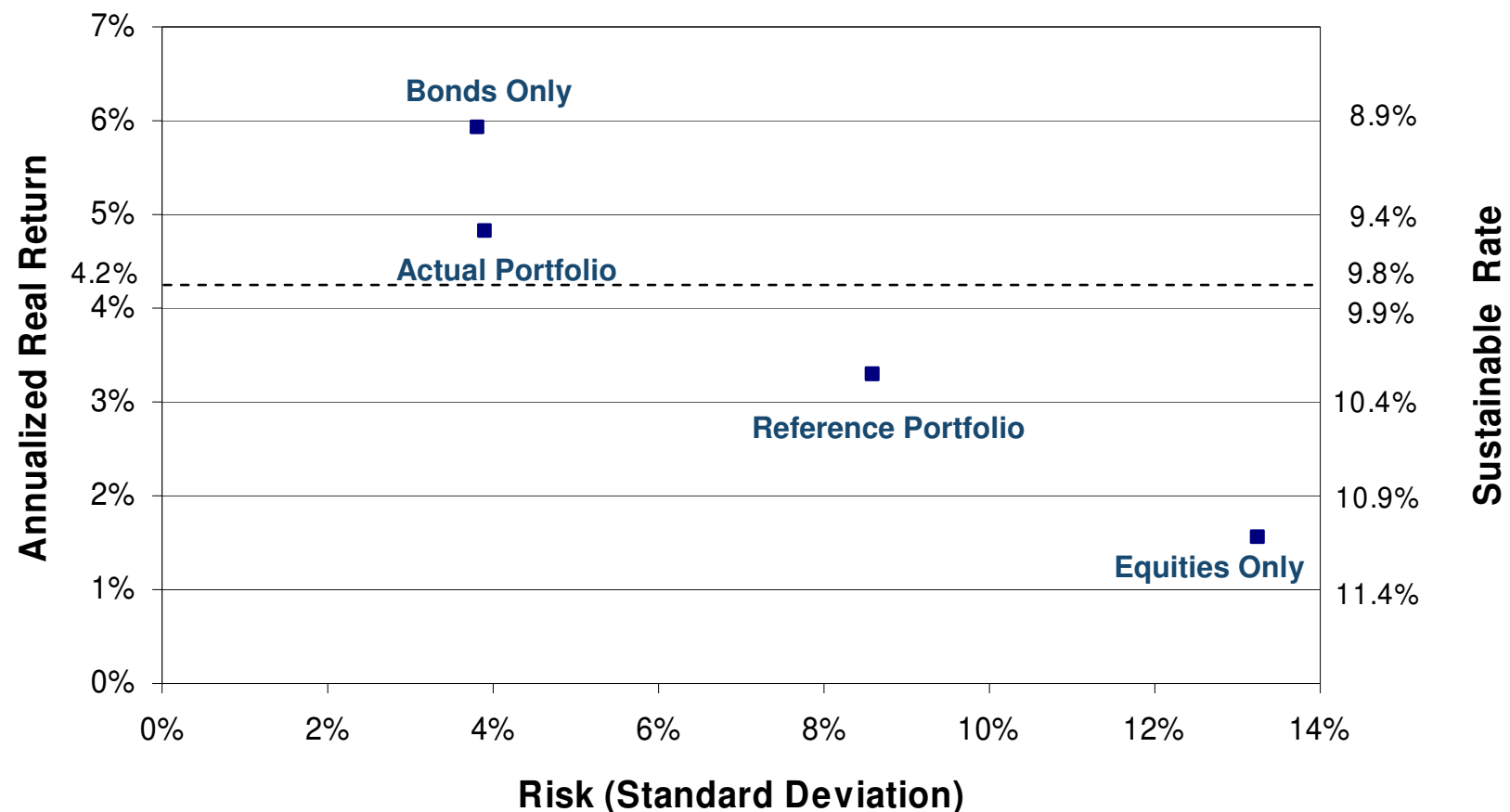


Performance Since Inception, March 1999 – December 2005



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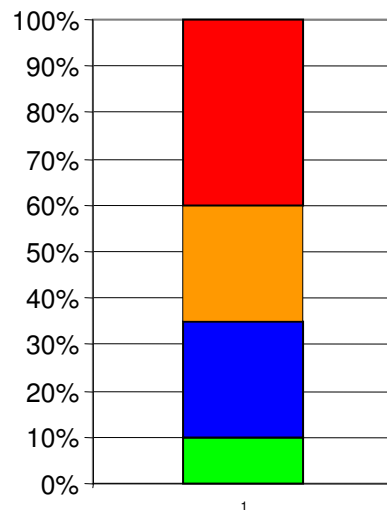
At inception, the CPPIB Consolidated Portfolio was almost entirely fixed income, reducing the risk of the portfolio. In addition, bond returns were higher than the historical average, providing good results.



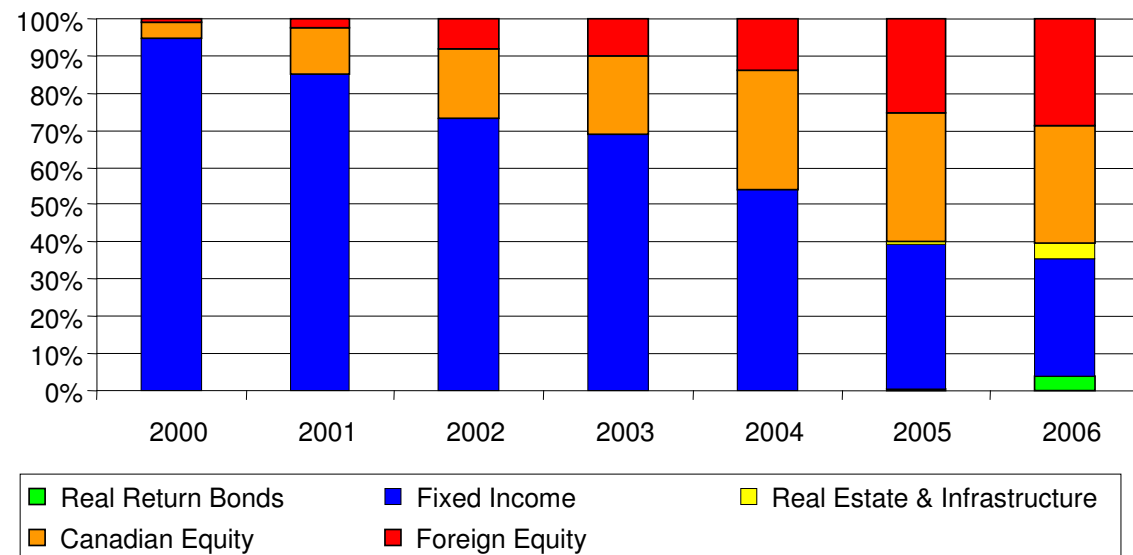
Reference Portfolio vs. Actual

(Since Inception)

Reference Portfolio



CPPIB Portfolio Composition



Measuring, Monitoring and Managing Risk Components

- 1 Hi Risk from DSTi measures total fund market and active risks
 - Proxy illiquid assets
 - Residual risk estimates
 - ; Current Capital at Risk relative to the Scotia RRB index
 - ; Moving toward Value at Risk measurements calculated relative to the Reference Portfolio and the Target Portfolio
 - Credit risk
 - ; Currently monitored as the nominal value of fixed income positions, and derivatives valued at market plus the Basel add-on factor methodology
 - ; Moving toward a methodology to calculate exposures based on the issuers' credit quality, taking probability of default and recovery rates into account
 - Plan to integrate all risk exposures for a view of the total portfolio risk
 - ; First steps to risk disaggregation underway
 - ; A very long term goal
 - ; Peer and product evaluation in 2007

- 1 Now managing actual portfolio relative to Reference Portfolio, with some caveats
- 1 With projected fund growth, CPP Bond exposure will decline to 25% by December 06
- 1 Reference Portfolio expected to be fully operational by April 1, 2007
- 1 Risk-return exposures relative to Reference Portfolio decided within a Total Portfolio Approach

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Judging Long-Term Success

Reference Portfolio Earns
Returns at Level Expected
by Stewards (Mission 1)

		Yes	No
CPPIB Outperforms Reference Portfolio (Mission 2)	Yes	Policy \ddot{u} CPPIB \ddot{u}	Policy β CPPIB \ddot{u}
	No	Policy \ddot{u} CPPIB β	Policy β CPPIB β

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Economic Value Vs. Expected Cost of CPP Benefits

Estimates as at December 2003:

	Economic Value Estimate: Liability Matching Portfolio¹	Expected Cost Estimate: 60/40 Equity/Debt Portfolio	Difference
Expected Real Return (%)	2.0	4.1	2.1
Assets (\$B)	67.6	67.6	0.0
PV of Benefits (\$B)	862.6	583.9	278.7
Unfunded Liability (\$B)	794.9	516.3	278.6
Funded Ratio (%)	7.8	11.6	(3.8)
Normal Cost (%YMPE)	10.1	5.5	4.6

¹Calculations undertaken by OCA at the request of CPPIB

**CPP Actuarial, Report 21
Appendix D, Pg. 117**

1. *Would private sector provide CPP pensions at a 5.5% contribution rate?*

- No – could not underwrite equity risk
 - 1 Setting a 5.5% contribution rate would transfer reward for underwriting equity risk to contributors
 - 1 Must set rate to at least 10.1%, the economic value of the CPP promise

2. *Could private sector provide CPP pensions at 10.1%?*

- No - 10.1% based on default-free liability matching portfolio earning 2% real
 - Only interest rate risk hedged
 - Must also hedge:
 - ı Salary risk
 - ı Longevity risk
 - ı Disability risk
 - ı Early retirement risk
 - Cover administrative costs
 - Earn profit

Provisional Conclusions

1. Economic value of CPP pension promises under-valued (significantly)
2. Economic value probably higher than 9.9% legislated rate
3. CPP risk-sharing provisions lower economic value of CPP benefits; contingent guarantees less valuable than absolute guarantees
4. Private sector solution probably much higher cost
5. Relative value of CPP will increase if DB plans continue their decline

END