Response to Mr. Tom Levy’s Comments on
“A Critique of Current Actuarial Approach to Pension Plan Funding”

By Chun-Ming (George) Ma

I would like to thank Mr. Levy for commenting on my Member’s paper: “A Critique of Current Actuarial Approach to Pension Plan Funding”. However, I regret that I cannot agree with most of his comments.

In his submission, Mr. Levy begins by saying that “after reading Dr. Ma’s Member’s paper, I conclude that following his recommendations would be tantamount to demanding a return to a pension environment that disappeared (with good reason) at least forty years ago.” He suggests that the proposal in my paper would create unnecessary barriers for plan members and sponsors, thereby doing them a serious disservice. I fail to see how he could have reached this conclusion unless he does not fully grasp the essence of my paper.

Some General Comments

Before responding to Mr. Levy’s submission, let me first make a few general comments about going concern and solvency funding:

- Going concern funding assumes that the pension plan will continue indefinitely. A funding level defined on this premise is not a meaningful measure of benefit security, since benefit security is an issue only when a pension plan is wound up as a result of the insolvency of the plan sponsor. Solvency basis provides a more meaningful and more objective measure.
- Funding on a solvency basis is simply an attempt to move the funding level towards a funding target defined in terms of solvency. It does not necessarily mean that any funding shortfall determined thereon must be immediately funded in full. Where a funding shortfall is revealed, it is the pension legislation that should stipulate the extent to which the shortfall is to be funded and how fast it is to be funded. Obviously, in developing such regulation, the government policy makers would need to balance the interests of plan members and sponsors (i.e., benefit security vs. affordability or stability of required contributions) and assess its impact on the sustainability of the pension system.
- The fair value of a plan’s obligations will vary from time to time as interest rates change, and is more appropriately measured in terms of solvency. Funding on a going concern basis, with discount rate assumptions based on the expected rate of fund return, could lead to a level of fund assets substantially higher or lower than this fair value.
- There is no empirical evidence to support the actuarial profession’s current belief that contribution stability and security of benefit accruals can be promoted through the use of a going concern funding approach.
Response to Mr. Levy’s Submission

I now provide more specific comments on Mr. Levy’s submission:

1. I have not said that the only way to protect accrued benefits is with wind-up funding. As Mr. Levy says, the government may implement a national insurance scheme like the PBGC or PBGF to protect those benefits. However, such a scheme can be sustained without burdening the taxpayers only if a proper risk-based insurance premium is levied on the participating pension plans. This premium should be linked with the plan’s funding level, which arguably should be measured in terms of solvency. In a properly designed insurance system, the sponsor of an underfunded plan will have to decide whether to pay a higher risk-based premium or to improve the solvency position of the plan by making a higher level of contributions.

2. Regarding the trade-off between benefit security and benefit adequacy, Mr. Levy seems to suggest that going concern funding allows more adequate benefits to be provided. He uses mortgage financing as an analogy to support his belief. I disagree.

First, I am doubtful if there is ever a true balance between benefit security and benefit adequacy. My view is that employers should make only benefit promises they can afford, and keep the promises already made by appropriately funding their pension plans. Employers who are unable to keep their benefit promises would put their employees’ retirement security at risk.

Second, in today’s low interest environment, a going concern funding approach may give rise to a lower funding cost than is necessary to keep pace with the growth of plan liabilities. If low interest rates persist, some of the pension costs will continuously be shifted to future generations of employers (or shareholders of publicly-traded companies) and members. In this instance, it is not inconceivable that the contribution rates could increase to a level that the future generations might not be able or willing to bear.

Furthermore, Mr. Levy’s mortgage analogy appears to support my contention that the going concern funding approach leads to a self-constructed financing scheme for liabilities without any link to market discipline. This is explained below.

When a consumer borrows money from a financial institution to buy a house, the financial institution assesses the consumer’s credit standing and appraises the value of the property. It limits the amount of loan to, say, 75% of the appraised property value. It charges a market interest rate and puts a lien on the house in case of default. If it is a high ratio mortgage, the lender charges a higher interest rate or requires the borrower to purchase mortgage insurance to offset the risk assumed. The loan is for a fixed term subject to renewal. On renewal, the borrower pays a higher rate of interest on the outstanding loan if the market rate goes up or saves interest if the rate comes down.
A pension promise to an employee, to the extent it is not secured by fund assets, is akin to a long-term debt issued by the employer. The employee is the lender and the employer is the borrower. Funding a pension promise using the traditional actuarial approach (i.e., one that based on going concern valuation) differs from mortgage financing in the following ways:

- The pension liability is calculated using a discount rate assumption that reflects the expected return of the pension fund assets. In performing a valuation, the actuary can select a higher discount rate (as long as it can be justified under the current actuarial standards) even if the market interest rates (i.e., bond rates) have declined since the previous valuation. This reduces the employer’s funding obligations in two ways. First, the amount of deficit (an employer’s debt), if any, is reduced and the payment to amortize this debt is reduced. Second, the funding payment for any future pension accrual (new debt) is also reduced.
- Pension plan members, unlike mortgage lenders, do not have the power to set the interest rates for determining the employer’s required payments.
- Pension benefits that are not secured by fund assets are tied to the fortunes of the employer. Members, unlike mortgage lenders, do not have collateral for the pension debt owed by the employer.

Setting a funding target based on solvency, arguably, would bring market discipline to pension financing.

3. Regarding the “flaws” in my “proof”, I would simply point out that I was not attempting to provide a proof. Rather, I simply used historical economic data to demonstrate a shortcoming of the going concern approach – its lack of response to changing interest rates that affect the value of a plan’s obligations. Using that data, I also demonstrated that funding on a solvency basis would be more responsive to changes in interest rates, and would result in a funding level that is closer to that required to settle the members’ benefits when their employment or membership ceases, either voluntarily or involuntarily.

4. Regarding my choice of an historical period for the empirical testing, I used the one that we have experienced since 1970. (Note that the first piece of Canadian pension legislation was introduced in the 1960’s.) Given the limited history of capital markets, it does not seem appropriate to characterizing that period as either “usual” or “unusual”. The future is uncertain and there will be multitude of possibilities for future economic outcomes.

5. To simplify my analysis, I used a single-member model to compare the financial outcomes of the going concern and solvency funding approaches. While the model does not resemble a typical pension plan with continuing influx of new entrants, the back-testing results do serve to illustrate the lack of response to interest rate risks under the going concern funding approach. For plans that are closed to new members or that have become progressively more mature due to the shrinking of active
workforce, I would argue that their cost pattern, under either the going concern or solvency approach, would resemble that illustrated by the single-member model.

6. It is fair to say that actuaries have never articulated well what they mean by contribution stability (or volatility). There are several possible notions of this concept. For example, contribution stability could mean contribution rates that do not change drastically from one year to the next. Or it could mean contribution rates that stay within a narrow range of a target level (however determined) assuming it starts at that level. In my paper, I look at the variability of contribution rates from the normal cost rates under the going concern and solvency funding approaches, as well as the variability of contribution rates from year to year. The conclusion I have drawn is that, as long as there is a mismatch between assets and liabilities, volatility of contributions will exist regardless of which funding approach is used. This is just a consequence of market reality. Adoption of a going concern funding approach, in and of itself, will not eliminate or reduce this risk.

I cannot comment on Mr. Levy’s suggestion that employers would only become concerned about volatility when the required contribution amounts begin to significantly exceed some predetermined target level. What I can say is that, for most pension plans, a target contribution rate, however determined, that was established years ago is not likely to be at a level close to the anticipated cost of benefits today, since the demographic characteristics of membership, the expected longevity among pensioners, and the economic environment in which the pension plan operates would have changed significantly.

**Concluding Remarks**

As demonstrated in my paper, one of the major drawbacks of the going concern funding approach is its lack of response to the risks associated with changing interest rates. This approach tends to create a self-constructed representation of the funding position of the pension plan without any link to financial markets. It contrasts sharply with the worldwide trend in accounting standards and regulatory supervision towards more transparency through market-consistent reporting based on fair value principles. Use of a solvency funding approach, on the other hand, would bring transparency and market discipline to pension financial management. It would make it possible to analyze the various pension plan risks within a market-consistent framework, thereby promoting the sound management of pension plans.