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Financing Defined Benefit Pension Plans

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Signs of difficulty in the financing of pre-funded, defined benefit pension plans are easy to find. Newspaper headlines nowadays make regular reference to any or all of: pension plans that have swung dramatically from a surplus to a deficit position; employers lamenting the big increase they face in required pension contributions; and, the prospect of pension plans being wound up with assets that are insufficient to pay all promised benefits. (The key terms – pre-funded pension plan and defined benefit pension plan – are defined in the text below.)

The question why defined benefit plans are difficult to finance in a satisfactory way for all parties calls for an answer. This note attempts to provide an answer that will resonate with the experience of my trade union colleagues and hopefully, will make sense to others as well.

The short of the story that is told here is as follows:

- much of the difficulty is inherent in trying to make a reasonably precise promise of a future income in the face of a very uncertain future;

- the problems inherent in trying to make (and fulfill) these promises are aggravated by a number of conflicts of interest in pension governing structures; and,

- conflicts to which these two elements might naturally give rise are aggravated further by a lack of clarity about who bears the costs and risks of defined benefit pension plans.[1]

Who knows what is going to happen

It is a common experience for members of defined benefit pension plans to require some time to figure out exactly how their benefits are going to be calculated when they reach retirement age, and then to take it for granted that meeting the retirement income target defined in the plan represents a reasonably easy target to achieve. Yet, the whole idea of telling someone that an income calculated according to a formula will begin to be paid at some date in the future, and will last until at least the end of the person's life is a bold promise to make.

The central characteristic of a defined benefit pension plan is that it includes a promise of how the benefit arising from participation in the plan is going to be calculated. Nowadays in Canada, it is most common to have a defined benefit pension plan promise a retirement income calculated according to formula of the following type:

(years of service) x (two or less per cent) x (best or final earnings averaged over a number of years)[2]

[1] This article focuses very closely on issues and risks of workplace pensions as they are felt at the level of the workplace. Broader societal risks are not discussed. Thus, the implications of failed financing for the *Guaranteed Income Supplement* or, in Ontario, for the *Pension Benefit Guarantee Corporation* are not discussed. Also, even though most members of defined benefit pension plans do not have full inflation protection, the inflation risk they face is not discussed.

[2] For unionized workers in the manufacturing and mining sectors it has been much more common to bargain benefits that promise a specific number of dollars per month per year of service. Typically, the benefits are bargained upward in successive rounds of bargaining, and the new higher level of benefits is applied to all years of service with the employer. The finacial and risk implications of this approach are noted below.

The pension plan will specify the age and service requirements that have to be met in order to get a pension calculated according to the formula. It will also spell out the nature of any adjustment that will be made during the retirement period to take account of inflation and/or wage increases.

On the face of it, these are unassuming commitments. But, the amount of the benefit payment is uncertain; the time frame over which it will have to be paid is uncertain; and, so is the value today of the future stream of benefit payments that has been promised.

The amount of the benefit to be paid is uncertain because wages and salaries at or near the time of retirement are unknown. Moreover, if the plan provides benefits that are adjusted for inflation after retirement, future inflation is unknown. If the plan provides surviving spouses benefits, it is unknown through most of the work life of a plan member whether they will have a spouse at the date of retirement and/or death. Finally, it is unknown for young plan members in particular, whether they will stay with their employer until retirement age and receive the continuing stream of payments promised by the plan. (It is typical for settlements on plan termination to be less generous than if the plan member had continued employment to retirement age.)

The time frame over which the benefits will be paid requires foreknowledge of the date of retirement, and the date of the plan member's death. Neither of course is knowable in advance.

Finally, under the pension financing rules that are explained below, it is important to be able to place a current value on the stream of payments that are promised to be paid in the future. In order to do this, an assumption has to be made about the rate of return that will be earned by any money that

is set aside to-day to make good on a future benefit promise. The actual rate of return that will be earned in the future is, again, unknown.

It is possible to make assumptions about the future and estimate what will be required to pay benefits in the future. But it is not possible to have actual knowledge of the future.

Securing defined benefit promises: institutions and rules

One major uncertainty has not yet been mentioned. That is the uncertainty whether the employer(s) who is (are) involved in financing the workplace pension will still be in existence when the plan members reach retirement age. If employer contributions are being transferred directly to retired people and the employer goes bankrupt, the current and future pensioners are at risk of losing all of their pension.

Luckily, rules have been put in place to limit this possibility. (Actually, it is more than luck. Experience with these worst case possibilities led to pressure on politicians to put the rules in place that are described immediately below.)

A basic feature of tax and regulatory law in Canada is that employers who sponsor workplace pensions must create a pension fund that operates at *arm's length* from the corporate sponsor of the pension plan. Subject to one caveat that will be noted below, the assets of the pension fund must be separate and distinct from the assets of the sponsoring corporation. This required separation of pension fund assets from corporate assets makes it possible for the pension fund to pay benefits even if the corporate sponsor of the pension fund goes bankrupt.

Regulatory law also includes rules that are intended to make sure that there is enough money in the *arm's length* pension fund to pay all of the benefits promised by the plan. In this regard two (and a half) rules are of particular note.

First, each year's contributions must equal the value of the benefits earned by plan members each year. Note: under full funding, the contributions are not linked to the benefits paid each year as they are under pay-go funding. They are linked to the value of the benefits earned each year, and for reasons noted above, they can only be estimated.

Second, the assets in the pension fund should equal the liabilities of the plan – i.e. the value of all of the benefits promised by the plan. Again, it is important to remember that the liabilities are only subject to estimation, they are not known through most of the life of a pension plan.

Within the legal framework of full funding, there are two things that might result in a pension fund having insufficient assets to cover the liabilities of a plan in the face of bankruptcy.

1. The experience of the plan might have departed from what was assumed by the plan actuary in a way that created an unexpected shortfall of assets compared to liabilities.

2. At a particular point in time, the plan might promise new benefits based on prior years of service for which no money was set aside in the past.

   In the latter case, which is common in pension plans, the unfunded liability (excess of liabilities over assets) is a deliberate creation. In either case though, if the sponsoring employer(s) goes

(go) bankrupt before the unfunded liability is paid off (amortized), then the plan members will likely end up with less than the full amount of the benefit owed to them.

Securing defined benefit promises: the actuarial cycle

The regulatory law in all Canadian jurisdictions requires that a Fellow of the Canadian Institute of Actuaries prepare an actuarial valuation report once in at least every three years. The report will do at least three things.

First, it will estimate both the required contributions over the coming actuarial cycle (up to three years) and it will provide a balance sheet for the plan (more on this below).

Second, it will assess experience since the effective date of the last valuation against the assumptions that were used in the last valuation of the plan. In the second step, an attempt is made to determine whether the actual experience of the plan is proving to make the plan more or less costly than was estimated.

Finally, depending on the outcome of steps one and two, adjustments to the contributions or benefits may be recommended. Adjustment could result from a determination that the contributions required over the period ahead are different than over the past period due, for example, to a change in the age of the plan membership. However, the source of the more dramatic adjustments to contributions is a balance sheet that shows an excess of assets over liabilities (i.e. a surplus), or the opposite (an unfunded liability or actuarial deficit).

Where a surplus appears in the balance sheet, the adjustment could take very different forms. For instance, the surplus could be used to help

finance benefit improvement for plan members. Surpluses are a convenient way to pay for the past-service cost of a benefit improvement that is being applied to prior years of service. Surpluses could also be used to rationalize a decrease in employer contributions to the pension plan or a complete contribution holiday (i.e. a situation in which an employer contributed nothing to a pension plan). Under specific circumstances that vary from jurisdiction to jurisdiction, they could also result in an employer removing money from the pension fund.

In the 1980s and 1990s, surpluses were common because of the high rates of return on financial assets that usually exceeded assumed rates of return by a substantial margin. Surpluses will be less common going forward. Also, the adjustments resulting from a surplus could involve many variations on the two just noted. In practice, however, the two identified tended to be the most common adjustments made in response to surpluses. It is also worth noting that rules under the *Income Tax Act* limit the extent to which plans can build up surpluses to protect against adverse experience in the future.

The sharp decline in stock prices over the period from mid-year 2000 through March of 2003 did real damage to the asset side of pension balance sheets. Declining interest rates did the same thing to the liability side of balance sheets. What resulted in many balance sheets was unfunded liabilities. In all jurisdictions, these unfunded liabilities have to be paid off or amortized like a mortgage through special payments to the pension fund over a specified number of years. These special payments are in addition to contributions required to match the value of benefits that are newly earned.

The ongoing cycle of estimating contributions and balances, assessing against actual experience and adjusting is central to providing financial security for fully funded, defined benefits in the face of the uncertainties

noted above. The actual benefit payouts, yet alone their value at a particular moment in time, cannot be known with certainty until the last benefit is paid to the last plan member. The financing process relies on there being a group of people who are willing to share the risks associated with providing the benefits.

At least two details of the actuarial cycle that have been overlooked to this point should be added.

Thus far, reference has been made to the balance sheet for a pension plan in the singular. In fact, starting in the late 1980s, all Canadian jurisdictions came to require two balance sheets: a going-concern balance sheet that assumes the existence of the plan forever into the future; and a solvency balance sheet that assumes that the plan would be wound up or terminated on the effective date of the valuation.

There are several differences between these two types of balance sheet. For current purposes it will be sufficient to note that the value of assets used in a solvency balance sheet are required to reflect current market values more closely than in a going-concern balance sheet. In addition, the assumed rate of return on pension fund investments is more closely tied to current market returns. Thus, the solvency valuation balance sheets are more subject to the volatility of investment returns than are going-concern balance sheets and, in the recent past, the solvency balance sheets have also been the source of more unfunded liabilities thanks to both poor investment returns over the 2000 to 2003 period and because of relatively low interest rates.

Of all of the assumptions made in determining required pension contributions or preparing pension balance sheets, none will have a more profound effect than the assumption with respect to rate of return on

investments. As a rule of thumb, a one percentage point change in the rate of return assumption will change required contributions by twenty per cent. Moreover, looking beyond the assumption about rate of return, the rate of return itself is also a highly volatile factor in pension financing.

In the actuarial cycle, there is an important link between the assumptions made in the first step in the cycle, and what will result in steps two and three. The bolder or more optimistic the assumptions are, the lower the estimated required contributions will be, but there is also greater likelihood of adverse experience and the need for special payments. It should be noted too, that as the assumption with respect to investment returns becomes bolder, it creates the need for a more aggressive investment policy if experience losses and unfunded liabilities are to be avoided. Thus, the actuarial assumption with regard to investment returns can dictate the range of possible investment policies. Looking forward, this may become a very important consideration. Many plans have adopted assumptions on rate of return that were appropriate to the past but will require more risky investment strategies to meet in the future.

Important choices affecting unfunded liabilities

No matter who is taking responsibility for making decisions about the financing of pre-funded, defined benefit plans, there are a number of key decisions that will affect the likelihood of unfunded liabilities emerging. This is entirely non-problematic as long as the source of financing for the plan outlives the period over which the unfunded liability is amortized. Clearly though, if the source of financing ends before the unfunded liability is amortized, then assets will not be sufficient to pay all of the benefits promised by the plan. This is the risk that goes with the emergence of unfunded liabilities.

Three particular choices will be noted that will impact on the likelihood of unfunded liabilities.

First, whenever new benefits are introduced in a defined benefit pension plan, a decision has to be made as to whether the new benefits are going to apply to past service, as well as future service. As is noted above, when new benefits are applied to past service, financial commitments are taken on for which no money has been set aside in the past. If the plan happens to have a surplus at the time, some portion of the surplus can be allocated against the past-service cost of the benefit improvement. In the absence of a surplus, special payments will be required to cover the past-service cost.

If one is confident of the long-term future of the source of pension plan financing, there is no reason to hesitate about taking on past-service costs. As one colleague noted, it is analogous to taking on a mortgage for one's house. For most of us, if we did not take on a mortgage, we would not live in a very large house. By the same token, if we could not make past-service improvements to pension plans and take on the associated past-service costs, many pension plans would be paying lower benefits than they are. This is particularly important for flat-benefit plans and career-average earnings plans that require regular updating of benefits and/or for plans that handle indexing on an *ad hoc* basis.

Creating past-service benefits is an essential feature of the ongoing operation of defined benefit pension plans. Clearly, it does create some risks that require clear assessment. It should also be noted that past-service improvements can be phased in over time in a manner that limits unfunded liabilities (and benefit payouts) at particular moments in time.

A second choice that affects the likelihood of unfunded liabilities is the choice of actuarial assumptions, assuming for the moment that actual experience is a given. As is noted above, bold or optimistic assumptions can lower estimated costs and liabilities, but increase the likelihood of experience losses and unfunded liabilities. The use of conservative or pessimistic assumptions will have the opposite effect.

One way to look at this choice is to view the use of bold or optimistic assumptions as involving a systematic under-funding that is made up on a regular basis through special payments. The use of conservative or pessimistic assumptions involves systematic over-funding that will result in surpluses and, in turn, either contribution holidays or benefit improvements.

A third important decision is the decision with respect to investment policy. To simplify greatly, one can imagine two polar extremes with respect to how to handle the trade-off between risk and rate of return. On the one hand, an approach dominated by the philosophy that one wants to have the lowest contribution rate on average over the long-term, even if it means incurring experience losses and unfunded liabilities from time-to-time. On the other hand, an approach dominated by the philosophy that one wants to avoid downside risk at all costs, even if it means a higher average contribution rate over the long-term. The former approach will give rise to more frequent experience losses and unfunded liabilities.

Each of these approaches will also result in quite different investment portfolios – the former higher risk than the latter. Clearly too, these different approaches to investment policy should be reflected in actuarial assumptions.

Underlying these choices is a tension among concerns: systematic under-funding *versus* over-funding (with implications for security of

benefits); security of benefits *versus* level of benefits; and, level of contributions *versus* stability of contributions (with implications for security of benefits). In addition, there are important links among the financing policy of a pension plan; the benefit policy and the investment policy, all of which should be reflected in actuarial assumptions. It is noteworthy that the regulatory law requires an explicit investment policy, but neither of the other two. (At any moment in time, the official pension plan text is a partial reflection of the benefit policy. As a statement of policy, it will not capture potentially important things such as tacit understandings of how surpluses will be used to improve benefits.)

Who bears costs and risks

The official pension plan documents for single-employer, defined benefit pension plans will typically provide that the employer will make the contributions required to maintain the solvency of the plan (minus any deductions from employee paycheques). The plan documents also provide that the employer will make whatever special payments are required to amortize unfunded liabilities.

Based on these standard provisions of plan texts, it has become widespread practice to claim that employers bear the residual costs and risks of financing defined benefit pension plans. This common understanding underlies employers' claims to pension surpluses. On this interpretation, neither the benefits paid to plan members nor plan members' contributions vary with the experience of the plan. Moreover, this interpretation suggests that the employer's pension contributions, including special payments, are simply added on to already existing wage and benefit packages.

An alternative understanding that is likely closer to the mark takes as its point of departure the desire of employers to control their total

compensation. In context, the normal contributions to the pension plan will be allocated against the total compensation of the plan members (i.e. pensions are bought by the plan members through foregone wages and salaries, or other benefits). In context, if the need for special payments arises, the employer will do everything possible to recover the amount of the special payments in any one of a variety of ways: lowering wage and salary offers, or postponing or dropping improvements to the pension plan or other benefits. To the extent that an employer successfully offsets the amount of special payments by making a downward adjustment to some other part of the compensation package, the employer has effectively shifted the risk back to the plan members.

It is regrettable that systematic evidence does not exist to shed light on which of these interpretations of cost and risk is more appropriate. Anecdotally, many trade unions have faced demands from employers over the past few years to restrain other parts of the compensation package because of the need to make special payments to amortize unfunded liabilities.

Who makes these difficult decisions

It was noted above that no matter who makes the key decisions about financing defined benefit pension plans, difficult choices have to be made. In jurisdictions other than Quebec, it is typical for the employer to take sole responsibility for decision-making within the constraints established through collective bargaining, regulatory and tax law. In the jargon of regulatory law, the employer is the plan administrator. (In Quebec, the administrator must be a committee which must include a voting and a non-voting member chosen by the active plan members, and a voting member chosen by the retirees.)

In the employer's capacity as plan administrator, the employer also engages the professional help required to operate the plan (e.g. the plan actuary who has to certify the level of contributions necessary to maintain the solvency of the plan, and the fund manager who will advise on and implement the investment program). It is the employer and not the plan members who hire and fire the professional help.

Without raising any general question about the motives or integrity of employers, it is clear that at times their interests will diverge from those of plan members. When employers face financial difficulties, which is precisely when it is most important that a pension plan be fully funded, the last thing employers want to do is contribute available cash to the pension plan. In addition and anecdotally, some employers have adopted a strategy of deliberately minimizing funding levels in order to minimize plan member claims on surplus. The investment policy chosen by employers can also reflect self-interest. In an extreme case, an employer facing financial difficulty asked a fund manager to invest in the shares of the troubled company.

Again, the professional service providers are hired and fired by the employer. Thus, they face an ongoing tension between the need to satisfy the employer/customer on the one side, and what is required by the best interests of the plan members.

For a balanced perspective to be brought to bear on the key decision with respect to financing defined benefit pension plans, plan member interests have to be brought to bear on the decision-making process.

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