



Gauging the Path of Private Canadian Pensions:

2010 Update on the State of
Defined Benefit and Defined
Contribution Pension Plans

By the Certified General Accountants
Association of Canada



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Electronic access to this report or its seminal predecessors titled “Addressing the Pensions Dilemma in Canada” and “The State of Defined Benefit Pension Plans in Canada: An Update” can be obtained at www.cga.org/canada.

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Foreword

In response to emerging apprehension and in anticipation of growing concern, the Certified General Accountants Association of Canada (CGA-Canada) issued a comprehensive paper on defined benefit pension plans in June of 2004 titled “Addressing the Pensions Dilemma in Canada”. The goal of that release was to advance understanding of defined benefit (DB) pension plans along with inherent risks and imperfections, to impart a reasonable estimate of the standing of DB pension plans at December 31, 2003 and to explore potential remedies for consideration by stakeholders.

In large part motivated by a steady stream of media coverage focussing on pension plan shortfalls and a concern for the long-term viability of DB plans, CGA-Canada advocated for reforms and also saw fit to update December 31, 2003 estimates with a December 31, 2004 assessment. Building on its June 2004 publication, a second publication titled “The State of Defined Benefit Pension Plans in Canada: An Update” was issued in 2005 with the goal of further advancing public understanding. Serving as precursor studies to this current work, additional background and context can be gained by referring to these publications, and others, on the www.cga.org/canada website.

Consistent with earlier findings, the issue of under-funded pension plans has become one of the most perplexing financial issues facing business executives, legislators and Canadian pensioners who are or will in the future be reliant on pension income as an important component of their overall retirement incomes. Importantly, we would continue to support an approach that corrects fundamental or structural imperfections and systemic influences.

While there are a variety of public examples of what happens when pension regimes become dysfunctional for workers, recent Canadian experiences with the likes of Nortel Networks, AbitibiBowater, Fraser Papers, and CanWest underscore that pension plan default can occur within companies of any magnitude. More so, these events highlight a need to better preserve pension plan solvency and member protection.

CGA-Canada remains committed to making a meaningful contribution to the ongoing debate on pension issues facing Canadians. We also trust that the content of this report effectively expands on our earlier works while complementing the collective efforts of other professional organizations, regulators, plan sponsors, members and their representatives.

Anthony Ariganello, CPA (Delaware), FCGA

President and Chief Executive Officer

The Certified General Accountants Association of Canada

Introduction

Since we last revisited the subject of pensions in 2005, a new economic world order has eclipsed the earlier one, with the imbalance in Canadian demography becoming more pronounced as the first wave of baby boomers prepare to retire as early as 2011. In an atmosphere of heightened public debate, governments appear poised or otherwise challenged to bring meaningful improvements to Canada's retirement system.

Building on earlier works, in anticipation of much needed change, CGA-Canada once again commissioned in 2009 MERCER Human Resources Consulting to advance analysis on the funding status of private defined benefit (DB) pension plans at December 31, 2008. Relying on information contained in the 2008 MERCER Pension Database, an estimate of the funding positions of Canadian pension plans as at December 31, 2008 is herein submitted under the risk free basis approach. This analysis is based on 761 plans, covering a total of 1,496,000 members on December 31, 2008 compared to 784 plans and 1,787,000 members for the calculations as at December 31, 2004.

Serving as a representative sample from which to draw conclusions, these plans constitute approximately 30% of all such plans in Canada. As such, the approach adopted has been to evaluate the combined performance of many of the plans with which MERCER Human Resource Consulting has a professional relationship and required composite knowledge. Consistent also with our earlier works, CGA-Canada has recognized the importance and appropriateness of retaining the expertise of MERCER Human Resources Consulting in the research and presentation of these findings. In addition to the provided MERCER findings and publicly available Statistics Canada information accessed, publicly available information from academic and non-academic sources has been drawn upon and referenced.

What is most apparent is that the magnitude of the pension plan challenge has amplified. Funding deficits have intensified with funding ratios eroding to unsustainable levels. Moreover, we have witnessed a disturbing trajectory where an estimated \$160 billion required to fully fund deficit DB pension plans at 2003 year end grew to \$190 billion by the end of 2004 and has expectedly revealed itself to be much worse at the end of 2008.

In the interest of clarity, reference to pension plans in this paper shall relate specifically to defined benefit (DB) and defined contribution (DC) pension

plans registered with a provincial or federal pension authority unless otherwise expressed. This paper does not address or represent the state of supplementary employee retirement plans (SERP), defined benefit pension plans for Federal public employees (PSSA) or Québec public employees (RREGOP). Focusing primarily on single employer pension plans, multi-employer pension plans which tend to attract different funding and accounting issues, have also been excluded from findings and conclusions expressed herein.

Throughout the following pages, the aggregate performance of private DB plans is discussed, as too are the prospects of defined contribution (DC) and hybrid plans. Findings related to Canadian population demographics are presented so as to contextualize the gravity of the retirement income landscape. Along the journey, a rudimentary attempt has been made also to contrast the benefits of DB pension plans with those of defined contribution retirement investments. Rounding out the discussion, an abstract of recent accounting changes is presented, as well as some of the principles required of any contemplated pan-Canadian solutions.

Finally, this paper focuses on the renaissance of the Canadian retirement system. A holistic approach that encompasses regulatory, structural and strategic changes that are *de rigueur* for the coalescence and enhancement of the current system are called for.

The post retirement expectations and needs of the “boomer” generation, a group that will live longer than previous generations, will place enormous demands on the country’s health and social support systems. The ability of Canadians to maintain a financially comfortable and healthy lifestyle after retirement has become one of this country’s most vexing challenges. For many Canadians, post-retirement health and well-being are increasingly and inextricably tied to Canada’s pension system. Unfortunately, and the evidence is compelling, the pension system in this country has deteriorated significantly. There are problems related to under-funding, to allegations of archaic accounting practices and to sentiment of redundant legislation and public policy.

An abundance of literature that confirms the predicted risks of Canada’s fledgling pension system and the proposed actions for transformation can be consulted. At minimum, however, we need to accept that in order to address the challenges before us we must realize that the pension system is gravely imperfect and that there are options at our disposal. Only then can focus be directed on creating a sustainable pension ‘system’ that is financially viable, equitable, and appropriately aligned with the retirement needs of all Canadians.

Executive Summary

1

A new world economic order has replaced the old one and the age of a “new normal” has arrived, characterized by more globally inclusive economic policy, deleveraging of households, businesses and governments, and a shift from consumption to saving. In the immediate future, growth is expected to be slower, average return on assets is expected to be sluggish, and inflation expected to nip at our heels. Such a scenario, taken with recent economic developments, signals a noteworthy paradigm shift for Canadians. Pension constructs are not immune to these events and the challenges facing them can only be aggravated by the structural imbalances of the Canadian demography.

Based on examination of available reference and commissioned study in relation to Canadian defined benefit pension plans:

- There are an estimated 7,000 private DB plans and an estimated 8,000 DC plans having an estimated 4.5 million and 0.8 million members respectively. DB assets exceed \$550 billion while DC assets represent an estimated \$50 billion.
- The overall funding position of DB plans has significantly deteriorated since December 31, 2004 with the vast majority (92%) of private pension plans in a deficit position as at December 31, 2008. The average funding ratio has decreased from 112% to 77% on a ‘without indexation’ basis and from 71% to 57% on a ‘with indexation’ basis. The aggregate funding shortfall is expected to exceed \$350 billion.
- During the six month period from September 2008 to February 2009, the typical DB pension plan lost approximately 20% of its assets value, measured on a market value basis. According to estimates performed by MERCER, 71% of Canadian defined benefit pension plans were in a solvency deficit position at the end of 2007. By the end of 2008, that statistic had risen to 92%. At the end of 2008, almost 40% of defined benefit plans had solvency ratios under 70%, and over 70% of defined benefit plans had solvency ratios under 80%.

In the case of Canadian defined contribution plans, a study¹ by Statistics Canada staff indicates that:

- Between 1991 and 2006, defined contribution (DC) plan membership almost doubled, increasing by 93%. During the same period, defined benefit (DB) plan membership declined by 4%.

¹ Philippe Gougeon. “Shifting pensions. Perspectives on Labour and Income.” Ottawa: Statistics Canada. Summer 2009. Vol. 21, Iss. 2, pg. 43, 8 pgs

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- Membership fluctuations were greatest in the private sector, with DB plans giving up 279,000 members between 1991 and 2006 and DC plans acquiring 382,000 additional members. Membership changes were insignificant in the public sector.
 - Approximately 150,000 members forfeited by DB plans resulted from plan conversions, the vast majority of which benefited from hybrid or mixed plans. DC plan growth came mostly from an increase in active plan membership.
 - Neither industrial structure changes nor other factors used in a logistic regression could explain the considerable increase in DC plans.

A rudimentary break-even analysis presented herein under a set of straightforward assumptions has been navigated for the purpose of determining the contribution level at which an employee, ignoring non-financial factors, will be indifferent to the type of pension plan (i.e. the benefits will be identical under both types of plans or through complimentary RRSP contributions). This analysis, while revealing the superiority of DB plans, intimates that they are routinely underpriced and that their true cost is not fully appreciated.

All the while, it is encouraging to note that recent developments in Canadian accounting standards which facilitate the planned transition to International Financial Reporting Standards (IFRS) effective in 2011 are expected to enhance transparency and robustness of pension accounting.

In the more immediate future, CGA-Canada encourages the federal government to affect the previously announced measure of increasing the pension liability threshold for employer contributions from 10% to 25%. We also continue to see well enhanced protection for plan members — recognizing more fully the character of pension benefits as deferred compensation requiring greater recognition as secured debt of the company and enhanced consideration in the creditor hierarchy. Consistent with our submissions to the Department of Finance and the Standing Committee on Finance, it is contended that deliberate clarification is required regarding the ownership and distribution of surpluses on plan termination, the use of letters of credit, the time span for the funding of deficits, and prescribed solvency ratio levels.

As a pan-Canadian approach emerges to address the shortcomings of Canada's current pension system, its engineers will be well served to:

- Design a pension system that is sustainable in the long term, fair to present and future generations, simple to administer, and cost effective;
- Recognize pension benefits as deferred compensation;
- Consider adaptations of the “Hybrid Model” (Cash Balance Plans) that can, going forward, substitute for current DB and DC plan models;

-
- Establish a private pension authority to monitor the “third pillar” of the retirement system and adherence to the principle of “one law, one regulator”;
 - Examine the prospect of introducing universal and compulsory coverage of all working Canadians;
 - Consider consolidation of the oversight of private sector registered pension plans under the authority of the proposed private pension authority for achieving efficiency and economy of scale;
 - Harmonizing more fully the tax treatment of all pension plan transactions, including funding and payout irrespective of their origin and structure; and
 - Codify a set of guiding principles aimed at guarding the system against human error and external shocks.

Should DB plans continue to represent the desired Canadian standard, one opportunity resides in the alternative of designing a “time weighted” methodology that reflects and accounts for respective contributions and actions of plan sponsors and members. In time, it can be expected also that the establishment of defined contribution arrangements and multi-employer pension plans (MEPPs) will gain accelerated acceptance; if only for increased simplicity and sustainability.

CGA-Canada is encouraged by the growing appetite for coordinated pan-Canadian action that harmonizes the efforts of federal and provincial stakeholders. In so doing, likelihood is heightened to enhance information symmetry and to introduce comprehensive, systematic, and lasting improvements.

The Age of a “New Normal”

2

Since our June 2005 update on defined benefit pensions plans, there has been a titanic shift in the basic structure of global economic order. To many, the world financial system was seen to have almost collapsed in the aftermath of the 2008 economic downturn. Some of the titans of yesterday’s global financial system collapsed and the resulting new economic order famously christened as a “new normal” by Pacific Investment Management Company (PIMCO) is

Table 1 – Comparative Characteristics of “Old” and “New” Normal

Old Normal	New Normal
The group of G-7 developed nations shaped the world economic order.	The group of G-20 developed and emerging economies presides over the new economic order.
The G-7 nations led world economic growth.	The economies of Brazil, Russia, India and China combined (BRIC) are expected to be the engines of future world economic growth.
Individuals, businesses and governments were highly leveraged and were net spenders.	Individuals, businesses and governments will be increasingly deleveraged and become net savers.
The financial markets were lightly regulated.	The financial markets will be tightly regulated.
The “Efficient Market Hypothesis” constituted the central idea for explaining financial market behaviour.	Financial market behaviour is increasingly interpreted within the framework of behavioural finance.
Financial risk management systems were employed on value at risk and similar models based on normal distributions.	It is recognized that financial markets have “fat tail” distributions as articulated in the Black Swan Theory ²
The overall GDP growth in developed economies was hearty, and returns on investments in equities were high.	The overall GDP growth in developed economies will be slower, and matched by ordinary returns on equity investments.
The global rate of inflation was relatively low.	The world is expected to enter into an age of inflation; perhaps in some jurisdictions, hyperinflation.
Interest rates were progressively declining.	The interest rates will progressively increase.
The outsourcing of manufacturing and services proceeded very rapidly.	Protective and restrictive trade practices may emerge.
Innovations, growth and modernizations were the main drivers of business strategy.	Risk management and corporate sustainability increasingly represent the main drivers of business strategy.

² Taleb Nassim Nicholas: “*The Black Swan: The Impact of the Highly Improbable*” Random House (U.S.) April, 2007. Writing in the New York Times, Taleb explained, “What we call here a Black Swan (and capitalize it) is an event with the following three attributes. First, it is an outlier, as it lies outside the realm of regular expectations, because nothing in the past can convincingly point to its possibility. Second, it carries an extreme impact. Third, in spite of its outlier status, human nature makes us concoct explanations for its occurrence after the fact, making it explainable and predictable”.

dramatically different from what can be characterized as the “old normal”. This monumental shift has had far reaching implications for Canadian pension plans, administrators, beneficiaries and regulators. An understanding of this change is imperative and serves well in complementing conventional comprehension of the current state of pension plans. Although, there is no general agreement on what constitutes the “new normal” or how it is different from the “old normal”, Table 1 highlights some of the commonly accepted contrasts.

In a Canadian context, and indeed at different rates across developed economies, long-term demographic trends constitute an integral part of the “new normal” and should expectedly be duly considered when appraising the state of pension plans. Adapted from publicly available Statistics Canada³ information, a number of findings are worth highlighting in the context of our current discussion.

Demographic Trends in Canada

Discussed in an earlier CGA-Canada paper titled “Growing Up: The Social and Economic Implications of an Aging Population” Canada, like others, is experiencing population aging not only because of the older population is growing relative to the total population, but because of decline in the younger population. Taken together, increased life expectancy and fertility rates persistently below necessitated replacement levels exert the greatest influence on Canada’s ageing dynamic. As of July 1, 2009, the median age of Canada’s population had increased by 0.2 years from the year prior to 39.5 years; and by 3.1 years since 1999. Given the current trajectory, the median age is expected to reach 44.0 years by 2030 and almost 46 years by 2050.

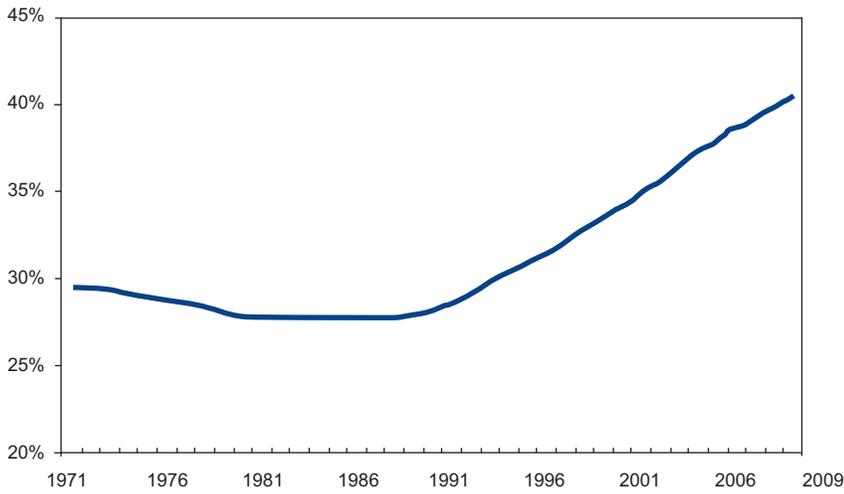
The Working-Age Population

Parallel to the population as a whole, Canada’s working-age population is likewise aging. Up from 38.4 years in 1999, the median age of Canada’s 15-64 working-age population reached 40.5 years as of July 1, 2009. The largest population cohort in Canada’s history, today’s 45-64 boomers account for in excess of 40.4% of the nation’s working-age population; up by about 7 percentage points from 1999. During the same period, the proportion of persons aged 30-44 years within the working-age population declined to 30.1% from 36.6% while those 15-29 years modestly declined to 29.5% from 29.9%.

With baby-boomers expected to progressively exit the workplace beginning in 2011, the current proportion represented by the 45-64 years of age group, within the working-age population has all but crested.

3 <http://www.statcan.gc.ca/daily-quotidien/091127/dq091127b-eng.htm>

Figure 1 – Proportion of Estimated Population Aged 45 to 64 Among the Working-age



Source: Statistics Canada – The Daily, November 27, 2009.

Concomitantly, the absolute size of the working-age population could conceivably shrink from 69.5% as of July 1, 2009 to approximately 62.0% by 2030; all the while at risk of fading further thereafter. Importantly also, it is noted that while Canada did experience labour force growth between 2000 and 2010, the absolute size of the 15-64 years labour force is not expected to experience meaningful growth between 2010 and 2030; contrary to such countries as the U.S., Mexico, and India. That said Europe and Japan are expected to experience the sharpest declines in working age population with anticipated reductions of 13% and 19% respectively between 2000 and 2030.

Perhaps more striking for the purposes of this discussion is the manifestation that the elderly dependency ratio of 19 retirees for every 100 workers in 2005 is projected to rise to 39 retirees per 100 workers by 2030 and to 44 retirees for every 100 workers by 2050.

The Nation's Elderly

Not all countries are aging at the same rate. In some European countries for example, the fertility decline was experienced earlier than in North America and their populations are correspondingly older than that of Canada. Having one of the lowest proportions of seniors among the Organisation for Economic Co-operation and Development (OECD) countries, individuals 65 years and over nevertheless accounted for a record high 13.9% of Canada's population as of July 1, 2009.

Countries having low fertility rates such as Italy, Spain, Germany, and Japan are starting to witness shrinking of their populations. In the United States, where fertility rates are closer to renewal levels and immigration rates have typically been the highest in the developed world, the population is aging somewhat less rapidly than in other developed nations.

As the Canadian boomer cohort enters this age grouping over the coming decades, the proportion of people 65 years of age and older will naturally increase at a fast pace. Projections reveal that this group could account for up to 25.0% of the population by the end of the 2030s.

The most rapid growth is occurring in the 80-plus and 85-plus age groupings. Between 1991 and 2001, the 80-plus population increased by 40.91 % and projections for 2001 to 2011 show an additional increase of about 43% for an estimated 1.33 million Canadians over the age of 80 years. Representing 3.8% of the Canadian population as of July 1, 2009, it is projected that by 2050, the 80-plus cohort will make up about 37% of the over 65 grouping.

Sobering Deduction

Long-term demographic trends challenge the Canadian retirement system. First, the increasing greying of the population will serve to generate greater demand on the retirement system. Meanwhile, decline in the numbers of the working-age population will serve to inflict constriction of funding into the retirement system. With escalating entitlements (pensioners), funding deficits can only be exacerbated by a declining contributor (worker) base. Unless this dual pressure on the system is otherwise relieved and counterbalanced by prudent regulatory and pecuniary policies, steady disintegration will befall Canada's retirement system(s).

The Current State of Affairs: Defined Benefit Plans in Canada

3

With a view to updating its understanding of the private sector defined benefit pension plan landscape, CGA-Canada commissioned MERCER Human Resources Consulting to provide data and analysis for the year ended December 31, 2008. To that end, and relying on its Pension Database, MERCER has provided insights necessary to determine the overall funding position of Canadian DB pension plans as at December 31, 2008 (simulating Tables 3 and 4 of the 2005 report⁴). Moreover, MERCER has provided some counsel in respect to various technical aspects and the impacts of the financial crisis.

Updated Funding Position as at December 31, 2008

Consistent with earlier works of CGA-Canada, this paper relies on the aggregate information contained in the 2008 MERCER Pension Database to estimate the funding position of Canadian pension plans as at December 31, 2008 under a risk free basis approach.

The risk free basis has been updated to reflect the market conditions as at December 31, 2008 and is presented as Appendix A, including also the comparative measures used at December 31, 2004, the last date at which results were released. The risk free basis intends to remove any discretion in the selection of going-concern assumptions of each plan, and it removes also the influence of the investment policies in the selection of such assumptions.

The main results as at December 31, 2008 are summarized in Appendix B (with no indexation of benefits) and Appendix C (with indexation of benefits). For convenience and comparison, the analogous December 31, 2004 results have likewise been replicated and provided.

The current analysis includes consideration of 761 plans, covering a total of 1,496,000 members. This compares to the 784 plans and 1,787,000 members examined in estimating the December 31, 2004 results.

The overall funding position has significantly deteriorated since December 31, 2004 on both bases (with and without indexation), with the vast majority of pension plans in a deficit position as at December 31, 2008. The average funding ratio has decreased from 112% to 77% on the ‘without indexation’

⁴ Available at <http://www.cga-canada.org/en-ca/ResearchAndAdvocacy/Pages/Reports.aspx>

basis and from 71% to 57% on the ‘with indexation’ basis. The main factors leading to this deterioration can be attributed to:

- The return for a typical asset mix⁵, net of administrative expenses, which was 2.1% per year over the years 2005 through 2008, as compared to the yield assumption of 5.0%. This represents a cumulative loss (shortfall) on assets of approximately 10%.
- The reduction in market interest rates. For the basis with no indexation of benefits, the rate has decreased by 1.5% (i.e. from 5.0% to 3.5%), which represents an increase in plan liabilities of approximately 30%. For the basis with indexation of benefits, the discount rate net of the assumed inflation has decreased by 0.25% (i.e. from 1.75% to 1.5%), which represents an increase in plan liabilities of approximately 5%.

Changes in Practice

- In earlier works, reference was made that “an actuarial valuation must be carried out at least every three years”. It is noted that the Québec legislation will require actuarial valuations to be performed annually starting not later than January 1, 2011 (unless the actuary can certify that the plan is in surplus). At the time of writing, it is prospected that modifications will be brought to direct that federally regulated plans will likewise be subject to annual valuations.
- While leaving unaltered earlier CGA-Canada assumptions and findings, it is noted that most plan sponsors are now using the same mortality table as the one used by CGA-Canada (the UP94G table), or a similar table. Representing potentially a departure for some plan sponsors, this adoption represents consistency with the CGA-Canada approach selected.
- The number of DB plans, and the number of plan members covered by them, has experienced some shrinkage. The representative sample contained in MERCER’s Pension Database is, however, deemed to constantly represent roughly 30% of the Canadian RPP market as validated by cross reference to information from Statistics Canada on assets of Canadian pension plans.

Impact of Financial Crisis

In the fall of 2008, the financial crisis, which had been sparked in 2007, worsened substantially. Markets lost significant value in almost every asset class. For example, the S&P/TSX Composite index tumbled by almost 29% in September-October 2008 alone. During this same period, U.S. stock values dropped by 13% and international stock values fell by 22% (returns measured in Canadian dollars), while the main nominal bond indices fell by 3% to 8%.

⁵ 25% Canadian equities, 15% US equities, 15% international equities, 42.5% fixed income and 2.5% money market

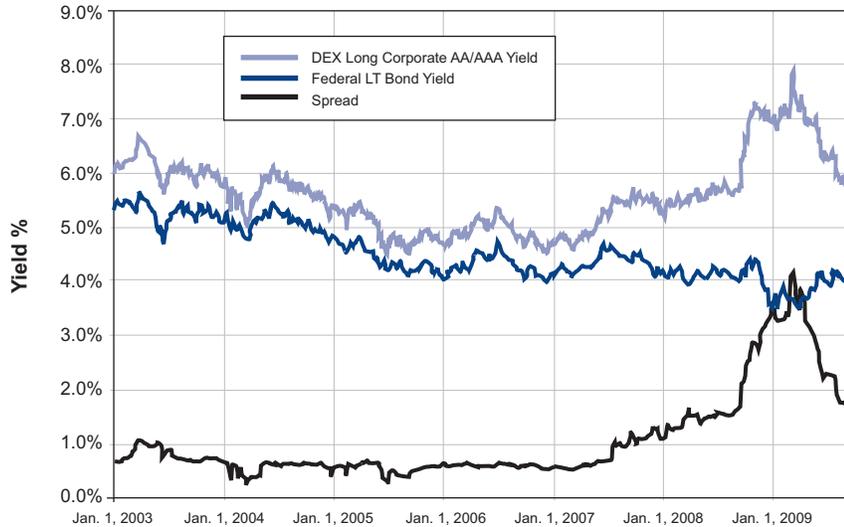
Stock and bond markets around the world continued to lose value through February 2009.

As a result of some high-profile bankruptcies in the United States, particularly in the financial sector, investors demanded higher yields on corporate bonds. Even in Canada, where the crisis was not as deep or as far-reaching, this effect was significant. From September 2008 to March 2009, yields to maturity on long-term high-quality corporate bonds rose from about 5.5% per year to 8.0% per year.

Another symptom of investors' heightened fear of corporate defaults was an increased demand for investments with a lower risk profile. This "flight to quality" pushed yields on long-term Government of Canada bonds from about 4.3% per year to about 3.5% in the last two months of 2008.

The resulting increase in the "credit spread" (the difference between corporate and government bond yields) dramatically illustrates the effect of the financial crisis on the bond markets.

Figure 2 – Canadian Bond Yields



Source: MERCER Human Resources Consulting.

Illustrated in Figure 2, this effect has reversed somewhat since the spring of 2009. Yields on long-term high-quality corporate bonds have fallen back to around 6.0% per year, and long-term government yields are around 4.0% per year. The 2.0% credit spread is still quite a bit higher than the level seen from 2003 through mid-2007 (well under 1.0%), but this is still a significant change from its high in spring 2009 of about 4.25%.

Effect of Crisis on Funding Status of Canadian Pension Plans

The events described had a devastating effect on Canadian pension plans. During the six months from September 2008 to February 2009, the typical pension plan lost about 20% of its assets value, measured on a market value basis.

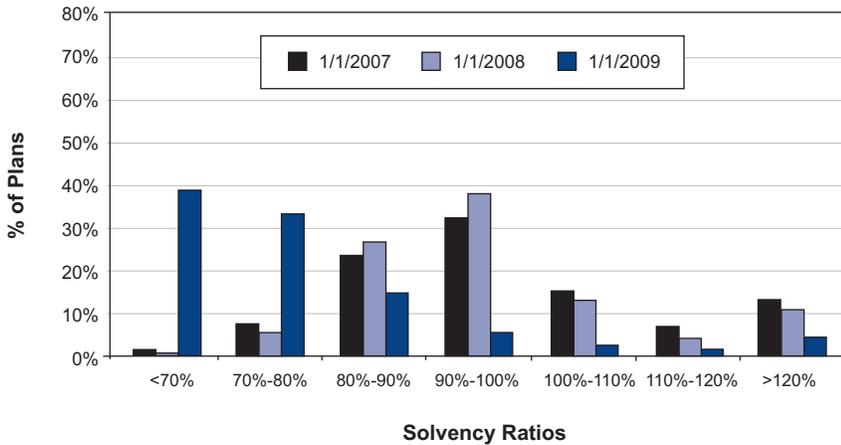
At the same time, falling yields on government bonds pushed solvency liabilities higher given that these obligations are valued by reference to government bond yields. However, in early 2009, the Canadian Institute of Actuaries (CIA) modified its guidance to member actuaries on how interest rates to approximate annuity purchases could be derived. A large portion of many solvency liabilities are assumed to be settled through the purchase of annuities so this assumption has had significant effect on the funding status of pension plans. The revised guidance from the CIA allowed higher interest rates than would have been derived under previous guidance. This was a reflection of lower annuity prices on the market, which were in turn a reflection of the higher yields insurance companies were experiencing on the corporate bond portfolios they use to back annuity liabilities. Overall, between the fall in government bond yields, and the increased spreads permitted by the CIA guidelines, annuity purchase rates remained relatively stable in late 2008, which meant that most of the decline in funding status resulted from decreased asset values.

According to MERCER estimates, 71% of Canadian defined benefit pension plans were in solvency deficit positions at the end of 2007. By the end of 2008, that statistic had risen to 92% (Table 2). At the end of 2008, almost 40% of defined benefit plans had solvency ratios under 70%, and over 70% of defined benefit plans had solvency ratios under 80% (Figure 3).

Table 2 – Percentage of Private DB Plans in Solvency Deficit

	2006	2007	2008
Proportion of Plans in Solvency Deficit	66%	71%	92%
Total Assets ÷ Total Liabilities (All Plan)	103%	104%	82%
Total Assets ÷ Total Liabilities (Plans in Deficit)	89%	92%	81%

Figure 3 – Solvency Ratio Distribution



Source: MERCER Human Resources Consulting.

It is worth mentioning that, in stark contrast to the sharp increases in funding requirements caused by the recent crisis, the cost of pension plans reported in most sponsors' financial statements experienced significant decreases in 2009. This is because most plan sponsors set the discount rates used to calculate the cost of their pension obligations for financial reporting purposes by reference to high-quality corporate bond yields. As discussed, such yields increased dramatically in the last quarter of 2008 and the first quarter of 2009. For sponsors whose fiscal year ends fell within that time frame, such increased rates typically caused the reported pension expense to be much lower in the following year, resulting in a disparity between lower reported costs on financial statements and greatly increased cash needs in the same year.

Government Response to Pension Funding Crisis

While many jurisdictions in Canada had already begun movement toward reform of pension legislation, the crisis demanded that the pace of such reform be accelerated. Virtually every province, as well as the federal government for those plans that fall under their jurisdiction, implemented some form of temporary solvency funding relief for sponsors of defined benefit pension plans in 2008. While measures diverged across the various jurisdictions, the most common option was to allow amortization of solvency deficits over a 10-year period, instead of over the usual five years; a change that could have a significant effect on cash funding requirements in the short term. In some jurisdictions, such as Ontario, the use of relief measures was constrained by the requirement to obtain some level of member consent.

Generally, the measures were intended to be temporary, and were only available for the first funding valuation report filed under the relief measures. While most agreed that temporary measures were necessary to help sponsors meet their funding requirements in the short term, the economic crisis also highlighted the need for broader, more far-reaching and fundamental reforms to pension legislation. For example, Ontario's Expert Commission on Pensions released its report in 2008 and permanent changes to the Ontario legislation are expected in the next few months. Following a series of public consultations, the Federal Department of Finance announced proposed changes to pension legislation governing federally registered pension plans. Generally, these measures were designed to enhance benefit security for members, while including some provisions to mitigate the volatility of pension funding requirements.

At the same time, the Federal government announced that the limit on defined benefit surplus under the *Income Tax Act* would be significantly increased. For most plans, this limit will be increased from 10% of liabilities to 25% of plan liabilities. This means that sponsors will now be permitted to contribute to their pension plans when the surplus is below 25% of the going-concern liabilities. While this measure will affect all defined benefit plans in Canada, such an increase will only be useful when those plans are in surplus positions again, and only to the extent that sponsors are willing to build up larger surpluses that they may not be able to benefit from.

It is worth mentioning that Québec introduced permanent changes to pension plan funding rules a few years ago which included the requirement to build a funding cushion before a sponsor can reduce its contributions. Other provincial regulators are also in the process of studying or enacting further pension reforms.

Plan Sponsors' Response to Pension Funding Crisis

In the wake of the crisis, plan sponsors have been anxious to find solutions to address the rising funding costs of their pension plans, which can take various forms.

Direct Cost Reduction

Some sponsors have attempted to reduce pension funding costs by reducing the benefits offered by the plan, or abandoning the defined benefit plan altogether, often in favour of a more economical and predictable defined contribution plan. While this approach can save money in the long term, it does little to address the short-term problem caused by depressed asset values and increased liabilities, as it is very difficult, if not impossible, to reduce benefits already accrued. Sponsors attempting these initiatives also run the risk of distressing employees by paring down existing benefits. Hypothetically

attractive, in practice it is extremely difficult to replace a defined benefit plan by a defined contribution plan in a bargaining environment, even if restricted to the prospect of future employees only.

Other approaches to reducing costs include the introduction of cost-sharing with employees, or adjusting the current level of cost-sharing. Unfortunately, in most cases this does not solve the short-term funding problem, since special deficit payments continue to fall within the responsibilities of the employer or sponsor.

Liability-Driven Investing

The impact of changes in asset values and market interest rates has highlighted for many sponsors the inherent mismatch between the characteristics of the liabilities in the pension plan and the assets that underwrite them. In particular, most pension plans invest in a fairly typical mix of approximately 60% equities and 40% fixed-income securities having medium duration. When market interest rates move, the liabilities react in much the same way as long-term bonds, but the assets do not normally move in the same direction.

Liability-driven investing (LDI) refers to a variety of investment approaches that are specifically designed to mitigate this mismatch risk. In some instances, implementing such a strategy can cause the pension plan to be more expensive on average than under the typical approach, but with much less volatility. After suffering from the rapidly changing costs in 2008 and 2009, many plan sponsors may consider this trade-off more seriously.

Increased Focus on Plan Governance

Whether sponsors have taken concrete actions to alter their plans' risk profiles or not, the crisis has illuminated the need for a greater emphasis on pension governance. Having clearly articulated the decision-making structure and process can help sponsors gain confidence in their decisions and in the documentation of these decisions during uncertain times. In addition, the crisis has given sponsors a greater understanding of the risks they are taking on in sponsoring defined benefit plans.

Effect of Crisis on Plan Members

The crisis has had a significant effect on many pension plan members; some more directly than others.

For some members of defined benefit pension plans, there have been significant and direct effects. At worst, in cases of sponsor insolvency where the plan is also significantly underfunded, there may not be adequate funds available to

fund plan deficits and members will experience permanent reductions in benefits already accrued. The high-profile nature of some of these cases⁶ has highlighted for members, that even in defined benefit plans, pensioners continue to be dependent on the long-term financial viability of their former employer(s).

In less extreme cases, sponsors may freeze a plan for future accruals or future hires, reduce benefits prospectively, or increase the cost-sharing borne by employees. All of these actions equate to reduced member benefits in the long term.

For some members of defined benefit plans, there may have been no obvious impact on their promised benefits. Many plan sponsors will pay for the cost of funding the deficits directly, with no changes to plan design. The extra expenditures, however, may force the sponsor to cut back on other forms of compensation, or to reduce its workforce.

For defined contribution members, the effect of the crisis is more direct. Without the risk pooling inherent in defined benefit plans, defined contribution members experienced significant losses in their individual accounts. While it is likely that most of these members will recover their losses over time, not all members can afford to wait for that to happen; particularly older members.

This has had a meaningful effect on members' decisions as to when they can retire and how much income they will have during retirement.

Actuarial Profession's Response to Pension Funding Crisis

With the recently increased attention being paid to pension issues by various parties, and a possibly greater openness to change, the Canadian Institute of Actuaries (CIA) has recognized an opportunity to fine-tune its collective view on the pension system and to advocate for some basic reforms and changes.

In November 2009, for example, the CIA released its paper⁷ containing opinions and suggestions representing a broad cross-section of leading-edge ideas from experienced professionals.

The CIA paper is based on certain core needs of Canadians, including expanded pension coverage and a higher overall level of retirement savings. The paper contains a deliberate bias toward defined benefit pension plans, which are

⁶ Notable cases include Nortel Networks, AbitibiBowater, Fraser Papers, and CanWest

⁷ Canadian Institute of Actuaries, "Retooling Canada's Ailing Pension System Now, For The Future: Canada's Actuaries Advocate Change" November, 2009

received as a more efficient regime for allocating risk and providing retirement income than defined contribution plans. Reasonably, the CIA asserts that the recent decline in defined benefit plan coverage in Canada is not in our society's best interests.

To address the flaws of the current system, the CIA paper articulates a 10-step plan accentuating increased national focus; increased education for members on retirement issues; alternative ideas for funding which improve benefit security for members while providing some flexibility and clarity for sponsors on surplus use and ownership; and re-examination of priority given to underfunded pension benefits (i.e. pension plan members could take priority over certain creditors) and to accrued benefits (i.e. certain types of benefits could take priority over other types) when an employer becomes insolvent at a time when the pension plan is underfunded.

Generally, the crisis has raised awareness of, and interest in, pension issues among sponsors, members, and regulators. Most of these issues have existed for decades, but have not been fully appreciated by most stakeholders; or perhaps have been beyond immediate reach. Now there seems to be a collective will on the parts of pensioners, regulators, and sponsors alike to address the problems inherent to the system. Importantly, balanced solutions will be required if Canadians are to enjoy affordable, secure, and sustainable retirement incomes.

The Current State of Affairs: Defined Contribution Plans in Canada

4

A defined contribution (DC) plan is one that specifies the employee's (if the plan is contributory) and the employer's contributions. Members' benefits are provided from accumulated contributions plus earned return on investment. It is a type of retirement plan in which the amount of the employer's annual contribution is fixed and individual investment accounts are set up for employees. In many instances, employees may, at their discretion, contribute over and above their employer's respective contribution. The benefits for the participants are linked to the contributions made to their respective accounts coupled with performance of the plan's investments. Only employer contributions to the account are guaranteed, not the future benefits. DC plans may come in the forms of registered pension plans (RPPs), group registered retirement savings plans (RRSPs) and deferred profit sharing plans (DPSPs). They can also be combined with employee stock option plans (ESOP). Recently, there has been a shift among employers towards DC plans. There are a number of reasons for this migration.

Risk Management

It is seldom prudent for a company to undertake future pension obligations extending beyond its own life expectancy; a situation that an employer can avoid by introducing a defined contribution plan instead of defined benefit plan. A DC plan, unlike a DB plan, affords certainty of expense and cash flow for the employer and hence assists in planning, controlling and monitoring risk.

Employee Empowerment and Motivation

A DC plans allows the employee to exercise greater control over retirement planning and increased adaptation to their own individual circumstances and lifestyle. Some forms of DC plans like DPSP and ESOP also serve to align individual employee goals with corporate goals, and hence motivate employees to enhance the value of the enterprise.

Control and Flexibility

DC plans allow members more flexibility and more options in regards to their target retirement date, portability of their retirement benefits from one employer to another, and also financing major expenses like home purchase and continuing education. These elements of control and flexibility appear to make DC plans more attractive; at least to younger generations. Also, DC plans impose ownership responsibilities on the participants for shaping their working lives and retirement expectations.

DC plans can be structured basically in one of the following two ways:

Managed DC Plans

In addition to making the monetary contributions, the employer is actively involved in the management of the plan assets. The plan is managed by the representatives of the employer and of the employees.

Self-Directed DC Plans

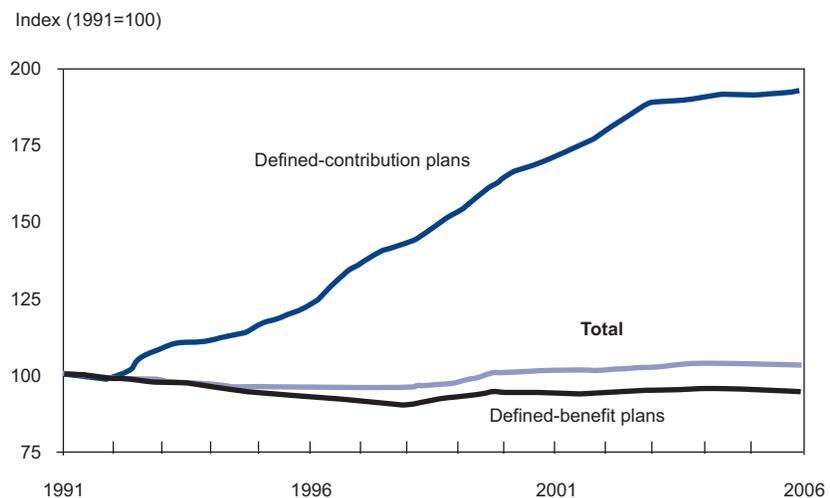
The employer is not involved in the investment decisions or control of the funds. The role of the employer is essentially limited to making contractual contributions. The investment decision is at the discretion of each employee, who controls and invests his/her share of contribution in his/her own individual capacity.

Current State of Canadian DC Plans

An analytical study published by Statistics Canada profiles the current state of defined contribution pension plans in Canada⁸. This report is based on an annual census of all registered pension plans in Canada, the “Pension Plans in Canada” Survey. Highlights of this analytical study include:

- By 2006, DB pension plans represented 81% of the workers participating in registered pension plans while DC plans represented a more conservative 16%. During the 15 year period ending in 2006, DC plan participation almost doubled, reaching a participation level of 899,000 members. Figure 4 depicts growth in plan membership for the period of 1991 to 2006.

Figure 4 – DB and DC Plan Member Growth



Source: Statistics Canada – Perspectives, May 2009 as adapted from Statistics Canada, Pension Plans in Canada Survey.

8 Philippe Gougeon. “Shifting pensions. Perspectives on Labour and Income.” Ottawa: Statistics Canada. Summer 2009. Vol. 21, Iss. 2; pg. 43, 8 pgs

- Membership fluctuations were greater in the private sector, where DB plans gave up 279,000 members between 1991 and 2006 and DC plans gained 382,000. Changes were nearly nonexistent in the public sector. Table 3 presents participation in DB and DC plans by sector.

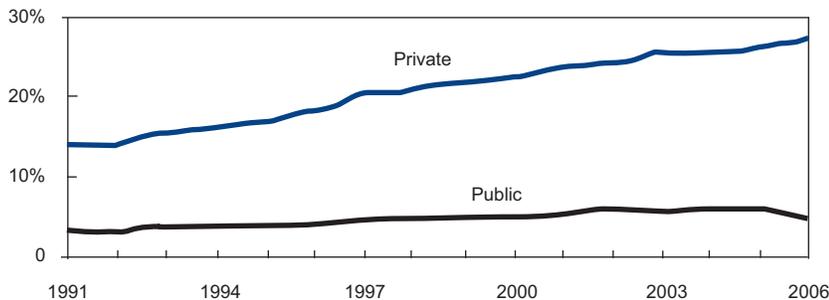
Table 3 – Pension Plan Coverage by Sector

	1991	2006
Public Sector		
Employees	2,855,300	3,261,600
Defined benefit plan members	2,463,700	2,550,800
Defined contribution plan members	80,900	132,100
Private Sector		
Employees	8,814,600	11,781,400
Defined benefit plan members	2,309,700	2,030,500
Defined contribution plan members	384,900	766,800

Source: Statistics Canada, Pension Plans in Canada Survey.

- The private sector stimulated the bulk of increased activity in defined contribution plan participation with DC plan membership in the private sector nearly doubling over the 1991 to 2006 period. As revealed in Figure 5, coverage in the private sector increased from 14% to 27% while coverage in the public sector remained relatively invariable during the 1991 to 2006 period.

Figure 5 – DC Plan Coverage



Source: Statistics Canada – Perspectives, May 2009 as adapted from Statistics Canada, Pension Plans in Canada Survey.

- Throughout the 1991 to 2006 period, DC plans were more customarily offered by smaller employers⁹. Interestingly though, these plans have gained popularity in all group sizes and continue to attract increased attention as plan sponsors navigate their benefits offering in these challenging times. Conversely, with the exception of the very large DB pension plans, DB plan membership has waned (Table 4).

Table 4 – Pension Plan Coverage by Group Size

	1991		2006	
Small Plans	269,300	100%	219,300	100%
DB	122,900	45.6%	60,400	27.5%
DC	146,400	54.4%	158,900	72.5%
Medium Plans	794,900	100%	818,900	100%
DB	630,400	79.3%	461,500	56.4%
DC	164,500	20.7%	357,400	43.6%
Large Plans	1,186,600	100%	1,259,600	100%
DB	1,092,100	92.0%	968,300	76.9%
DC	94,500	8.0%	291,300	23.1%
Very large Plans	2,988,400	100%	3,182,500	100%
DB	2,928,000	98.0%	3,091,200	97.1%
DC	60,400	2.0%	91,300	2.9%

Source: Statistics Canada, Pension Plans in Canada Survey.

- While plans have naturally been initiated, redesigned, and otherwise terminated and have been subject also to variation in plan participation, it is interesting to note that plan conversions have most affected the decrease

Table 5 – Sources of Change in Plan Membership

	DB Plans		DC Plans	
Membership Variation	-192,100	100%	433,200	100%
Plan Conversions	-149,400	77.7%	56,400	13.0%
Plan Openings and Closures	-14,200	7.4%	98,700	22.8%
Change in Membership	-28,500	14.9%	278,100	64.2%

Source: Statistics Canada, Pension Plans in Canada Survey.

⁹ Plan Sizes: small (3 to 99 active members); medium (100 to 999 active members); large (1,000 to 9,999 active members); very large (10,000 or more active members).

in DB plan membership while increased membership in DC plans has come about through augmented participation in pre-existing plans (Table 5) .

- In 1991, DB plans covered most pension plan members in all industries. Fifteen years later, the number of DC plans had increased in all industries and even included most of the pension plan members of some sectors; particularly in mining, quarrying, and oil and gas extraction, and in wholesale trade (Table 6).

Table 6 – Pension Plan Membership % by Industry

	1991		2006	
	Defined-benefit plan	Defined-contribution plan	Defined-benefit plan	Defined-contribution plan
Industry	91.10	8.90	83.60	16.40
Agriculture, forestry, fishing and hunting	55.10	44.90	44.40	55.60
Mining, quarrying, and oil and gas extraction	82.60	17.40	45.80	54.20
Utilities	99.40	0.60	94.30	5.70
Construction	90.50	9.50	85.90	14.10
Manufacturing	90.50	9.50	76.50	23.50
Wholesale trade	71.70	28.30	48.90	51.10
Retail trade	79.20	20.80	75.40	24.60
Transportation and warehousing	89.00	11.00	81.50	18.50
Information, culture, arts, entertainment and recreation	93.80	6.20	57.50	42.50
Finance and insurance, administrative and professional services, real estate	87.30	12.70	77.40	22.60
Educational services, health care and social assistance	93.80	6.20	89.40	10.60
Accommodation and food services	81.40	18.60	70.80	29.20
Other services	71.50	28.50	34.90	65.10
Public administration	96.90	3.10	95.90	4.10

Source: Statistics Canada, Pension Plans in Canada Survey.

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- A logistic regression analysis could not explain the considerable increase in DC plans by factors such as the industrial structure, plan size and distribution of plan participants by gender.

Conclusion

The Canadian retirement system is shifting towards DC plans, away from the DB plans. This trend is more pronounced and visible in the private sector than in the public sector, and across plan sizes. A major portion of this growth is accounted for by conversions of DB plans into DC plans. The cause for this shift is not explained by other factors like industry structure changes or plan sizes. This development, while not necessarily alarming, indicates a transfer of risk and rewards from the employer to the employees and a fundamental shift in the composition of the Canadian retirement system. This trend is confirmed by the MERCER 2009 Global Defined Contribution survey: Canadian results.¹⁰

¹⁰ Available at <http://www.mercer.ca/home.htm?siteLanguage=1007>

Defined Benefit Plans vs. Private Pension Savings — Is There Really Any Comparison

Introduction

The prospect of participating in an employer-sponsored retirement program is considered important by both employees and employers. As an important element of a successful recruitment and retention strategy, employees' contributions to such plans are often supplemented by employers while employee contribution deductions are incorporated into the regular payroll cycle — easing the stress of financial discipline. Correspondingly, defined benefit pension plans offer an ability to mitigate such employee's retirement risks as income replacement inadequacy, market fluctuations, cash-flow uncertainty resulting from longevity uncertainty and inflation.

The recent financial crisis accompanied by a chain of high-profile bankruptcies highlighted the other side of defined benefit pension plans — the risk that an employer fails to fulfill its pension obligations. Nortel is probably the most recent and noticeable example. A company reasonably considered to be Canada's technology standard-bearer with market capitalization of some \$385 billion at its peak in 2000, filed for bankruptcy protection in January 2009. With Nortel's pension plans being only 69% funded,¹¹ the assets in the company pension plans were insufficient to meet its obligations, leaving current and former Nortel employees with lower pension benefits than those 'defined' by pension arrangement.

Given the overall decline in the offerings of defined benefit pension plans and the possible shift of employee confidence in such plans, we deliberately allow ourselves to muse over two particular queries. First, would consistent savings patterns applied throughout an individual's working life render an accumulation of retirement savings sufficient to rival that afforded through a defined benefit pension plan? Second, what income replacement rate can be achieved if an individual maximizes RRSP contributions within eligible deductions limits throughout working life?

¹¹ CBC.ca (2010). Ontario to Partially Guarantee Nortel Pensions, available at <http://www.cbc.ca/canada/windsor/story/2010/02/07/ontario-nortel-pensions943.html>

Can Private Savings Outperform Defined Benefit Pension Plans?

In the Canadian context, the distribution of defined benefit pension plan members across different industries is highly uneven. Certain industries (for instance, wholesale trade or community business and personal service) rarely offer defined benefit plans to their employees. At the same time, nearly half of the workforce of the utilities sector participates in defined benefit pension plans. The size of the sector is also important. Although individuals working in the utilities sector are highly likely to be members of defined benefit plans for example, altogether they constitute only a minor part (1.4%) of all members of defined benefit pension plans.¹²

Identifying the industry affiliation of the plan members is essential because the factors that affect the level of pension benefits (i.e. pension indexation, rate of salary increase, and age of retirement) are often industry or sector specific. Moreover, the question of whether private savings may prevail over the benefits of a defined benefit plan is of relevance to only those individuals who are employed in industries offering defined benefit plans and who consequently have the choice of either participating in the pension plan or saving on their own. Analysis shows that two thirds of all members of defined benefit pension plans are concentrated in three industries: public administration (accounting for 38.3% of all members in 2007), educational services, health care and social assistance (accounting for 17.9% of members), and manufacturing (which accounts for 10.1% of all members in 2007).¹³ As the median retirement age and pension indexation varies for the private and public sector, further analysis is focused on two industries: public administration, which is treated as a proxy for the public sector, and manufacturing, which is deemed, albeit imperfectly, representative of the private sector.

Throughout this section, a generic term ‘private savings’ is used to identify the pool of pension savings that is accumulated through sources other than defined benefit pension plans. For the purpose of the current analysis, private savings are approximated as the equivalent of an employee’s contribution otherwise made to a defined benefit pension plan. In so doing, the outlay borne by an individual remains identical under either condition — within a defined benefit pension plan or in its absence. It is assumed that the employer also contributes to private savings at a rate similar to that typically experienced under defined contribution pension plans (5% of employee’s earnings). For the purposes of this exercise, private savings accumulated through this scheme are branded ‘DB-equivalent private savings’.

¹² Based on CANSIM Tables 280-0011 and 281-0024. CGA-Canada computation

¹³ Based on CANSIM Table 280-0011. CGA-Canada computation

The hypothetical individual's financial security at retirement is compared based on the replacement rate of income otherwise achievable under three scenarios: (i) the individual is a member of a defined benefit pension plan during all years of working life; (ii) the employee accumulates DB-equivalent private savings; and (iii) in addition to accumulating DB-equivalent private savings, the employee maximizes eligible RRSP contributions. For the private savings and RRSP scenarios, it is assumed that the employee makes RRSP contributions every year throughout working life. It is further assumed that tax refunds resulting from pension contributions are also invested in retirement savings. The possibility of using Tax-Free Savings Accounts (TFSA) for accumulating private savings is not incorporated in the calculation, as the novelty of TFSA does not allow for a substantiated assumption regarding possible contribution rates.

A number of assumptions were admittedly made in order to simulate a model defined benefit pension plan and the investment patterns of individuals. The assumptions are based on economic and demographic characteristics of the two industries under review (i.e. public administration and manufacturing), as well as characteristics of Canadian defined benefit and defined contribution pension plans as they reveal themselves in the data available from Statistics Canada.¹⁴ The assumptions regarding pension plans are based on the characteristics that are common to the prevailing proportion of the members of the plans included in Statistics Canada's dataset. The following key assumptions are made for the purpose of rudimentary comparison:

- Pension benefit rate is 2% of employee's earnings for each year worked.
- Earnings base is average earnings of the best five years of service.
- Pension indexation is 2/3 of long-term average CPI (2.5%) for pension plans in the public sector — there is no indexation for pension plans in the private sector.
- Starting salary of the employee in the public sector is \$33,000 with an average annual growth rate of 3.6%. Starting salary of the employee in the private sector is \$29,500 with an average annual growth rate of 2.5%. A higher than average annual salary increase is assumed to be 5% in both sectors. Employee's earnings equal to employee's salary.
- Individual's career begins at age 25.
- Retirement age is 60 years of age in the public sector, 62 years of age in the private sector.
- Life expectancy is 78 years for male and 83 years for female.

14 Basis of assumptions: CANSIM Tables 280-0017 (earnings base for defined benefit plans, reference year — 2008), 280-0025 (automatic pension adjustment, reference year — 2008), 102-0511 (life expectancy, reference year — 2006), 280-0018 (employee contribution rate, reference year — 2008), 280-0020 (employer contribution rate, reference year — 2008), 282-0051 (median retirement age, reference year — 2008), 326-0021 (CPI, average for 1986-2009), 282-0072 (salary at the beginning of working career, reference year — 2009), 202-0107 (rate of salary increase, average for 1997-2007), 280-0022 (benefit rate for defined benefit plans, reference year — 2008).

- Individual contribution rate to the defined benefit plan and to DB-equivalent private savings is 7% of employee's annual earnings.
- Employer contribution rate to DB-equivalent private savings is 5% of employee's annual earnings.
- Maximum RRSP contribution is the lesser of 18% of individual's salary or \$21,000 (2009 deduction limit). Tax refunds associated with pension contributions is calculated based on the federal and provincial income tax rates applied in the province of Ontario in 2009.
- Rates of return on investments for defined benefit plan are as follows:¹⁵

Investment maturity years	5	10	15	20	25	30	40
Rate of return	3.98%	5.20%	6.71%	7.71%	8.39%	9.50%	8.85%

- Rates of return on investments for DB-equivalent private savings and RRSP contributions are 2/3 of the rate of return used for defined benefit plan. Rate of return on investments for DB-equivalent private savings and RRSP contributions after employee's retirement is 2.5% annually.
- Two types of family arrangements are considered: (i) single individual with no dependents; and (ii) married individual in a dual-earner family with no dependents. Spousal pension is assumed to be 50% of employee's pension and both spouses are of the same age.
- Pension income derived from the Canada Pension Plan, Old Age Security and Guaranteed Income Supplement programs is not taken into account in the calculations as these benefits are purposely held to be the same regardless of retirement income source.

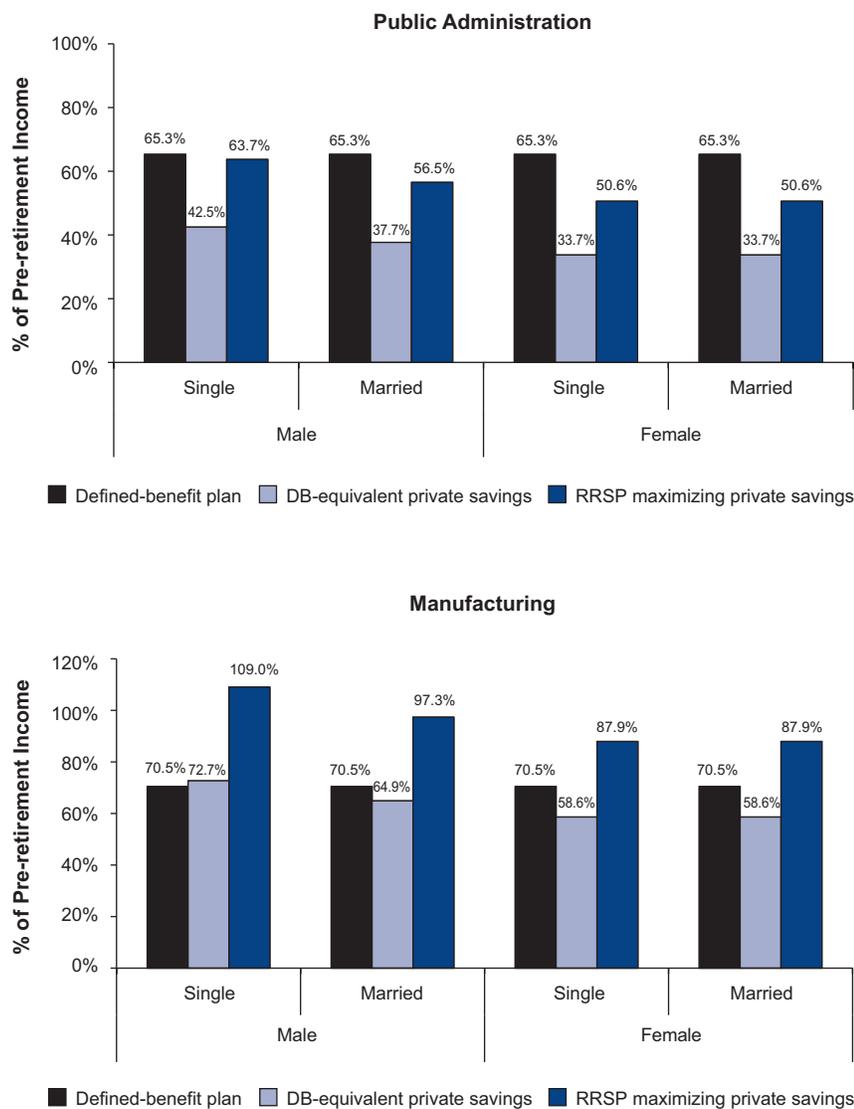
The salient aspect of the analysis is the conclusion that DB-equivalent private savings do not allow the employee to achieve a level of income replacement similar to that offered by a defined benefit pension plan. If RRSP contributions are maximized, the employee's ability to match (or exceed) the benefits of the defined benefit plan improves but still depends greatly on employee's gender and marital status. For instance, single male employees could enjoy a better income replacement rate when maximizing RRSP savings than their female and/or married colleagues. The obvious reason relates to the longer life expectancy of women; which necessitates 'stretching' of the same pool of pension savings for a greater number of retirement years.

The sector of employment is also of importance as it determines differences in rates of salary increase and indexation of pension benefits. For instance, as seen

¹⁵ Assumptions on rates of return were constructed based on two sources of information: information on Canadian capital market returns for 1958-2003 collected by Scotia Capital Inc. (2004), and information provided by MERCER on rates of return for 2004-2008. The portfolio composition of investments was assumed as following: Universal Bonds — 35%, Mortgage Index — 5%, 90-Day Commercial Paper — 5%, S&P/TSX — 55%.

from Figure 6, individuals employed in manufacturing may well surpass the benefits offered by the defined benefit plan if they maximize their RRSP contributions. This becomes possible because a lower rate of salary increase in manufacturing leads to a relatively modest income at retirement, which is easier to replace than a relatively higher income attained by employees in public administration at retirement. The zero indexation of pension payments in manufacturing also contributes positively to the employee’s strong ability to replace income at retirement. It should be noted, though, that a higher replacement rate does not necessary mean a higher amount of pension income in dollars terms.

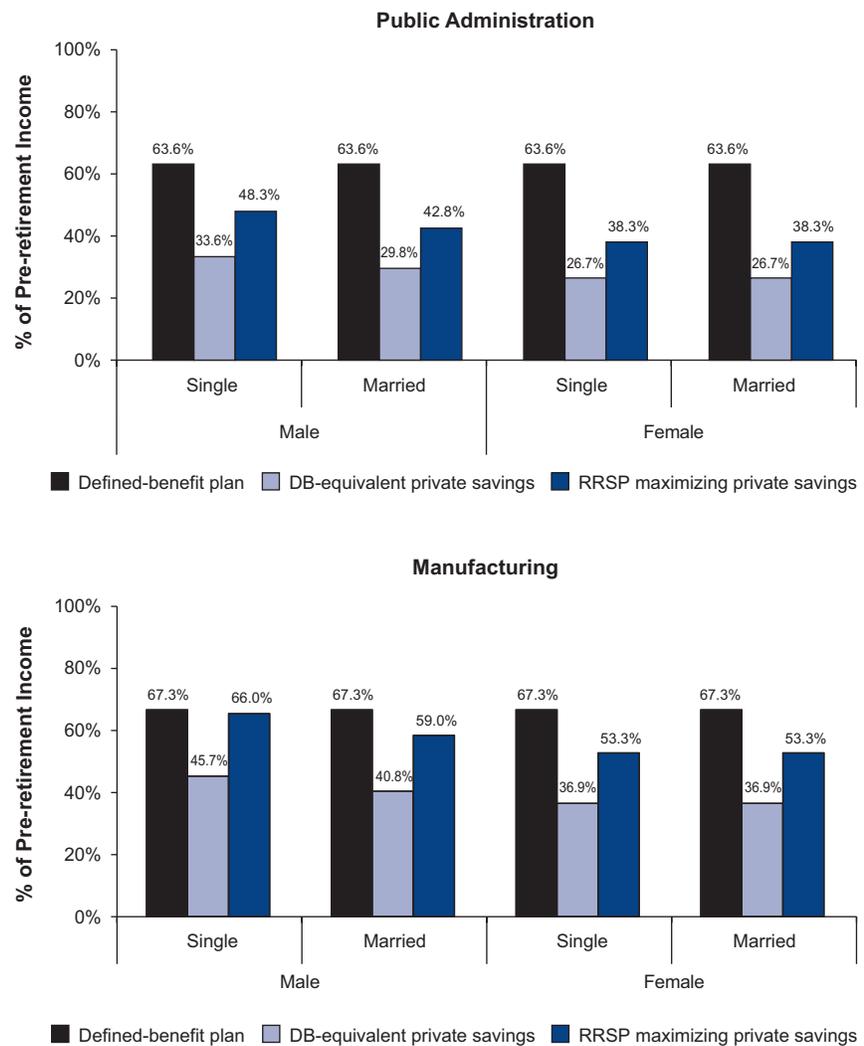
**Figure 6 – Income Replacement Rate
(Based on Average Rate of Salary Increase)**



Source: CGA-Canada computations.

As may naturally be expected, some individuals may achieve a higher than average salary increase throughout their careers. The ‘jump’ may happen due to attaining a higher level of education than that at the beginning of the career, switching to a better paid occupation or experiencing fast career growth due to person’s advanced abilities. Figure 7 presents results of the calculations assuming that salary increases at a rate higher than average (5%) in both the public and the private sectors. As can be seen, DB-equivalent private savings would hardly reach half of the benefits level offered by the defined benefit plan, particularly in the public sector. Although maximizing RRSP contributions would permit the employee to improve the income replacement rate, the defined benefit plan continues to yield superior retirement income.

Figure 7 – Income Replacement Rate (Based on Higher Than Average Rate of Salary Increase)



Source: CGA-Canada computations.

As demonstrated, in most of the cases, maximizing RRSP contributions does not lead to achieving a level of pension benefits similar to that of defined benefits pension plans. However, private savings could also be undertaken outside of tax-preferred saving instruments. Is it then possible (and realistic) for an individual to accumulate private savings sufficient enough to ensure the rate of income replacement similar to that of the defined benefit plan? There is no one simple answer. Table 7 shows the proportion of employee’s salary (before tax) that must be put aside annually in order to accumulate the pool of funds at retirement that would allow income replacement at the same rate as under a defined benefit plan. It appears that such a task is fairly possible for an employee working in manufacturing and experiencing an average rate of salary growth. In turn, this task becomes rather unrealistic for higher income performers working in either public administration or manufacturing.

Table 7 – Percentage of Savings Contributions Needed to Achieve DB Retirement Replacement Rate

	Public Administration		Manufacturing	
	Single	Married	Single	Married
Average Salary Increase				
Male	18.5%	21.4%	10.6%	12.2%
Female	24.3%	24.3%	13.8%	13.8%
Higher Than Average Salary Increase				
Male	24.0%	27.6%	17.8%	20.4%
Female	31.3%	31.3%	23.0%	23.0%

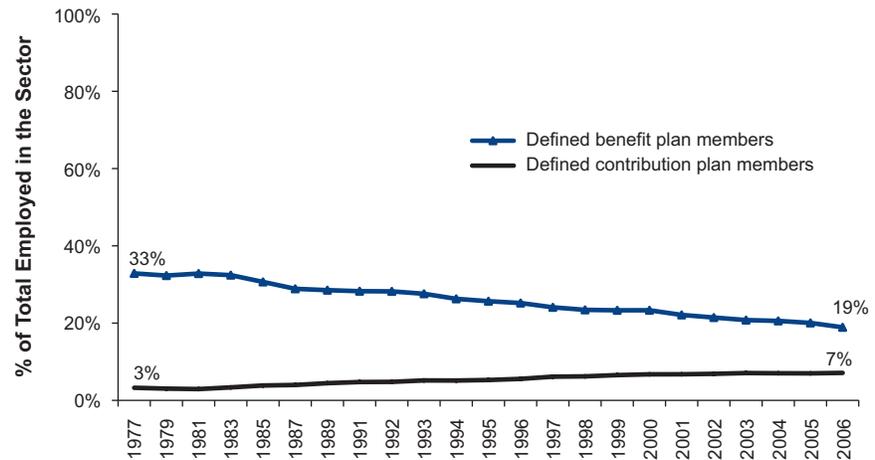
Note: The concepts of “average” and “higher than average” annual salary increase are applied in a manner consistent to that used in Figures 6 and 7. Specifically, an average salary increase is considered a 3.6% in public administration and 2.5% in manufacturing, whereas higher than average salary increase is 5% in both sectors.

Source: CGA-Canada computation

Does Investing Tax Refunds Arising from RRSP Contributions Matter?

While it is typically not within the employee’s discretion to unilaterally decide whether or not to join a defined benefit pension plan, the above calculations do present a convincing argument in favour of membership. Generally providing a superior form of income replacement at retirement, an honoured defined benefit plan bestows on its members a distinct advantage. For this reason, declining defined benefit pension plan coverage is received as bad news to many. And while a good number of employers offer no pension, the decline, which is particularly noticeable in the private sector employing some 77% of all working Canadians is disturbing (Figure 8).

Figure 8 – Registered Pension Plan Coverage, Private Sector, 1977-2006



Source: CANSIM Tables 280-0012 and 282-0012. CGA-Canada calculation.

As the burden of retirement saving is noticeably shifting to individuals, it becomes increasingly important that available tools and incentives be put to good use in order to expand the value of savings. The analysis presented highlights the sizable benefits enjoyed by simply reinvesting the pension contribution tax refund.

Previously described, the calculations assume that tax refunds received are reinvested as part of pension savings. At retirement, these tax savings constitute a noticeable proportion of the employee's pension income. As seen from Table 8, an average employee working in either the private or the public sector may enjoy at least 14% higher pension income solely due to investing (as opposed to consuming) tax savings. For a pension of, say \$35,000, this tax savings could add up to as much as \$5,000 in extra income annually. More accomplished individuals may benefit from the tax savings to an even greater extent. For them, tax savings may boost their pension income by as much as 18%.

Table 8 – Proportion of Retirement Income Formed by Tax Savings

	Public Administration	Manufacturing
Employee with average salary increase	16.6%	14.5%
Employee with higher than average salary increase	18.6%	18.1%

Source: CGA-Canada computation.

Conclusion

The presented calculations intended to focus on the most typical member of defined benefit pension plans. Although it is likely that no particular individual in real life perfectly fits the hypothetical profile designed for this simulation, it seems fairly certain that defined benefit pension plans offer their members not only perceived greater confidence in their retirement but also superior monetary benefit. Nevertheless, members of defined benefit pension plans may benefit from being attuned to changes in the financial and economic position of their employers and look to complement and to diversify their anticipated retirement holdings.

For those who are not members of defined benefit pension plans, working longer may be a practical solution for improving income replacement rates. Either way, optimizing and investing tax refunds received due to pension contributions may prove a crucial element in improving financial security at retirement. Important enough, at least, that it not be casually dismissed.

Recent Developments in Pension Accounting

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The Canadian Accounting Standards Board (AcSB) has announced the transition to International Financial Reporting Standards (IFRS) for Publicly Accountable Enterprises (PAEs) beginning January 2011. The following discussion is adapted from the information available on the AcSB website.¹⁶

The AcSB's April 2008 Exposure Draft, "Adopting IFRSs in Canada," proposed that, upon adoption of International Financial Reporting Standards (IFRSs) by publicly accountable enterprises, pension plan sponsors would continue to prepare their financial statements in accordance with Section 4100, "Pension Plans", rather than International Accounting Standard (IAS) 26 "Accounting and Reporting by Retirement Benefit Plans". The AcSB subsequently confirmed this intent in its March 2009 Exposure Draft, "Adopting IFRSs in Canada, II," and in addition, noted that:

"... the AcSB is considering the extent to which Section 4100 requires change, as well as whether guidance in addition to that found in Section 4100 is needed after 2011, and, if so, the appropriate source of such guidance. The AcSB's proposals in this area will be exposed for public comment separately from this Exposure Draft."

In February 2010, the AcSB approved Section 4600, "Pension Plans", as Part IV of the Handbook with an expected issuance date of April 2010. The new Section is based on existing Section 4100, Pension Plans in Part V of the Handbook, with the following substantive modifications:

Scope

- The standards apply to all pension plans as well as to benefit plans providing benefits other than pensions but having characteristics similar to those of pension plans (for example, retiree health care and life insurance benefits, and long-term disability plans), with necessary adaptations.

Basis of Accounting

- A pension plan follows the requirements set out in the standards for the measurement, presentation, and disclosure of its investment portfolio and pension obligations.

¹⁶ <http://www.acsbcanada.org/projects/current-projects/item29493.aspx>

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- In selecting or changing accounting policies that do not relate to its investment portfolio or pension obligations, a pension plan complies (on a consistent basis) with either IFRSs in Part I of the Handbook, or accounting standards for private enterprises in Part II of the Handbook, to the extent that those standards do not conflict with the requirements of the Section.
 - A pension plan also follows the general financial statement presentation requirements with respect to fair presentation, comparative information and materiality in Part I or Part II of the Handbook (consistent with the choice made for accounting policies that do not relate to the investment portfolio or pension obligations).

Statement of financial position

- Renamed from “Statement of Net Assets Available for Benefits”.

Presentation

- The statement of financial position includes the net assets available for benefits (a total including investment assets, investment liabilities, and any other assets and liabilities of the pension plan), the pension obligations, and the resulting surplus or deficit.
- Investment assets and investment liabilities are distinguished by type.
- Investments in entities over which the pension plan has control or can exercise significant influence are presented on the same basis as all other investments (for example, consolidation or equity accounting are not to be used).

Recognition

- All financial assets and financial liabilities are recognized and derecognized in accordance with the applicable requirements in either IAS 39 “Financial Instruments: Recognition and Measurement” in Part I of the Handbook, or Section 3856, Financial Instruments, in Part II of the Handbook, consistent with the basis of accounting chosen (see above).

Measurement

- Fair value is determined in accordance with the guidance in IAS 39 “Financial Instruments: Recognition and Measurement” in Part I of the Handbook. (The AcSB intends to have Section 4600 refer to the proposed IFRS on Fair Value Measurement when issued later in 2010.)
- Investment assets cannot be measured on an actuarial asset value basis. Also, the difference between fair value and actuarial asset value does not represent an asset or a liability that can be included in a pension plan’s financial statements.
- Consistent with IAS 39, transaction costs are not included in fair value, but are included in the statement of changes in net assets available for benefits as part of expenses incurred in the period.

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- An interest in a master trust is measured at fair value, consistent with all other investment assets. Proportionate consolidation and the equity method of accounting are not permitted.
 - Measurement of a pension obligation at the accrued benefit obligation amount determined by the plan's sponsor is permitted.

Statement of Changes in Net Assets Available for Benefits

- Details of contributions, administrative expenses and benefit payments are presented.
- Changes in the fair value of investment assets and investment liabilities on the statement of financial position include both realized and unrealized gains and losses.

Statement of Changes in Pension Obligations

- Details of changes in pension obligations are presented.

Disclosure: Investment Portfolio

- For those investments that are financial instruments, the disclosures in IFRS 7 Financial Instruments: Disclosures in Part I of the Handbook are required. For all other investments, a description of how fair values have been determined is provided.
- Defined contribution plans in which the plan participants direct their investments may omit disclosure of the quantitative sensitivity analysis disclosures for market risk required in IFRS 7.

Disclosure: Capital

- Disclosures are made that enable pension plan financial statement users to evaluate a plan's objectives, policies, and processes for managing capital in accordance with the requirements in IAS 1 Presentation of Financial Statements in Part I of the Handbook.

Other disclosures

- A pension plan that prepares its financial statements in accordance with Canadian accounting standards for pension plans is required to state this basis of presentation prominently in the notes to its financial statements.
- The effective date of the next required actuarial valuation, significant accounting policies, additional related party information, the name of the actuarial firm that performed the valuation, and significant assumptions used in determining the pension obligation including the rate of compensation increase and the discount rate are required disclosures.
- Other existing "desirable" disclosures are now required disclosures.

The standards will apply for annual financial statements relating to fiscal years beginning on or after January 1, 2011. Earlier application is permitted. The standards apply retrospectively to all prior periods presented.

In summary, it may be concluded that pension accounting standards in Canada are moving more towards fair value accounting and improved transparency. This represents a welcome change for the benefit of all stakeholders. In due course, an improved IAS 26 can be expected to replace or to recast Section 4600 of the Handbook as the applicable standard for pension accounting in Canada.

Renaissance in Retirement Planning

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The recent changes in the global macroeconomic environment, the arrival of the age of “new normal,” and the impending demographic crisis warrants redefining and reformulating of the retirement system in Canada. The required changes are extensive and far reaching; truly a renaissance in retirement planning.

The Canadian retirement system essentially rests on three distinct pillars:

1. Canada Pension Plan/Québec Pension Plan;
2. Old Age Security/Guaranteed Income Supplement; and
3. Registered Pension Plans/Registered Retirement Saving Plans.

The first two pillars, as universal public programs, are considered to be on relatively sound footing. The third pillar of the system – in particular defined benefit and defined contribution plans – is the main focus of this study. With an abridged review in hand, structural problems can be isolated and resolutions pursued.

Defined Benefit Plans

The majority of defined benefit plans are in the public sector, with a much smaller proportion of them in the private sector. The funding and solvency status of public sector DB plans is not under scrutiny because they are backed by sovereign guarantee and the taxing power of the state.

Advantages

DB plans provide pooling of risks, a certainty in regards to pensions available to the participants irrespective of the performance of plan investments, and hence simplifies their retirement planning. The participants need no additional expertise as they are not burdened with the management of plan investments.

Disadvantages

The *Backgrounder*,¹⁷ published by C. D. Howe Institute in December 2009, takes a closer look at the federal government’s major DB pensions. As pointed out by the paper, governments are sizeable employers having the ability to extend defined benefit pension plans – typically characterized as having superior indexation and early retirement provisions.

¹⁷ Robson, William B.P; Laurin. A. “ Supersized Superannuation: The Startling Fair-Value Cost of Federal Government Pensions” C.D. Howe Backgrounder 122 (December 2009).

Admittedly, DB plans assist with the recruitment and retention of talent in the public sector. However, weaknesses in public sector accounting conventions, coupled with instinctive reticence, serve to moderate the true cost of the public-service while underestimating also the risks and enduring obligations that DB plans present. In addition to being expensive, these conditions can be viewed unfair to current and future generations of taxpayers who reside within less generous pension regimes – and especially to those who have no registered retirement pension plan whatsoever.

And although DB plans are a popular means for employers to secure talent, a majority of the plans in the private sector are conceivably unsustainable. As reported earlier, based on MERCER's estimates, 71% of Canadian defined benefit pension plans were in a solvency deficit position at the end of 2007. By the end of 2008, that statistic had risen to 92%. At the end of 2008, almost 40% of defined benefit plans had solvency ratios under 70%, and over 70% of defined benefit plans had solvency ratios under 80%. If Canadian businesses are required to fully fund these plans, many of them will not remain competitive, or sustainable, in the current globalized economy.

From the perspective of employees, the substantial disadvantage of DB plans resides in the fact that they are typically not portable and have long vesting periods. Hence, it can be surmised that DB plans are ill suited for the present dynamic economy and mobile workforce. Without belabouring the point also, DB plans are both complex and costly to administer. And given their complexity, the accounting rules for DB plans have not been as uniform and transparent as might have been the case were the interests of all stakeholders enjoined.

Defined Contribution Plans

Advantages

Defined contribution plans do not suffer from the hallmark ailments of typical defined benefit pension plans. They are typically financially responsible, sustainable, and portable and their costs are more capable of being accounted for in a simple and transparent manner. There is little uncertainty about their true cost and they are contractually simpler.

Disadvantages

The biggest disadvantage of DC plans originate from uncertainty regarding the retirement income they will generate for plan participants as the risks and rewards of ownership reside with participants who are responsible for managing the investments. More often than not, participants lack expertise to successfully or optimally manage investment portfolios in today's highly volatile and complex markets. Also, they are vulnerable to cognitive errors in judgment — particularly given the importance of identifying business life cycles and how

their respective retirements coincide within them. And then there is a risk that ordinary investors lack the knowledge or the resources to avoid distress liquidation within their portfolio. In short, it would be difficult at best to mitigate these weaknesses through education and training of the plan participants alone.

Strategy

The present pension system is highly skewed in favour of public sector employees who enjoy certainty of inflation indexed, guaranteed, generous and underpriced defined benefit pensions while private sector employees are straddled with underfunded limited pension plans. All the while, a great majority of Canadians do not have the security of any type of workplace pension plan. Since the first two pillars of the Canadian retirement system (CPP/QPP & OAS/GIS) are accepted to be on sound footing (although it is conceivable that benefit is gained through comprehensive review and stress testing), the focus of our analysis is on the more vulnerable third pillar of the system: registered pension plans.

A meaningful resolution of the pension dilemma necessitates reliance on a holistic approach that recognizes employee pension as deferred compensation and incorporates structural changes in the retirement system, legislative changes to facilitate transition to the new system, and a new mindset for employees and employers alike to embrace the global macroeconomic realities of present day. The goal should be to design a system that is sustainable in the long term, fair to present and future generations, simpler to administer, and cost effective. The following paragraphs discuss the anatomy of such a system.

Structure

The humdrum income replacement rate championed by the financial services industry is often received as being too simplistic and frequently fails to take into account investment risk, longevity risk and major health care costs. One size simply does not fit all, and it is therefore essential to establish a credible target rate of income replacement for each individual depending upon that individual's profile. A recent study¹⁸ estimates that most Canadians, should they wish to retire at age 65 and replace 70 percent of their working incomes, will need to save from 10 to 21 percent of their pre-tax earnings every year; assuming they save for 35 years. It is suggested that such a rate should be calculated by an independent and neutral arm's length agency, preferably by the proposed private pension authority (please see below, "Legal Framework"), either for each individual or for cohorts of workers having similar profiles.

¹⁸ David A. Dodge, Alexandre Laurin and Colin Busby, "The Piggy Bank Index: Matching Canadians' Saving Rates to Their Retirement Dreams", C.D. Howe Institute e-brief, March 18, 2010.

CGA-Canada recognizes the merits and demerits of DB as well as DC plans and suggests that adoption of hybrid models, which blend desirable elements of both DB and DC plans while protecting against their less desirable features, may be promising. It is beyond the scope of this study to suggest a detailed design of an alternative model for such a pension plan; a task better suited to the profession of actuaries working in concert with regulators. However, any such plan should comprise of a DB component that guarantees certain benefits irrespective of the plan performance and a DC component that would pay out variable benefits contingent upon plan performance. There should also be a simple and transparent method of valuing the interest of participants so that such interest is fully portable on change of employment. It is suggested that a variation of hybrid models referred to as Cash Balance Plans¹⁹ can be a starting point, with required modifications as stakeholder consensus evolves. A Cash Balance Plan is a pension plan under which an employer credits a participant's account with a set percentage of his or her yearly compensation plus interest charges. For legal purposes, it is a defined benefit plan. As such, the plan's funding limit, funding requirements and investment risk are based on defined benefit plan requirements; and changes in the portfolio do not affect the final benefits to be received by the participant. Upon retirement or termination of the plan, the plan sponsor solely bears all ownership of profits and losses in the portfolio.

Although the cash balance pension plan is a defined benefit plan, unlike the regular defined benefit plan, it is maintained on an individual account basis, much like a defined contribution plan. The cash balance plan also acts in a similar way to a defined contribution plan because changes in the value of the participant's portfolio do not affect the yearly contribution.

Universal Coverage

The present pension system in Canada has produced pension "haves" and "have-nots". At one end of the spectrum are public sector employees who enjoy the security of government-guaranteed DB pension plans and on the other end of the spectrum are some private sector employees having no income or retirement security whatsoever. This asymmetrical coverage of working Canadians can be rectified by making enrolment in workplace pension plans mandatory for all employees while also re-pricing public sector pension plans.

¹⁹ Pratt, David A., Focus on... Cash Balance Plans in the 21st Century, Part I, Historical Perspective (December 4, 2009). *Journal of Pension Benefits*, Vol. 17, No. 1, p. 5, Autumn 2009

Efficiency and Economy of Scale

At present, the majority of the registered pension plans in the private sector are managed by individual employers and hence do not enjoy the economy of scale available to the Canada Pension Plan or similar state pension plans. They also endure problems of governance as their management structure is not broad based and often lacks investment management expertise that is available to larger funds. Also, these plans encounter agency issues and conflicts of interest between the sponsors and the members.

CGA-Canada sees well the consolidation of the oversight of the private sector registered pension plans under the authority of a proposed private pension authority in order to rectify the deficiencies noted above. The consolidated plan will conceivably be modeled as a hybrid plan (discussed above) and operate like CPP, but not mingled with it since it would have a funding and benefit structure different from that of CPP. It is contended that the centralized management of RPP funds would be better poised to counterbalance inequities — while also achieving efficiency and economy of scale in its operation.

Taxation

CGA-Canada proposes uniform tax treatment of all pension plan transactions, including funding and payout irrespective of their origin and structure, so that these transactions are not driven by tax consideration but rational economic considerations. A commentary²⁰ published by C.D. Howe Institute reasonably contends that “Canada’s private retirement saving system serves some workers well and others not so well, depending on whether they have a career in the public sector or in the private sector.”

Previously discussed, many Canadian workers in the private sector have no employer-sponsored pension arrangements, while those that do can generally expect plan constructs or plan benefits to pale in comparison.

The study further highlights that “The unfairness of Canada’s private retirement saving system, which rests on rules that limit annual contributions to retirement savings vehicles; unnecessarily tie pension saving to employment and employment income; restrict the kinds of income that can be used for retirement saving; and inhibit creation of the kind of large, pooled pension arrangements in the private sector that work well for public sector workers.” CGA-Canada supports the author’s commentary and would reiterate the importance of eliminating or relaxing the rules that limit an individual’s

²⁰ Pierlot, James. “A Pension in Every Pot: Better Pensions for More Canadians”. C.D. Howe Commentary (November 2008)

ability to marshal public-sector equivalent retirement resources. As we have seen herein, it is simply not possible under the current rules to generate or to mimic the benefits bestowed by public-sector DB pension plans.

Legal Framework

At this time, the legal framework governing private sector pension plans is fragmented with many cross-jurisdictional differences in legislation and regulation. This position imposes significant administrative costs onto employers.

A commentary²¹ by C.D. Howe Institute suggests four possible options for the regulatory environment for employer-sponsored pension plans: 1) one law, one regulator; 2) a model law across Canada with multiple regulators; 3) multiple jurisdictional laws with one regulator; and 4) multiple jurisdictional laws with multiple regulators. The author notes that a single law and regulator is the most efficient approach to address the uniformity issue, but may also require the resolution of constitutional issues. This view is endorsed and political leadership is urged to evolve a consensus for resolving constitutional issues and facilitating instating of a private pension authority under federal law. We suggest extensive public consultations on the governing structure of the proposed private pension authority. The legislative changes should also permit and facilitate collapsing of the existing registered pension plans into new and superior structures.

Guiding Principles

In addition to the framework outlined above for pension reforms, guiding principles should be incorporated in any comprehensive reform of the retirement system. These principles aim at guarding against the disintegration of the system in the face of man-made follies and uncontrollable external shocks. The reference to pension plans is meant to include CPP and RPP under the management of a private pension authority.

1. No participant in the pension industry should be allowed to grow too big to fail. Hence the proposed private pension authority for RPP should be independent of the CPP. When a participant in the pension industry grows too big to fail, it should be split into manageable entities.
2. Whenever a pension industry participant needs to be bailed out, it should be nationalized and be subject to assumption by the government and not vice versa.
3. Failed theories and enterprises should not be resurrected in new form or under alternate moniker.

21 Van Riesen, Gretchen. "The Pension Tangle: Achieving Greater Uniformity of Pension Legislation and Regulation in Canada". C.D. Howe Commentary 294 (August 2009).

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4. The compensation structure in the pension industry should not be asymmetrical. There should be no incentives without disincentives, no rewards without punishment and no nationalization of losses and privatization of gains.
 5. Simple is beautiful and there is no substitute for common sense. The pension industry should not be subjected to the passing fade of the day.
 6. The investment universe of pension plans should exclude the derivatives and similar highly risky instruments, which Warren Buffet famously referred to as “weapons of mass destruction”.
 7. Pension plans should be self-sufficient and sustainable. They should not operate in a manner that unduly borrows from future generations to pay the present one.
 8. Pension plans should not be allowed to metamorphose into the empires of debt.
 9. Citizens should be encouraged to take charge of their own financial destiny and create a fourth pillar to support their retirement by way of private savings.

Conclusion

In a changed world, the Canadian retirement system requires a drastic makeover. Ad hoc arrangements will not solve the present pension crisis while accounting also for Canada’s demographic profile. Canada requires comprehensive pension reforms to create a new pension blueprint for the new normal world. The required changes can be manifested only by combining regulatory changes and structural changes that do not unnecessarily mingle the existing three pillars. The third pillar of the system needs to be strengthened by affording greater protections or replacing unsustainable DB plans and inadequate DC plans with hybrid plans that draw upon the best elements of each. An appropriate set of guiding principles will ensure that the system remains robust and that it secures the futures of all Canadians.

Appendix A

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Summary of Main Assumptions (Risk Free Basis)

	December 31, 2004	December 31, 2008
Interest rate ²²	5.00%	3.50%
Pension indexation ²³ <ul style="list-style-type: none">• without indexation of benefits• with indexation of benefits	0% 3.25%	0% 2.00%
Mortality table ²⁴	UP94G	UP94G
Retirement age	As per the plan's own assumption	As per the plan's own assumption

22 Determined from the yield on long-term bonds of the Government of Canada.

23 Represents a blended rate of pre-retirement indexation (based on wage increases) and post-retirement indexation (based on CPI increases).

24 UP94G stands for "uninsured pensioner mortality table 1994 generational." This table allows for expected future improvements in pensioners' mortality and is currently the most commonly used mortality table for the funding valuations of pension plans. Even though it is generally seen as a best estimate mortality table for Canadian pension plans, it is worth mentioning that it is not based on Canadian mortality experience (there is no generally accepted Canadian mortality table).

Appendix B

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Overall Funding Position of Canadian Pension Plans Results with no Indexation of Benefits

December 31, 2004					
Status	Number of plans	Plan assets market value (\$Bn)	Plan liabilities (\$Bn)	Surplus/ (Deficit) (\$Bn)	Funding ratio
Plans with deficit	460	45.5	54.1	(8.6)	84%
Plans with surplus	324	177.8	145.6	32.2	122%
Total	784	223.3	199.7	23.6	112%

December 31, 2008					
Status	Number of plans	Plan assets market value (\$Bn)	Plan liabilities (\$Bn)	Surplus/ (Deficit) (\$Bn)	Funding ratio
Plans with deficit	696	239.3	315.4	(76.1)	76%
Plans with surplus	65	10.1	8.7	1.4	116%
Total	761	249.4	324.1	(74.7)	77%

Overall Funding Position of Canadian Pension Plans Results with Indexation of Benefits

December 31, 2004					
Status	Number of plans	Plan assets market value (\$Bn)	Plan liabilities (\$Bn)	Surplus/ (Deficit) (\$Bn)	Funding ratio
Plans with deficit	751	220.6	310.5	(89.9)	71%
Plans with surplus	33	2.7	2.2	0.5	123%
Total	784	223.3	312.7	(89.4)	71%

December 31, 2008					
Status	Number of plans	Plan assets market value (\$Bn)	Plan liabilities (\$Bn)	Surplus/ (Deficit) (\$Bn)	Funding ratio
Plans with deficit	735	247.8	436.7	(188.9)	57%
Plans with surplus	26	1.6	1.4	0.2	118%
Total	761	249.4	438.1	(188.7)	57%

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