



Office of the Superintendent of  
Financial Institutions Canada

Bureau du surintendant des  
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Office of the Chief Actuary

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THE EUROPEAN INSTITUTE

# Liability structures of Pension Funds

**Actuarial Reports on the Canada Pension Plan and Old Age Security  
(National Pension Plans) and on the Pension Plans for the Public Service,  
Canadian Forces and Royal Canadian Mounted Police (Federal Public  
Service Employees)**

*Presentation to European Institute's Sovereign Funds Roundtable*

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OSFI  
BSIF

Canada

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# Presentation



**The purpose of this presentation is to provide you with a brief overview of how our liabilities materialize, how they are quantified and how they are financed.**

- 1. Canadian Income Retirement System**
- 2. National Pension Plans : Old Age Security and Canada Pension Plan**
- 3. Federal Public Sector Pension Plans**

# Canadian Income Retirement System

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)



***The Canadian retirement system could be viewed as about 40% to 45% funded. Pension Assets are roughly equal to 120% of GDP as at 31 December 2006.***



# Presentation

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# *How do we position for the aging of the Canadian population? : CPP Steady-state Funding*

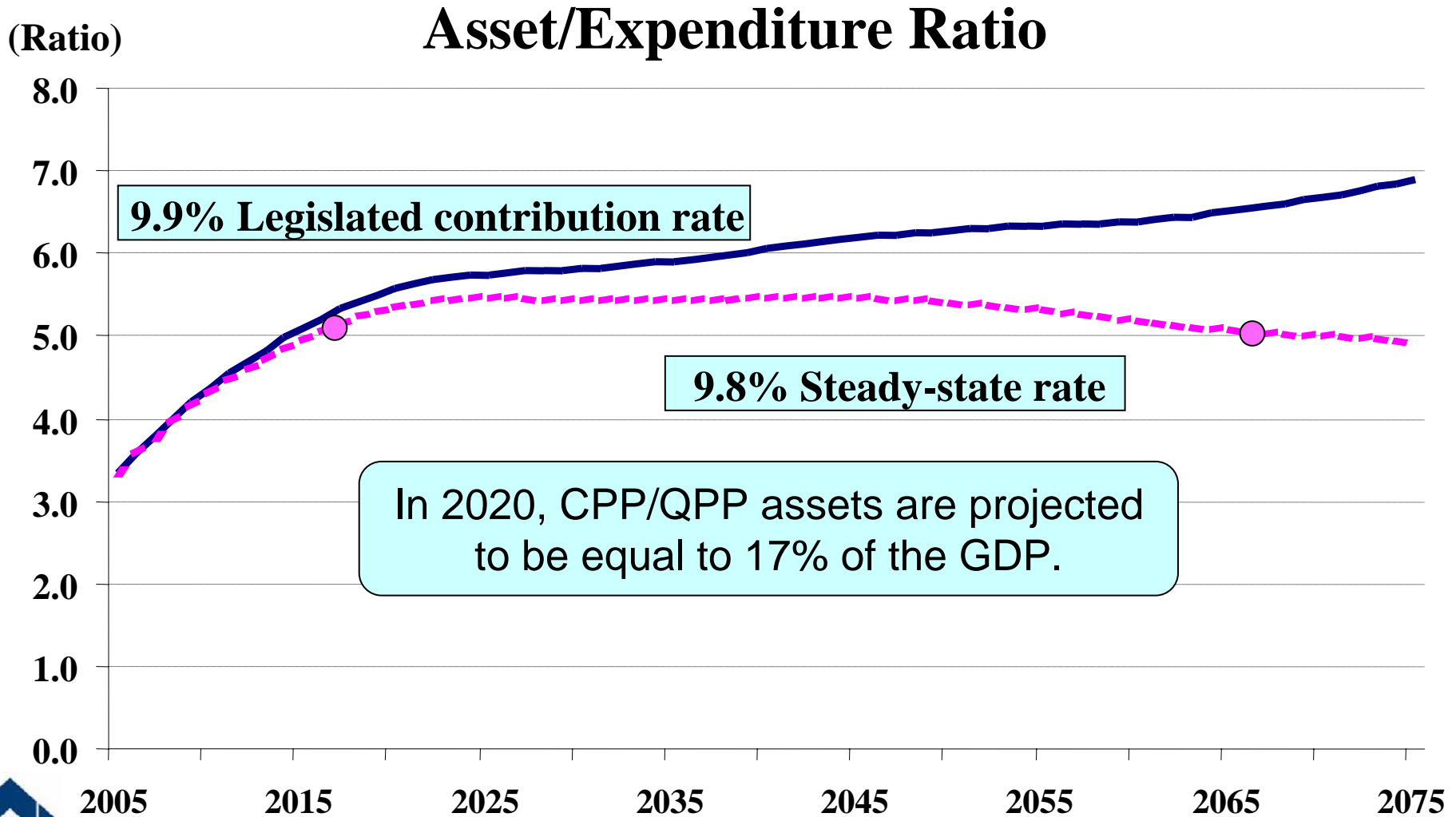
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## **Effect of the 1998 Amendments**

- Increase the contribution rate by 65% over 6 years (1997-2003) and keep the same rate thereafter at 9.9%
- Moderate the future growth of benefits by 10% on a long-term basis (in 2050).
- Creation of the CPP Investment Board to diversify the CPP reserve fund and increase investment returns ([www.cppib.ca](http://www.cppib.ca))



# CPP Steady-state Funding



# CPP Steady-State Funding

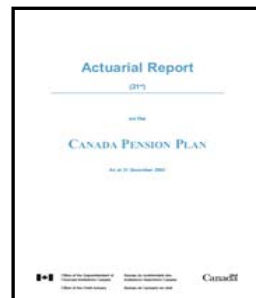
- If the steady-state rate is higher than the legislated contribution rate AND if finance ministers cannot reach agreement on a solution, then:
  - Contribution rate increased by  $\frac{1}{2}$  of excess over three years, subject to maximum increase of 0.2% per year
  - Benefits frozen
  - At end of three years, next review performed to determine financial status of Plan.

# Presentation

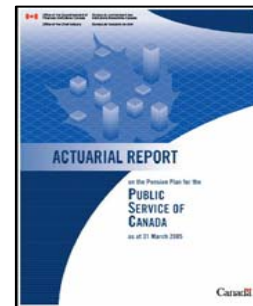


1. **Canadian Income Retirement System**
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## National Public Pension Plans



## Federal Public Service employees



These actuarial reports could be found at : <http://www.osfi-bsif.gc.ca/>





# Funding the Federal Public Sector Pension Plans

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- Develop a **financial program** to ensure that contributions plus investment earnings, net of expenses, will provide sufficient funds to pay future benefits.
- Setting aside assets determines if a plan is funded or unfunded.
- Financial program differs for financing years of service before April 2000 and since April 2000:
  - Prior to 2000, Superannuation Accounts (Accounts of Canada) were credited with contributions and interest and debited with benefit payments to report and record the estimated pension liabilities as they accrued.
  - Since 2000, employer and employee contributions to these pension plans have been deposited in new Pension Funds to be invested in financial markets and managed by the PSPIB.

# Normal Cost of the Pension Plans

Estimated for 2007-2008

	PS	RCMP	CF
Total contributions	\$3,090M	\$297M	\$860M
Total estimated cost of the plan*	18.2%	20.5%	22.6%
* Relative to pensionable payroll			
Member contributions	5.9%	6.2%	5.7%
Government cost	12.3%	14.3%	16.9%
<b>Ratio Government/Members</b>	<b>2.1</b>	<b>2.3</b>	<b>3.0</b>
	<b>68%</b>	<b>70%</b>	<b>75%</b>

# Evolution of Public Service Liabilities

	<u>Fund (Financial Markets)</u>		<u>Account (Notional Assets in Government Debt)</u>		<u>Fund/Total</u>
	Liabilities (\$ billions)	Ratio Actives/Total	Liabilities (\$ billions)	Ratio Actives/Total	
2005	14	90%	80	45%	15%
2015	58	71%	89	25%	39%
2025	146	59%	75	6%	67%
2035	293	52%	49	0%	86%

# Evolution of liabilities financed through a diversified portfolio of assets managed by PSPIB

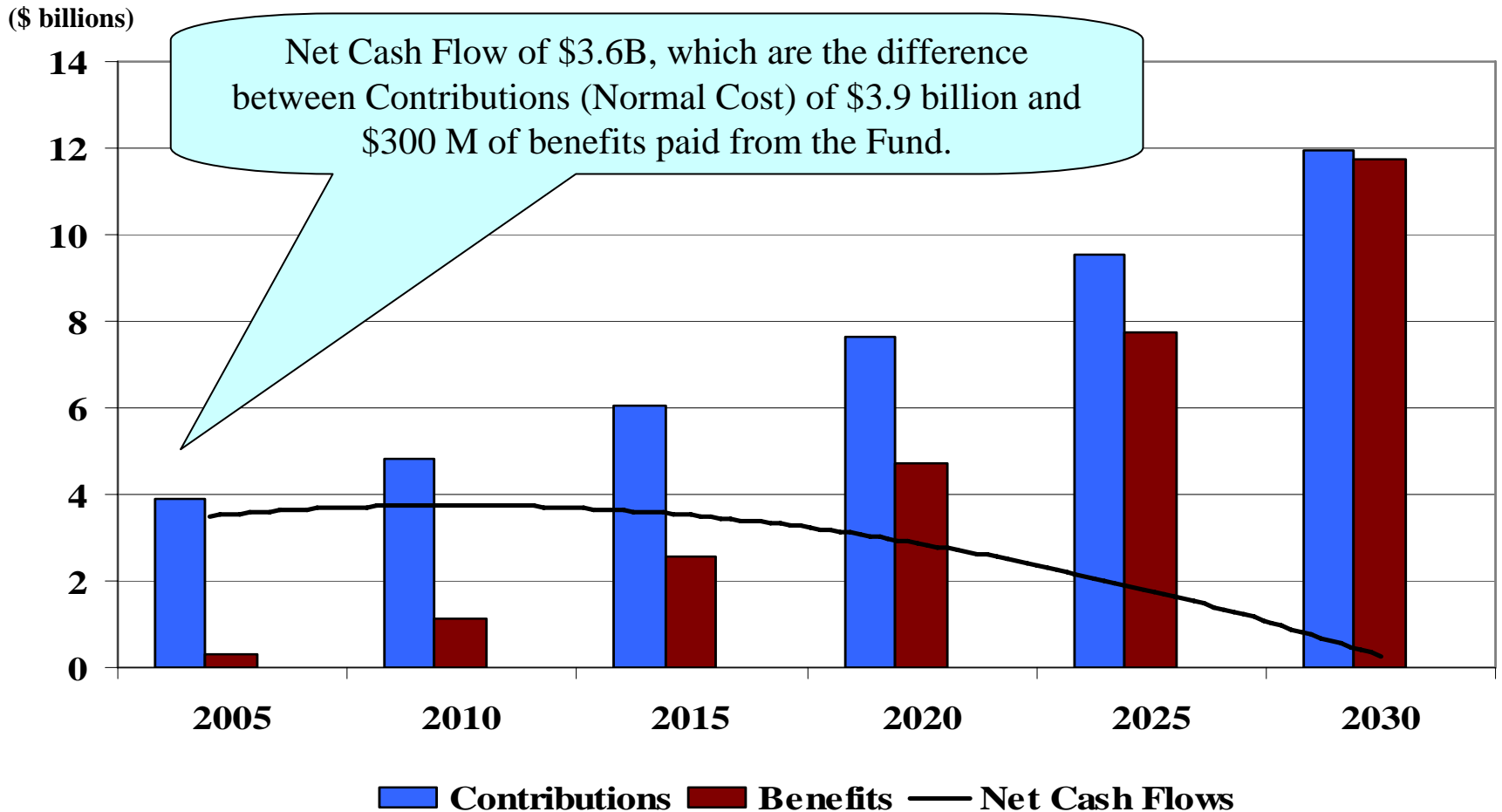
	PSSA Liabilities (\$ billions)	Ratio Actives/ Total	RCMP Liabilities (\$ billions)	Ratio Actives/ Total	CF Liabilities (\$ billions)	Ratio Actives/ Total
2005	14	90%	1	90%	4	88%
2015	58	71%	6	70%	16	65%
2025	146	59%	14	59%	38	53%
2035	293	52%	28	48%	73	48%

*•Liabilities invested through PSP Investments are long-term because they are heavily weighted towards the actives, thus reducing the assets/liabilities mismatch or, said differently, net cash flows are expected to be positive until 2030.*

*•PSP Investments is managing the assets of one of the youngest pension plan in Canada, certainly the youngest relative to the number of active contributors in 2005 (358,000).*



# Evolution of Net Cash Flows of the Funds (post-2000 service)

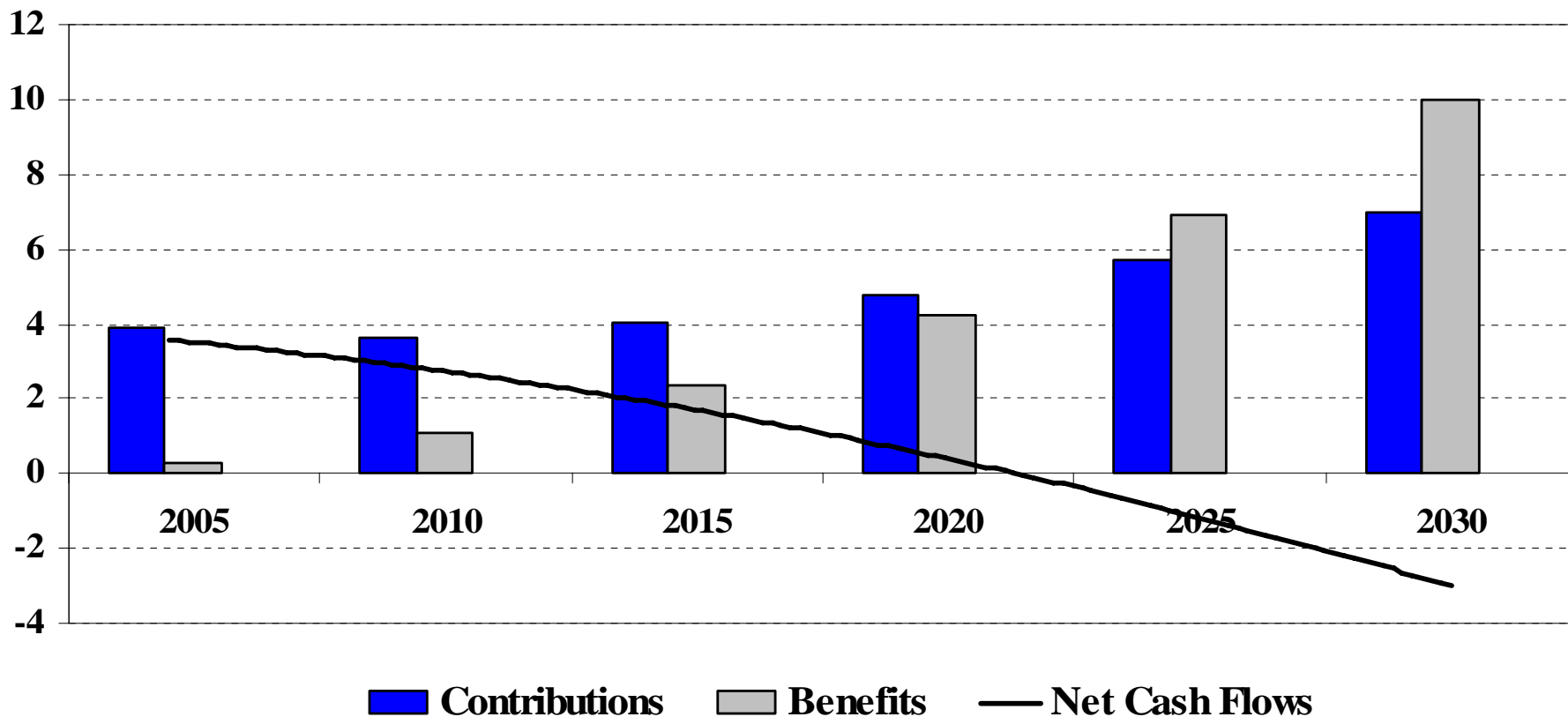


In 2005, benefits paid from the Superannuation Accounts (pre-2000 service) reached \$6.4 B.

# Evolution of Net Cash Flows of the Funds Assuming No New Entrants from 2007 to 2011 Plan Years

(post-2000 service)

(\$ billion)

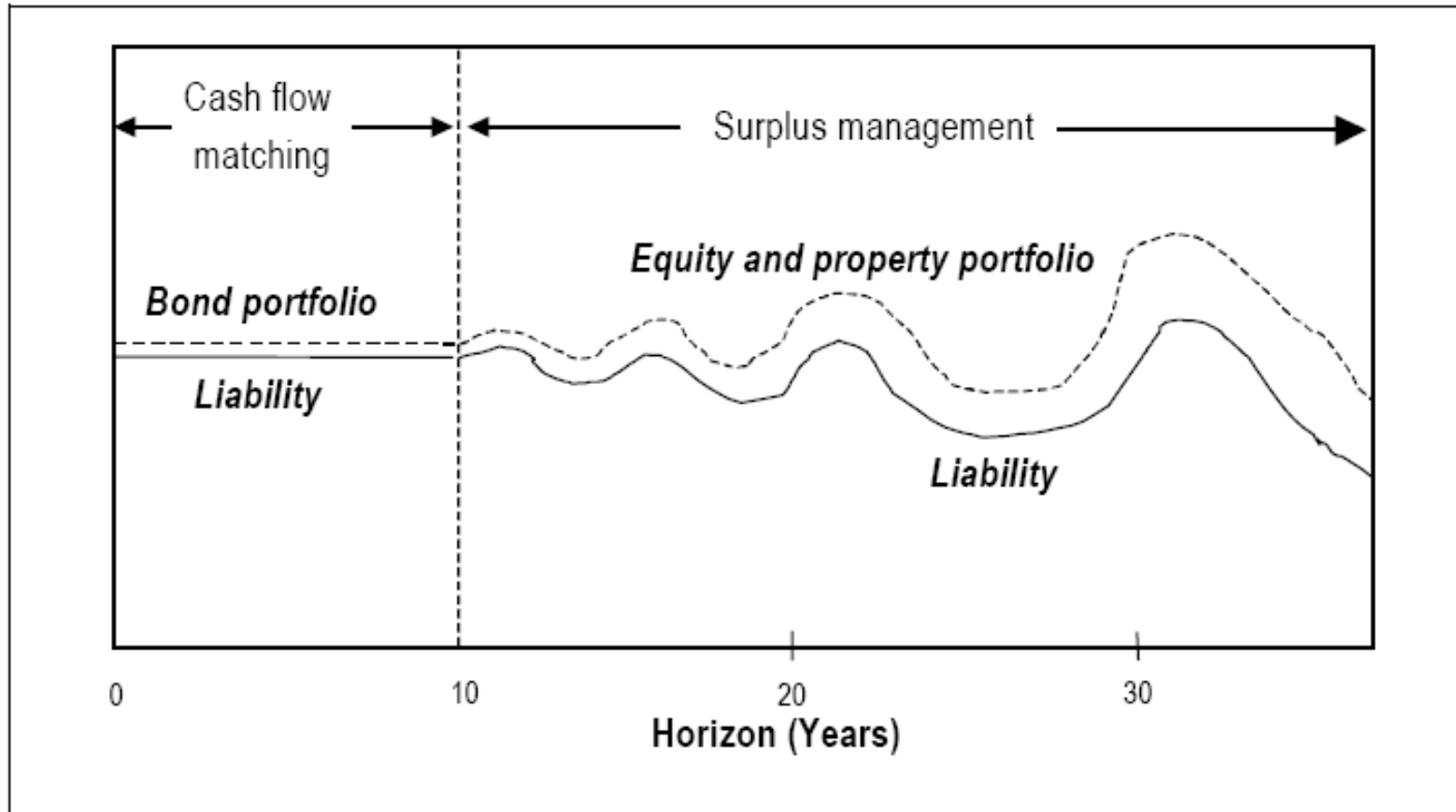


# Public Sector Pension Investment Board Asset Mix

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- Asset mix of PSPIB Assets as at March 31, 2006
  - 70% Variable Income Securities
  - 23% Fixed Income Securities
  - 7% Real Return Assets
  
- Long-term target asset mix of PSPIB Assets
  - 62% Variable Income Securities
  - 15% Fixed Income Securities (2% Cash)
  - 23% Real Return Assets (18% Real Estate/Infrastructure)

# Horizon Matching



**Source:** *DISCUSSION PAPER PI-0104 - UK Pension Fund Management: How is Asset Allocation Influenced by the Valuation of Liabilities?* David Blake, February 2001, ISSN 1367-580X - <http://www.pensions-institute.org/>



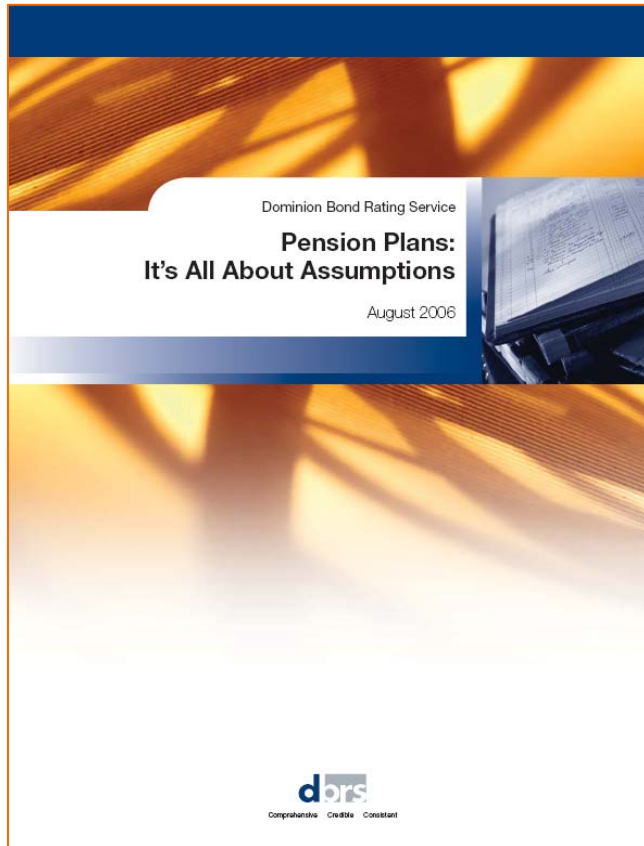
# Horizon Matching for Federal Public Sector Pension Plans

## Proportion of Liabilities to Fully Match to Bonds

Horizon	March 31, 2005		March 31, 2037	
	With Real Wage Increases	No Real Wage Increases	With Real Wage Increases	No Real Wage Increases
5 years	12%	11%	21%	16%
8 years	20%	19%	33%	26%
10 years	26%	25%	41%	32%

# Valuation Assumptions

(330 Pension Plans of US. and Canadian Companies)



## Liabilities (Pension obligations)

90% of the pension plans examined in 2005 reduced discount rates, generally to the 5.50% to 6.25% range, which is supposed to represent the yield on AA-rated debt.

## Assets

90% of Canadian plans have assumed rates of return below 8%, as opposed to only 30% of plans in the United States. (In 2002, it was respectively 60% and 10%).

## Federal Public Sector Actuarial Reports

6.3% for both Assets and Liabilities on a 5-year horizon (2005-2009).



« ***Pension Plans: It's All About Assumptions*** », a study released by **Dominion Bond Rating Service (DBRS)** in August 2006



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*Thank you*

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