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BACKGROUND

THE PENSION PAPERS

Supersized Superannuation: The Startling Fair-Value Cost of Federal Government Pensions

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In this issue...

Fair-value accounting reveals Ottawa's pension obligations to be larger and more volatile than they appear, creating risks for plan participants and underappreciated exposure for taxpayers.

THE STUDY IN BRIEF

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Governments are major employers, and usually provide defined-benefit (DB) pension plans with full inflation indexing and generous early retirement provisions. Hence, changes in thinking about, and accounting for, the costs of DB pension plans have major implications for government finances. Both past tallies on government balance sheets and current accruals on government income statements may understate the true cost of public-sector employment in Canada, and gradual recognition of changes in the financial status of government plans may understate the risks they create. Fair-value approaches are exposing higher costs, risks and funding deficits in DB plans, raising concerns about the security of their promises for participants and the exposure they create for taxpayers.

This *Background* takes a closer look at the federal government's major DB pensions, principally the Public Service, the Canadian Forces, and the Royal Canadian Mounted Police plans. Drawing on alternative valuations and sensitivities provided in the Public Accounts, we calculate an accumulated deficit, or federal debt, of \$522 billion at the end of fiscal year 2008/09 using fair-value pension accounting. That total is \$58 billion higher than the \$464 billion reported at the end of fiscal year 2008/09. Many of the budget surpluses Ottawa has shown since the beginning of the decade would have been deficits, and the latest deficit would have been \$7 billion larger.

Federal pensions as currently configured are more costly than is commonly understood, and expose taxpayers, and potentially participants as well, to underappreciated risks. Reducing or offsetting these costs and reducing these risks should be key elements of a program to restore federal finances to a sustainable position.

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INDEPENDENT • REASONED • RELEVANT

A revolution is underway in thinking about, and accounting for, the costs of deferred compensation, particularly defined-benefit (DB) pension plans. Fair-value approaches are exposing higher costs, risks and funding deficits in DB plans, raising concerns about the security of their promises for participants – and, since the majority of DB plan participants in Canada are government employees, for taxpayers as well.

In principle, sponsors of DB plans should hold assets sufficient to cover their promises to participants. But the reporting and management of pension-related assets and liabilities typically has not ensured this in practice. Financial statements often report “smoothed” values for assets that reflect, not current market prices, but past and assumed future prices also. More important, reported liabilities typically discount future payments at rates higher than those available on low-risk investments at the valuation date. This practice makes obligations look smaller than their true value, as measured by what it would actually cost to buy participants out, or offload the obligations to an insurer.

Theory and evidence – notably market swings larger and longer than contemplated by DB-plan designers – are undermining these practices. “Going-concern” valuations that smooth asset values, discount obligations at assumed rather than market rates, and recognize adjustments over long

periods still matter in funding decisions and financial reporting. But fair value principles – measuring assets and liabilities at what they would cost to buy or sell – are increasingly important in solvency valuations, and emerging reporting standards reflect a widespread view that they make sense in all circumstances.¹ The resulting fluctuations on the asset side – and much more so, the volatility and greater recognized expense of liabilities – have revealed DB pensions as riskier and costlier than they appeared. Participation in DB plans is declining in the private sector as people recognize that their promises are less secure, and their costs to participants and sponsors greater, than they thought.

This change in thinking about DB pensions has so far affected Canada’s private sector more than its public sector, where pension plans typically operate under special legislation and rules.² Accounting standards require private sponsors to report plan obligations using yields of representative high-quality debt instruments (usually AA corporate bond yields). By contrast, some government plans do not appear in financial statements at all,³ and when they do, the valuations often use aggressive assumptions about future returns on investments in their discount rates for liabilities – which, as just mentioned, makes them look smaller than they would actually cost to discharge on the valuations date.

As a result, the same perception of riskiness and expense that has driven the private sector away from DB plans has not, in general, affected public-sector plans. The balance sheets, income statements and funding obligations of most Canadian governments do not reflect fair values for their pension assets and liabilities – and arguably obscure the cost and risk these

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- 1 The recent provincial pension reviews unanimously condemned asset smoothing in solvency valuations (ABCJEP 2008, p. 123; NSPRP 2009, pp. 23, 46; OECF 2008, p. 62); recent federal reform proposals would prescribe market values in solvency valuations (Finance 2009). The appropriateness of “going-concern” valuations, which permit smoothing, assumed future returns, and amortizing gains and losses resulting from changes in assumptions over long periods, is a matter of debate. Recent private-sector bankruptcies, however, have highlighted the risks when the going-concern assumption turns out not to be true – risks that reporting, and funding, to a fair-value standard would mitigate.
- 2 Most private DB plans are governed by federal or provincial laws, such as the *Federal Pension Benefit Standards Act* (PBSA), which require reserves, segregated from the operations of an employer, to back future benefits, and termination or wind-up provisions. Government plans, by contrast, are typically subject to special legislation. Federal public-sector pension plans are statutorily exempted from legislation such as the PBSA (s. 4(5)(a)) and have their own acts of Parliament, such as the *Public Service Superannuation Act* (PSSA), which contains no wind-up provisions.
- 3 Reporting of broader public-sector pension obligations for health, education and crown corporation workers, for example, is inconsistent across the country. Saskatchewan’s provincial auditor has expressed reservations about omitting broader public-sector pensions from the provincial public accounts (Saskatchewan 2009, pp. 47-48).

plans create for their participants and for taxpayers. If government employees knew their promises were not fully backed, and if Canadians generally knew their full exposure as taxpayers to government-employee pensions, pressure might arise for change.

Governments are major employers, and their pensions typically feature full inflation indexing and generous early retirement provisions, so the impact of fair-value pension accounting on the financial statements of Canadian governments is potentially sizeable. A recent study by the British-North American Committee (BNAC) gave an idea of the dimensions of the problem. Using standardized assumptions for a large number of government-worker plans and discounting their obligations using yields on inflation-indexed government bonds, the BNAC estimated that a net pension liability for Canada's public sector stated at \$190 billion, or 12 percent of gross domestic product (GDP), in official documents in 2007 would instead have registered \$422 billion, or 27 percent of GDP (BNAC 2009, pp. 5-6). The Chief Actuary's most recent valuation of the federal Public Service Plan suggests that backing its promises with federal real-return bonds (RRBs), rather than a portfolio with an assumed higher yield, would have cost, not the 18.5 percent of annual pensionable pay reported, but about 34 percent of pensionable pay.⁴ So both past tallies on government balance sheets and current accruals on government income statements may understate the true cost of public-sector employment in Canada, and gradual recognition of changes in the financial status of government plans may understate the risks they create.

The pages that follow take a closer look at the federal government's major DB pensions, principally the Public Service (PS), the Canadian Forces (CF), and the Royal Canadian Mounted Police (RCMP) plans. Drawing on alternative valuations and sensitivities provided in the Public Accounts, we calculate an accumulated deficit, or federal debt, of \$522 billion at the end of fiscal year 2008/09 using

fair-value pension accounting. That total is \$58 billion higher than the \$464 billion reported. Many of the budget surpluses Ottawa has shown since the beginning of the decade would have been deficits, and the latest deficit would have been \$7 billion larger. Federal pensions as currently configured are more costly than is commonly understood, and expose taxpayers, and potentially participants as well, to underappreciated risks. Reducing or offsetting these costs and reducing these risks should be key elements of a program to restore federal finances to a sustainable position.

Ottawa's Pension Plans

The federal government has many deferred compensation arrangements – the DB plans just mentioned, special schemes for members of parliament and judges, retirement compensation accounts for senior public servants, health benefits, and others. Some are partially funded, others unfunded.

The largest recorded obligations in the federal Public Accounts are for the PS, CF and RCMP pensions. These plans pay inflation-indexed benefits tied to an individual's length of service and final five years' salary. At their inception decades ago, they were completely unfunded. A formula using notional contributions and a designated interest rate showed obligations in "superannuation accounts," but the plans held no assets, and the reported amounts reflected past arithmetic rather than projections of future payments. After regular actuarial valuations began in the 1950s, Ottawa made periodic adjustments intended to narrow the gap between the reported obligations and the valuations. The pension liability in the Public Accounts, shown as part of the federal debt, was therefore a hybrid of two different approaches, neither based on fair-value principles.

In 1999, the *Public Sector Pension Investment Board Act (PSPIBA)* ended accruals under the previous systems. The superannuation accounts became legacy items, still recording payments of previously earned

⁴ Unlike its predecessor (OCA 2006), the most recent actuarial report on the PSSA (OCA 2009a) did not value the plan at the then-current RRB yield. The lowest yield investigated in its sensitivity analysis was 2.8 percent, the average return it assumed a portfolio of RRBs would yield over the long term: at that yield, the plan would cost 26.2 percent of pay to fund. Extrapolating from its sensitivity analysis and checking against the previous report, however, suggests that at the RRB yield at the end of March 2008, 1.60 percent, the plan would have cost 34 percent of pay. The CF and RCMP plans were reported to cost 22.4 and 21.0 percent of pay respectively (OCA 2009b and 2009c). At a 2.8 percent average real return, the Chief Actuary costed them at 30.7 and 31.7 percent of pay. A similar extrapolation exercise suggests that, at a real return of 1.60 percent, they would be worth about 41 percent of pay.

Table 1: Federal Pension Plans Balance Sheet at 31 March 2009

	Public Accounts (\$ billions)	Fair Value
Assets (1)	37.8	34.4
Liabilities (2)	-190.3	-232.1
Unamortized Estimation Adjustments	12.6	–
<i>Balance</i>	<i>-139.9</i>	<i>-197.7</i>

Notes: (1) Includes investments and contributions receivable for past service.

(2) Fair value estimated using methodology in Box 1.

Sources: Public Accounts of Canada 2008/09, p. 2.18; authors' calculations.

benefits, receiving notional interest credits (a book-keeping item rather than a cash payment) on their outstanding balances, and recording periodic adjustments to gradually reconcile their recorded obligations with actuarial valuations. Benefits accruing since the reform have been in new schemes that include an arm's-length fund of assets for each federal plan, in which both employees and government contributions are invested and managed independently by the Public Sector Pension Investment Board.

Since the new system came into effect in April 2000, then, the balance sheets of the PS, CF⁵ and RCMP pension plans have had both assets and liabilities. On the asset side are entries for the funds accumulated since the reforms. On the liability side are the legacy superannuation accounts, plus entries for the obligations accrued since the reforms. The difference between the recorded assets and liabilities is part of the federal debt. The key entries in the Public Accounts at the end of the 2008/09 fiscal year appear in the first column of Table 1.

A Fair-Value Approach to Ottawa's Pension Balance Sheet

The Public Accounts figures in the first column of Table 1 differ in key ways from what a fair-value approach would show. To begin with, the asset figure is not based on the actual market value of investments at the valuation date. The fund assets are a

smoothed value, based on expected returns “whereby the fluctuations between the market and expected market value are averaged over a five-year period, within a ceiling of plus or minus 10 percent of the market value” (RGC 2009, p 2.18). This means that deviations in investment performance relative to expectations register with a delay. Because these funds began accumulating less than a decade ago, the dollar values of the resulting variances with market value have not been very large, but they have hit the 10 percent ceiling on four occasions, including in 2008/09. The discounted contributions for past service (a relatively small amount, at \$0.6 billion) are not affected, but the smoothed asset figure (\$37.2 billion for the invested funds themselves) is 10 percent larger than estimated market value (\$33.8 billion).

More important are differences on the liability side. Ottawa's valuation uses two discount rates. It uses its estimate of the projected interest rates on 20-year nominal-return federal bonds for unfunded pension obligations arising from service before April 2000 – an approach that reflects the previous formula for recording obligations in the superannuation accounts. And it uses its expected return, currently about 4.2 percent in real terms, on fund assets for benefits earned since April 2000 (RGC 2009) – an approach that is falling from favour as both theory and evidence have discredited a previously widespread view that long-term investors can count on equity instruments yielding a sizeable premium over lower-risk debt instruments (Laidler and Robson 2007).

⁵ Including the Reserve Force Pension Plan since March 2007.

Box 1: A Fair-Value Approach to Federal Pension Liabilities – Key Methodological Points

The Public Accounts of Canada value pension liabilities for the Public Service, the Canadian Forces, and the RCMP using two different sets of discount rates: one for service prior to April 2000 in the legacy superannuation accounts, and one for the obligations that have accrued since the 2000 reforms. A complete schedule of these discount rates appears in the triennial actuarial reports on the pension plans for the Public Service of Canada, the Royal Canadian Mounted Police and the Canadian Forces.

The discount rate for obligations accrued prior to April 2000 reflects average expected long-term bond rates and thus varies annually. We computed an effective compounded discount rate from the year of analysis to 2045. For the obligations accrued since April 2000, the public-accounts valuations assume a given real rate of return on investments of about 4.2 percent.

To convert the liabilities discounted at those rates to liabilities discounted at the RRB rate, we used sensitivity analysis in the Public Accounts (e.g. RGC 2009, p. 2.21). We weighted the discount rates for the superannuation accounts and the pension funds based on their reported dollar values to get a single effective (real) discount rate for each year. We then compared those discount rates to actual RRB yields at fiscal year-end (March 31), using the sensitivities in the Public Accounts and the difference between the discount rates and the RRB yields to estimate the fair-value accrued pension obligations.

Our estimates of the discount rates used in the Public Accounts are contrasted with the RRB rates in the table below. The table also shows the change in value of liabilities per percentage point of discount rate, and the recorded and adjusted values for pension liabilities. For completeness, it also shows the recorded and market values of assets (which includes the entry for past-service contributions in both cases), and the unamortized estimation adjustments in the Public Accounts, which has no counterpart in the fair-value estimates.

Fair-Value Adjustments to Federal Pension Liabilities, 2000/01 to 2008/09
(billions of dollars unless otherwise indicated)

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Assets as Reported	2.8	5.9	8.9	13.4	18.3	24.9	31.6	38.7	37.2
Assets at Fair Value	2.5	5.6	8.1	14.2	19.4	27.6	35.0	38.9	33.8
Obligations as Reported	-124.0	-125.9	-134.3	-142.4	-145.3	-155.8	-168.3	-178.6	-190.3
Estimated Effective Discount Rate Used in Public Accounts (%)	3.52	3.54	3.47	3.49	3.52	3.31	3.34	3.37	3.15
Real Return Bond Yield (%)	3.51	3.68	3.05	2.39	2.03	1.58	1.76	1.60	1.81
Sensitivity of Liabilities to 1 Percentage Point Lower Discount Rate	18.6	18.6	17.5	22.6	22.7	24.9	27.0	28.1	31.1
Obligations at Fair Value	-124.3	-123.2	-141.7	-167.3	-179.1	-198.8	-210.9	-228.3	-232.1
Unamortized Estimation Adjustments	-8.3	-7.3	-0.7	0.9	-3.1	-0.7	1.3	1.7	12.6

Sources: Public Accounts of Canada; Office of the Chief Actuary; Bank of Canada; authors' calculations.

Neither the pre-2000 nor the post-2000 discount factors reflect current economic reality. To get a fair-value estimate of Ottawa's pension obligation, the key question is: how large a buyout package would leave plan participants indifferent between receiving the package and receiving their accrued benefits? The answer will depend on their risk and return expectations for the investment they could fund from the package.

In our view, the best potential substitute for the pension promise to federal employees, and therefore the best instrument to use in valuing that promise, is the federal government's inflation-adjusted real return bond (RRB). Because the obligation is backed by taxpayers, employees will reasonably see it as no more risky than sovereign debt, and because the pension promise is indexed to inflation, the appropriate instrument is tax-backed and inflation-indexed. (The Appendix presents some potential objections to this approach and our answers to them.)

Estimates of the sensitivity of the present value of accrued pension obligations to the discount rate in the federal Public Accounts (Box 1) provide a tool to adjust the liabilities reported in the Accounts to a fair-value figure based on the RRB rate. At the RRB rate that prevailed at fiscal year-end, liabilities for 2008/09 would have totalled about \$232 billion, as shown in the second column of Table 1.

The final entry in the first column of Table 1, "unamortized estimation adjustments," is the portion of changes in asset values and changes in liability estimates, using the government's methodology, that have yet to be reflected in the income statement and the balance sheet. This number is sometimes quite large, as it was in 2008/09, when the drop in market value of the assets was outside the 10 percent corridor, and a downward adjustment in the assumed return on investments boosted the estimated pension obligation – a change that will be reflected in the Public Accounts over a period of years. The second column in Table 1 contains no such entry, because fair-value reporting recognizes all such changes immediately.

The bottom line – the government's net pension obligation – is quite different under the two

approaches. The fair-value approach yields a net obligation of \$197.7 billion – \$57.8 billion larger than the reported figure of \$139.9 billion. This is a sizeable figure by any standard. It raises the federal debt from the \$463.7 billion shown in the Public Accounts to \$521.5 billion. From a taxpayer perspective, the federal debt per family of four is larger by nearly \$7,000, going from less than \$55,000 to nearly \$62,000. From a plan-participant perspective, it represents assets that are some \$145,000 per contributor short of obligations.

Similar methods let us recreate Ottawa's balance sheet using a fair-value approach to federal pensions for the past nine years. This approach shows Ottawa's net pension liabilities – and consequently its debt – to have been smaller than was reported in the Public Accounts in fiscal years 2000/01 and 2001/02, and increasingly larger than reported in the Public Accounts since then (Figure 1).

Implications of the Fair-Value Approach for Ottawa's Income Statement

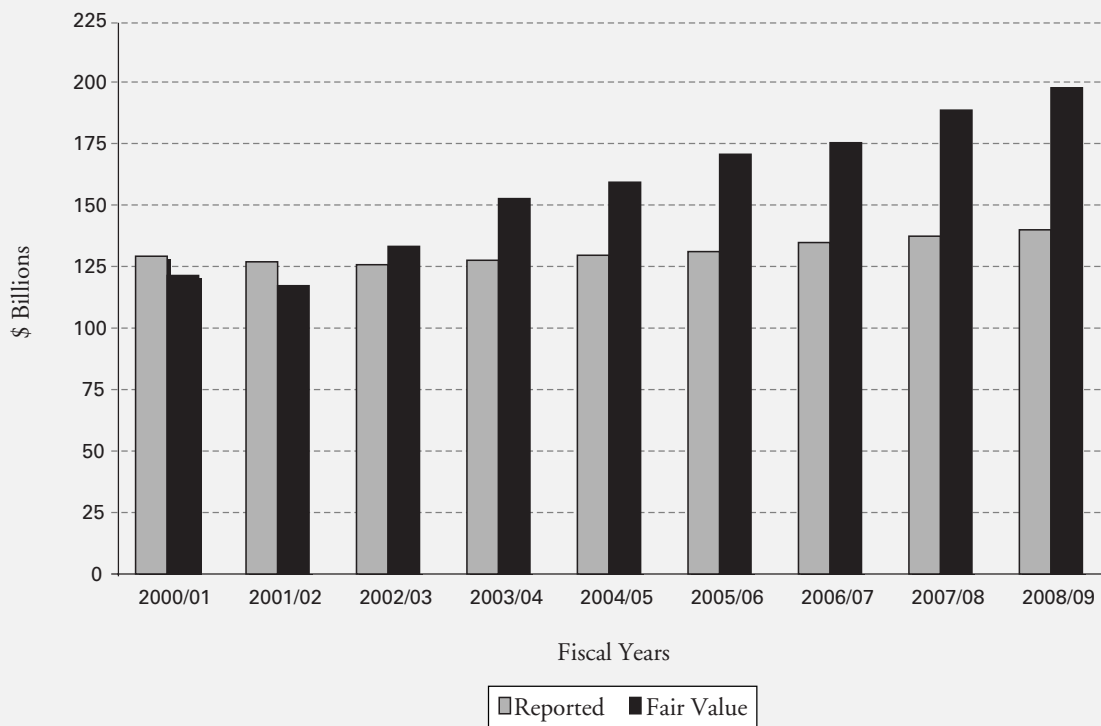
Since the gap between reported and fair-value net pension obligations has grown over time, the restatement affects not just the size of the debt, but changes in it – the annual budget balances.⁶ The reported figures showed consistent surpluses until 2008/09's roughly \$6 billion deficit. During most of this period, however, pronounced declines in the RRB yield made a given stream of inflation-indexed payments more valuable, and therefore made the buyout package that would fairly compensate participants for giving up their pensions more expensive. Mainly for this reason, fair-value accounting for pensions would have shown consistently weaker results after 2001/02: smaller surpluses in 2005/06, and 2006/07, deficits in 2002/03, 2003/04, 2004/05 and 2007/08, and a shortfall of \$13.0 billion in 2008/09 – some \$7 billion worse than reported (Figure 2).⁷

The federal budget balance got intense scrutiny over this period, with debates about over- and under-predictions, and suspicion that desire to avoid embarrassingly large surpluses was driving otherwise

6 Since 2006/07, changes in the accumulated deficit have also included a relatively small figure for "other comprehensive income or loss." Here, we treat these as part of the budget balance.

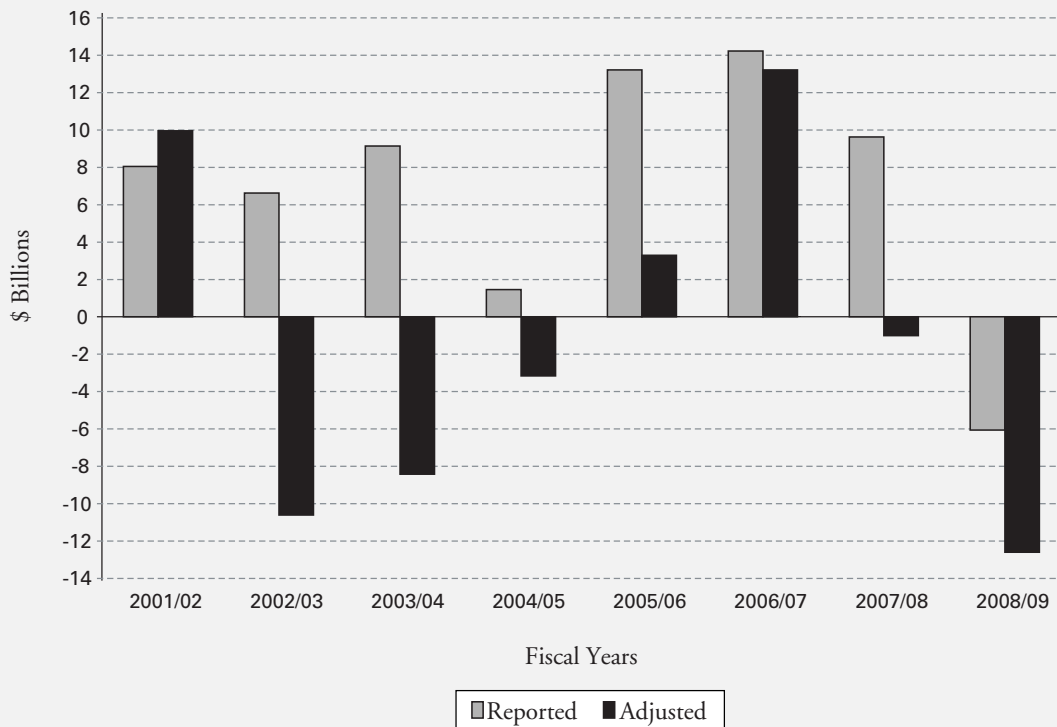
7 We do not attempt a full restatement of the federal government's revenues and expenditures: doing so would involve changing or undoing a large number of charges and credits to compensation costs, interest payments, and recorded adjustments to pension accounts, which would considerably complicate the exercise without affecting the bottom line.

Figure 1: Net Federal Pension Obligation, 2000/01 to 2008/09: As Reported versus Fair-Value Estimate



Sources: Public Accounts; authors' calculations as described in Box 1.

Figure 2: Federal Budgetary Balance as Reported versus as Estimated using Fair Value Pension Accounting



Sources: Public Accounts; authors' calculations as described in Box 1.

undesirable spending and tax changes.⁸ It is therefore disconcerting to see how different fair-value pension accounting would have made Ottawa's balance in many of these years.

This reconstruction assumes no change in the government's actual behaviour during the past decade. But fair-value reporting for Ottawa's pensions might have changed federal fiscal policy. If it had prompted fuller funding of these pensions, the federal government would have had to issue large additional amounts of marketable debt. The net pension obligations shown here would have attenuated the perception through most of this decade that the cost of the federal government – and the share of that cost future generations would bear – was shrinking, which might have meant more spending restraint and/or delayed tax reductions.

Fair-value reporting would also have added volatility to Ottawa's bottom line: the variability of the federal debt around its 2000/01-to-2008/09 trend is about two-thirds higher with the restated figures than with the reported ones.⁹ This, too, might have prompted calls for fuller funding or more fundamental reforms – such as a phased replacement of the DB plan by DC arrangements, as has occurred in the private sector and for provincial employees in Saskatchewan, or by the kind of hybrid risk-sharing arrangements that cover some employees in the broader public-sector.¹⁰ Governments' annual budget balances, debt issues and balance sheets – even their deferred compensation component¹¹ – are major topics of financial reporting, economic analysis, and media and public debate, so it is hard to believe Ottawa's reporting of its net pension obligations has no effect on its actions.

Final Observations

The movement in pension accounting toward fair-value approaches is driven by sound logic. Smoothed asset values and liabilities estimated on the basis of assumed investment returns decades into the future are shaky foundations for deferred-compensation promises, from the perspectives of both the person making the promise and the person to whom it is made. Only by valuing assets and liabilities at their value in exchange can pension-plan sponsors and participants understand the true cost and risks of their plans.

This logic applies not just to the private sector, but also to the public sector, where the exposure of taxpayers – who are not direct parties to the pension deal, but ultimately underwrite it – creates a further imperative of accountability. Fuller knowledge of current federal pension arrangements might leave Canadians supportive of them. But we do not know this, and the impact of fair-value accounting on Ottawa's debt and annual budget balances is so substantial that we should find out.

Some may object that valuing pension assets and obligations using market prices and yields will create perceptions of cost and risk that would undermine these plans in the public sector as they have in the private sector. We are not sympathetic to this argument. Experience in steel, cars, telecoms and other mature industries has shown how understating the cost and volatility of DB obligations can lead plans to run accumulated deficits larger than their sponsors can cover, leaving pensioners short and/or taxpayers picking up the pieces. We need to get a better handle on public-sector pensions before similar accidents happen on a more colossal scale. Fair-value measurement of Ottawa's pension obligations is a key step toward better management of them.

8 The controversy generated one arms-length review of the federal Department of Finance's forecasting record (O'Neill 2005), which found that these in-year changes were material. Correlations between revenue and spending "surprises" – deviations between outcomes and budget projections – also suggest that Ottawa, like many provinces, not only shapes its budgets to meet a bottom-line target, but changes course throughout the year to achieve it (Busby and Robson 2009).

9 The standard deviations around the trends are a little less than \$4.9 billion in the original figures, and more than \$7.9 billion in the restated ones.

10 The Ontario Teachers' Pension Plan and the Ontario Municipal Employees Retirement System are prominent examples of plans with built-in formulas for changing employee contributions and even benefits if assets fall badly short of obligations.

11 The revelation in September 2009 that representatives of the City of Toronto had knowingly cited an incorrectly low figure for post-retirement benefits during a civic worker's strike in which those benefits were a high-profile issue created a storm because of suspicion that desire to settle the strike inspired the misrepresentation (see, for example, Kelly McParland "\$200m is more than an 'error'," *National Post*, September 22, 2009).

Appendix A The RRB Yield as a Discount Factor for Federal Pension Obligations

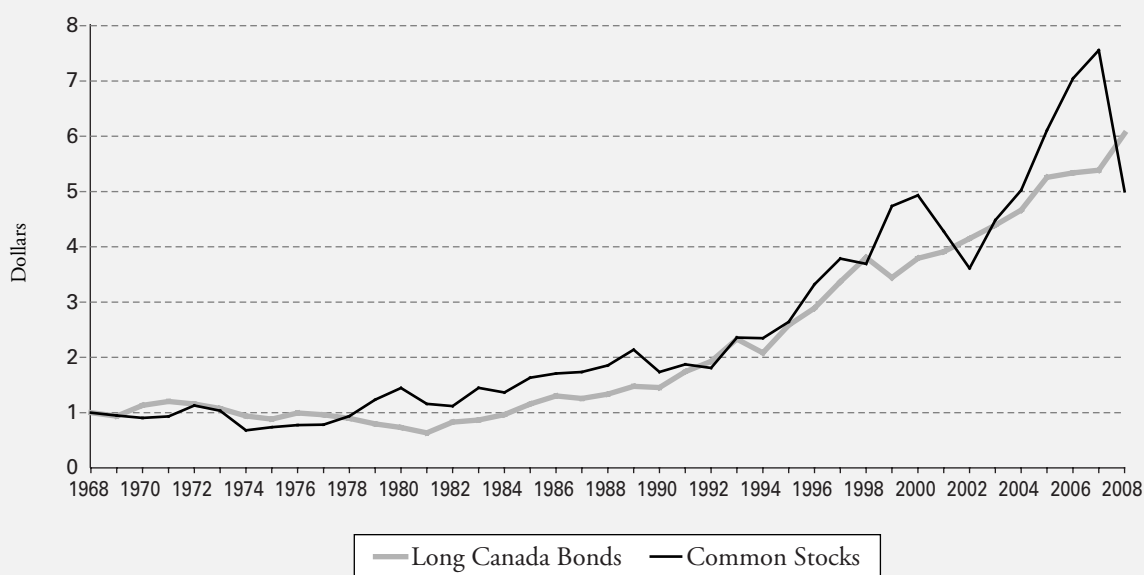
Using the RRB yield to value federal pension obligations does not command universal support. Some argue, for example, that the backing of these plans by taxpayers justifies a high discount rate, because i) the plan can invest in equities or other assets that do not match its liabilities, and ii) it can ride out the resulting volatility until aggressive return assumptions are borne out, since it is extremely unlikely to wind up without sufficient funds in the meantime (OCA 2006). Yet the implicit assertion that investments in these other instruments will earn a substantial premium over the relevant time frame, and that this premium is sufficiently certain to book in advance, goes beyond what the evidence supports.

Over the 40 years to the end of 2008, for example – a period that would essentially cover the working life of a public servant born in 1948 – the cumulative total return on stocks was less than the cumulative total return on bonds (see the chart below). The potential benefit from investing in mismatched assets should only be recognized if

and when it arises, not in advance as if it were guaranteed. Novy-Marx and Rauh (2008) highlight the illogic of discounting liabilities at high rates without adjusting for risk by showing that if US state governments invested pension assets in an all-equity portfolio and reported this way, “the surplus that would appear to emerge would justify withdrawals from public pension funds sufficient to pay down all outstanding state bonds and pay a \$5,000 dividend to every American citizen.” The RRB yield is a more sensible measure of the exposure of both participants and taxpayers.

Another perspective favouring the RRB yield as a discount rate is to consider deferred compensation as being like a loan from the employees to the government: they receive less pay in the present, to be repaid, with interest, in the future. It is reasonable to assume that the default risk attached to a government’s debt is reflective of its creditworthiness, and that its willingness and ability to meet its pension

Figure A-1: Cumulative Total Real Return on a \$1 Investment in 1968, Common Stocks and Long Canada Bonds



Notes: Common stocks returns computed from the December to December ratio of the S&P/TSX Total Return Index. Long Canada bonds returns assume the purchase of a bond with 18 years to maturity in December, sold after one year.

Sources: Canadian Institute of Actuaries, Report on Canadian Economic Statistics 1924-2008; authors’ calculations.

promises is on a par with its willingness and ability to service its funded debt.

The International Public Sector Accounting Standards Board's standard for post-retirement benefits is that "the discount rate reflects the time value of money" (IPSASB 2008, p. 34). This approach also supports a discount rate that approximates the government's cost of borrowing. True, a portfolio of RRBs is liquid, while a government pension may be difficult to borrow against in full. A countervailing consideration, however, is that an owner of RRBs faces reinvestment risk, while the employee who has "lent" his or her compensation to the government does not. On balance, we find the RRB yield a more compelling benchmark than the alternatives.

A final objection to the RRB yield as a discount factor is that it is affected by the scarcity of RRBs, which drives up the premium investors must pay for protection against inflation. To the extent this is true, however, the value of inflation protection in pensions is greater because of the lack of alternatives. The straightforward implication of a shortage of RRBs is that the federal government should issue more of them. If doing so reduced distortion in RRB yields, we would have a better benchmark for discounting – and a better outcome than adjusting the RRB yield up an arbitrary amount, or abandoning it for a less defensible discount rate.

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