

**CPP Actuarial Report and its Independent Peer Review Process  
Presentation to the Conference Board of Canada Pensions Summit  
Office of the Chief Actuary, Office of the Superintendent of Financial Institutions  
April 4, 2005**

Good afternoon. Thank you for inviting me here today to talk about the Canada Pension Plan (CPP) Actuarial Report and its Independent Peer Review Process.

**The mandate of the Office of the Chief Actuary (OCA) (Slide 2)**

Let me start by saying a few words about my organization. To accomplish its mission of protecting depositors, policyholders and pension plan members, OSFI administers a regulatory framework that contributes to public confidence in the financial system. My office, which operates independently but within OSFI, has different responsibilities. Our role is to provide actuarial services to the federal and provincial governments who are Canada Pension Plan stakeholders. While I report to the Superintendent of Financial Institutions, I am solely responsible for the content and actuarial opinions reflected in reports prepared by my office.

The Office of the Chief Actuary is required by law to produce an actuarial report on the Canada Pension Plan every three years. The report is one item considered by federal and provincial finance ministers when reviewing and making recommendations on the CPP. Today, I will explain the purpose of the report and its main assumptions and findings. I will also describe how an enhanced independent peer review process was established.

**The purpose of the Actuarial Report (Slide 3)** The purpose of the report is to inform Plan members of the current and projected financial status. It provides information to evaluate the financial sustainability over a long period, assuming the Act remains unchanged. This promotes a better understanding of the financial status and the factors that influence costs, contributing to an informed public discussion of the issues. Another purpose is to calculate the steady-state contribution rate, which is the lowest rate sufficient to sustain the Plan without further increase.

**The consultations on assumptions (Slide 4)** The Office of the Chief Actuary held seminars to get opinions from a wide range of experts in the fields of demography, economics and investments. Federal and provincial officials attended these seminars. These seminars as well as feedback from periodic independent reviews of the actuarial reports on the CPP provide my office with valuable input. Furthermore, we keep abreast of experts' views by way of Statistics Canada, the Policy and Economic Analysis Program of the University of Toronto, the Conference Board of Canada and

attendance at various seminars on specialized topics. These activities are part of the ongoing process of how the Office of the Chief Actuary operates.

**The demographic assumptions (Slide 5)** The projections included in this report cover a long period of time- 75 years. The assumptions reflect our best judgment and are referred to as a “best-estimate”. The actuarial report of the CPP involves projections of its revenues and expenditures. The revenues include both contributions and investment earnings. The projection of contributions begins with a projection of the working-age population. This requires assumptions on demographic factors such as fertility, migration and mortality.

**Fertility rate (slide 6)** The first cause of the aging population is the large decline in the fertility rate over the last three decades, relative to the baby boom generation, born between the mid-1940s to the mid-1960s. The decrease was due to changes to social, medical and economic factors. It is unlikely that fertility rates will return to historical levels in the absence of significant societal changes. It is assumed that the total fertility rate for Canada will increase slightly from its 2001 level of 1.5 to an ultimate level of 1.6 in 2016 and thereafter. An increase in fertility rates is expected because of continued trends in women giving birth to their first child at a later age.

**Migration (slide 7)** Net migration- the excess of immigration over emigration- is unlikely to materially reduce the continued aging of the population. Net migration to Canada has averaged 0.50% of the population over the last 30 years. Based on a continuation of these net migration levels and the expected pressure on the labour markets due to the impending retirement of the baby boom generation, an ultimate assumption of 0.54% of the population has been established for years 2020 and beyond.

**Mortality (slide 8)** Another element that has contributed to the aging of the population is the significant reduction in age-specific mortality rates. This can be best measured by the increase in life expectancy at age 65, which directly affects how long retirement benefits will be paid to the beneficiaries. Life expectancy at age 65 increased 24% for men between 1966 and 2001, rising from 14 to 17 years. For women, life expectancy at age 65 increased 23%, from 17 to 21 years over the same period. Life expectancies are expected to continue to increase in the future.

**Canadian Aging (Slide 9)** The aging of the Canadian population is most evident with persons over the age of 65. A significant increase of 170% in the size of this group is expected over the next 50 years. This means that there will be more than 10 million people over the age of 65 in the year 2050.

**(Slide 10)** The evolution of Canada's total population and of the so-called working age population- that is the population between 20 and 64 years, is projected to continue growing, but at a slower pace than in the past. While the average annual growth rate of the working age population surpassed that of the total population in the past 40 years ending in 2000, it is likely that the inverse phenomenon will occur in the future. By itself, the relative stagnation of the growth rate of the working age population will put pressure on the labour market. Finally, it is forecasted that the growth in the population after 2025 will be attributed solely to net migration.

**Economic Assumptions (Slide 11)** The main economic assumptions related to the Canada Pension Plan are the labour force participation rates, employment rates, unemployment rates and average employment earnings increases. For benefit and asset projection purposes, assumptions regarding the inflation rate and rates of return on invested assets are also required. One of the key elements underlying the economic assumptions relates to the expected labour shortage due to the aging of the population and the retirement of the baby boom generation between 2010 and 2030. Labour force growth will weaken as the working age population expands at a slower pace. Growing labour shortages, especially after 2010, are assumed to force higher real wage growth.

**Participation Rates (Slide 12)** Because of the aging of the population, the labour force participation rates for Canadians aged 15 and over are expected to decline from 67% in 2004 to 61% by 2030. A more useful measure of the working age population is the participation rates of those aged 15 to 69, which are expected to decline from 75% in 2004 to 73% in 2030. The narrowing of the gap between the age-specific participation rates of men and women continues but at a much slower pace than in the past.

**Job Creation Rates (Slide 13)** The job creation rate in Canada was 1.8% on average from 1976 to 2003. From 2004 to 2010, the job creation rate is assumed at 1%. For 2020 and thereafter, because of the aging of the population, the job creation rate follows the labour force growth rate of about 0.3%.

**Inflation (Slide 14)** Based on historical trends, the renewed commitment of the Bank of Canada and the federal government to keep inflation between 1% and 3% until the end of 2006 and long-term economic forecasts, an ultimate rate of price increase of 2.7% has been assumed for 2015 and thereafter. Recognizing recent experience, the rate of price increase is assumed at 2% for years 2004 to 2008.

**Real Wage Increases (Slide 15)** Many factors have influenced the real rate of increase in average annual wages, including general productivity improvements, the move to a service economy, variations in the average hours worked and fluctuation in the size of the workforce. Considering these factors, together with the historical trends, the

expected labour shortage and various long-term economic forecasts, an ultimate real wage differential of 1.2% is assumed for 2012 and thereafter. This is based on the assumption that growing labour shortages will cause increases in real wages as a way to attract and retain qualified workers.

**Real Total Earnings (Slide 16)** The increase in real total earnings is composed of the increase in real wages and in earners. It is expected that, due to the labour shortage, over the long term the bulk of the increase in total earnings will come from the increase in real wages. Ultimately, real total earnings are expected to grow by 1.5% (1.2% from the real increase in earnings and 0.3% from the increase in number of earners), or 4.2% including inflation.

### **Asset Mix and Real Rate of Returns (Slide 17)**

CPP Assets are invested in two broad categories: variable-income securities and fixed-income securities. The information shown in the most recent annual report of the CPP Investment Board is used to derive our assumption of the projected asset mix. Therefore, our projected asset mix is 65% variable and 35% fixed up until 2020, which is the period where the net cash flows are expected to be positive. It is expected that contributions will be higher than benefits paid for each year until 2021. We expect a transition period that will see a decrease in Canadian equities and an increase in marketable bonds because the annual net cash flows are expected to become negative. Our ultimate asset mix is therefore 55% variable-income securities and 45% fixed-income securities.

The real rates of return are the excess of the nominal rates of return over the inflation rates. As a result of assumptions for each asset class, the real rate of return on CPP assets is assumed to be 4.7% in the period 2004 to 2010 mainly due to the existing CPP Fund, which consists of 20-year loans to the provinces. The expected real rate of return is around 4.1% for the years thereafter.

### **Canada Pension Plan Funding (Slide 18)**

When it was introduced in 1966, the CPP was designed as a pay-as-you-go plan, with a small reserve. This meant that the benefits for one generation would be paid largely from the contributions of later generations. Continuing to finance the Plan on a pay-as-you-go basis would have meant imposing a heavy financial burden on Canadians in the workforce after 2020, which was deemed unacceptable by governments. Therefore, in 1997, the provincial and federal governments agreed to change the funding approach to a hybrid of pay-as-you-go and full funding, called steady-state funding. Moving to a full-funding approach would have created unfairness across generations. During the

transition to a full-funding approach, contributors of some generations would have paid higher contributions than others – they would have had to pay for the benefits of current retirees while simultaneously saving for their own retirement. A pure pay-as-you-go approach would also have been unfair, as it would have meant a sharp increase in the contribution rate over the coming decades. As a result of the consultation, the contributions were increased, the future growth of benefits was reduced and the CPP Investment Board was created to invest the funds not required by the CPP to pay current benefits.

**(Slide 19)** The steady-state funding requires that the contribution rate be set no lower than the lowest rate expected to ensure the long-term financial stability of the Plan without recourse to further rate increases. The current steady-state funding is expected to generate contributions that exceed the benefits paid out every year between 2004 and 2021. Funds not required to pay benefits are transferred to the CPP Investment Board for investment. As a result, Plan assets will cover an increasing number of years of expenditures over this period more than five years after 2020. Over time, this will create a large enough reserve to help pay the growing costs that are expected as more and more baby boomers begin to collect a retirement pension. CPP and QPP assets are projected to represent 17% of the GDP by 2020.

**(Slide 20)** At the time of the amendments and according to the actuarial report produced in September 1997, the steady-state rate contribution rate was deemed to be 9.9% in 2003 and to remain at that level for the years thereafter. As a result, the legislated contribution rate is 9.9%. Under the last actuarial report, the steady-state rate now stands at 9.8%. If the legislated contribution rate is higher than the calculated 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 as it is shown in the previous graph.

**(Slide 21)** On the other hand, what would happen if, in future actuarial reports, the calculated steady-state contribution rate is higher than 9.9%? The default provisions in the *Canada Pension Plan Act* may result in adjustments being made to the contribution rate and benefits in payment if the federal and provincial governments reach no agreement in response to the actuarial determination of the steady-state contribution rate. If the new steady-state rate is 10.1%, one half of the excess of the new steady-state rate over the 9.9%, that is 0.1%, will be applied to an increase in the contribution rate and the other half will be applied to non-indexation of benefits in payment in order to keep the steady-state rate at 10.0%. In other words, the contributors and the beneficiaries would equally support the additional cost shown in the actuarial report.

## **Independent Peer Review Process (*Slide 22*)**

The federal and provincial governments, as co-stewards of the CPP, have taken meaningful steps to strengthen the transparency and accountability of actuarial reporting on the CPP. In 1997, governments agreed to increase, for greater public accountability, the frequency of actuarial reporting on the CPP from every five years to every three years. The CPP legislation was also changed to require federal and provincial ministers to review the Plan's finances every three years. In 1999, federal and provincial finance ministers took additional steps to strengthen the transparency and public accountability of actuarial reporting on the CPP. They endorsed regular peer reviews of such reports and consultations by the Chief Actuary with experts on the assumptions to be used in actuarial reports.

Why the need for peer reviews? In my view, it is of utmost importance that the credibility of the information presented in actuarial reports be indisputable. The Office of the Chief Actuary maintains credibility by adhering strictly to professional actuarial standards. Peer reviews are conducted as part of an internal quality control process. The statutory actuarial reports are prepared by Fellows of the Canadian Institute of Actuaries and are co-signed with the Chief Actuary to enhance the internal quality control process.

An independent panel of actuaries released a report in March 2002 confirming that the work of the Chief Actuary meets professional standards of actuarial practice. The Review Panel found that the assumptions used by the Chief Actuary were reasonable and within acceptable ranges. The Review Panel also supported the actuarial conclusions reached by the Chief Actuary about the soundness of the Canada Pension Plan. The Review Panel report made a series of recommendations dealing with data, methodology, assumptions and communication of results. We acted upon these recommendations in the report tabled last December.

## **Selection Process of the Current Panel for Peer Review (*slide 23*)**

In the past, the panel was selected by OSFI. To provide greater independence, we agreed with a suggestion by the Auditor General to seek input from a foreign actuarial organization outside of the federal government. As such, we entered into an agreement with the United Kingdom Government Actuary's Department. We asked them to select the independent Canadian actuaries who will perform the peer review and to provide an opinion on the work done by the reviewers once the peer review is completed. In May 2004, we issued a call for volunteers and the final panel of three was selected from ten applicants. The panel was announced in September 2004. In my view, the independent

peer review process ensures that the highest standards and international best practices are applied to our actuarial work.

As you could imagine, I am a strong advocate of independent peer review. Indeed, our actuarial work was subject to peer review several times in the past and I believe it was hugely successful in terms of lessons we learned on how to improve our actuarial methods and assumptions. It is a both a challenging and rewarding process. I encourage other actuaries to consider similar processes.

### **Terms of Reference (slide 24)**

The independent panel has now completed the peer review. The report contains opinions on the following five questions:

- Is the professional experience adequate for carrying out the work required?
- Has the work complied with professional standards of practice?
- Did the Chief Actuary have access to the information required?
- Were the actuarial methods and assumptions used reasonable?
- Does the actuarial report fairly communicate the results?

Before the report can be made public, the Government Actuary's Department of the U.K. must provide an opinion on the panel's work. This is expected by the end of this month and this (the report and opinion) will be made public. This improved process establishes a precedent and will provide Canadians with the utmost confidence that the highest standards of practice, including existing international standards, are being applied.

### **Strengthen the accountability (Slide 25)**

In a time of rising doubts about the sustainability of pension plans, I want to leave you with one of the key findings of the most recent actuarial report from last December.

*“Despite the projected substantial increase in expenditures as a result of the aging of the population, the Canada Pension Plan is expected to be able to meet its obligations and remain fully sustainable over the projection period.”*

I hope that I've been able to provide you with a greater understanding of the Actuarial reporting process and would be delighted to answer any questions.

Thank you.