

PERS AND THE PENSION REVOLUTION:

ACTIVE PARTICIPANT . . . OR PASSIVE BYSTANDER?

*"No book of mine was ever more on target when it was published in 1976,
and no book of mine has ever been more totally ignored"*

Peter Drucker, writing in 1996 about his pensions book
"The Unseen Revolution", first published in 1976.

Case Description

After considerable reflection, Alyson Green had decided to throw her hat into the ring to become the next CEO of the state's public employee retirement system, named *PERS* for short. The state's Governor, who she had gotten to know well before he ran for office, had been very persuasive. It was his perception that, with the retirement of *PERS'* long-serving previous CEO, the organization needed new, vigorous leadership. With her strong track record as a private sector 'turn-around' specialist, he thought that Alyson fitted the bill perfectly. *PERS'* Board of Trustees must have agreed with the Governor's assessment, as they decided that Alyson was the strongest of the three finalists for the job. They had made her an offer, and she had accepted. Now six weeks on the job, she had started to make serious preparations for her first Board meeting, only two weeks away. As she felt that this first meeting would offer a unique opportunity to establish a few key strategic priorities for *PERS*, it was important for her to develop her own view on what they should be.

While the state had made various employee pension provisions for almost a century, the current *PERS* organization was established as an autonomous state agency in the 1950s. According to its most recent Annual Report, *PERS* looks after the pension arrangements of some 150,000 current and former state employees, and is fully funded, with plan assets and liabilities both valued at about \$50 billion. The *PERS* pension contract is a typical public sector 'DB' arrangement where pension payment accruals are based on years of service, final earnings, and are fully indexed to consumer prices (CPI) post-retirement. Normal contributions reflecting new service are split 50-50 between the employer and employees. The allocation of any balance sheet surpluses, or dealing with balance sheet deficits, would follow from processes that are partially pre-determined by stated pension contract rules (e.g., consistent with generally accepted actuarial principles) and partially determined through negotiation between the various stakeholder groups (i.e., state government, active employees, and pensioners).

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PERS had been maturing over the course of the last decade, with the ratio of pensioners to total plan membership rising steadily over time. The ratio had reached 39% at the end of 2004. Benefit payments began to exceed contributions 10 years ago. In 2004, the System took in \$800 million in contributions, and paid out \$2 billion in benefits. To calculate its current pension liability, *PERS* had continued to use a real return assumption of 4% as the liability discount rate over the course of the last five years. Over the same time period, the yield on long term inflation-linked Treasury bonds had fallen from 3.5% to 2%. The real return on *PERS* assets had been volatile over the course of the last five years, ranging from a low of -5% (in 2002) to a high of +15% (in 2003). Further historical facts on *PERS* are set out in Table I.

Table I

A Short History of PERS Vital Statistics

	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
Current Assets (\$B)	\$44B	\$40B	\$38B	\$44B	\$50B
Current Liabilities (\$B)	\$39B	\$42B	\$44B	\$47B	\$50B
Real Liability Discount Rate	4%	4%	4%	4%	4%
Actual Long TIPS Yield	3.5%	4.0%	3.0%	2.5%	2.0%
Actual Real Fund Return	6%	-3%	-5%	15%	12%
Contributions (\$B)	\$0.7B	\$0.7B	\$0.8B	\$0.8B	\$0.8B
Benefit Payments (\$B)	\$1.5B	\$1.8B	\$1.9B	\$1.9B	\$2.1B
Number of Pensioners (000s)	45T	47T	50T	53T	59T

Peter Drucker's Insights on the History of Workplace Pensions

In order to develop perspective on pension issues, a former colleague had suggested that Alyson read *The Pension Fund Revolution*, the 1996 reprint of Peter Drucker's original book *The Unseen Revolution: How Pension Fund Socialism Came to America*, first published in 1976^[1]. Now that she had finished, her notes suggested that Drucker's insights seemed to fall into four broad categories: politico - agency issues, governance – organizational issues, finance - investment issues, and pension contract - risk issues.

Drucker identified Charles Wilson, President of General Motors for much of the 1940s and 1950s as the father of the typical post-WWII corporate DB plan. Wilson believed that his corporate pension plan design would forge a direct, strong bond between the corporation and its workforce. Further, by investing pension contributions through a segregated pension fund in equity positions in Corporate America, workers would have a direct incentive to enhance the financial health and productivity of their employers. When the new DB pension plan was introduced at GM in 1950, union leaders at the UAW were less than enthusiastic. They viewed Wilson's initiative as an attempt to undermine union power to impact the future affairs of the corporation. So, ironically, the GM pension plan was implemented over the objections of the UAW at the time. The Wilson pension formula was subsequently adopted by many other large corporations in the early 1950s. The essence of the Wilson formula would later be (in 1974) codified in the USA as the Employees Retirement Income Security Act (ERISA).

Drucker recognized that the politics and dynamics of public sector and multi-employer industry pension plans were quite different from those of the corporate sector. While he saw nothing wrong with such arrangements in principle, Drucker saw much wrong in practice. State and local governments seemed to just make up 'rules' for their pension plans as they

went along, with little apparent fiscal discipline or consistency. The same seemed to be generally true for union-run industry plans, even though these plans fall under the ERISA code. As a counterpoint, the evolution of TIAA-CREF, the national pension plan for U.S. university faculty and staff, proved that it doesn't have to be that way, with Drucker noting TIAA-CREF's "enviable record of performance and innovation" starting in 1917.

The 1976-2005 Period

What has happened in the political economy of pensions post-1975? Based on other readings, Alyson noted the following important developments:

- The private sector labor market has 'atomized', making corporate DB plans now irrelevant for a significant part of this market. Ironically, the growth of DC/401(k) plans has given rise to a whole new class of agency issues driven by informational asymmetry between plan members and for-profit financial services providers. She was aware of the view of some observers that, as a result, many plan members in DC pension arrangements are paying too much for too little^[2].
- In the part of the private sector labor market where DB plans are still potentially relevant, such plans have become significantly less attractive as a compensation component for many corporate employers. This decline in the popularity of corporate DB plans seems to be due to the evolving complexity of the collective, shared risk-bearing element in DB plans, and the advent of 'fair value' accounting principles which is forcing corporate CFOs to directly address the question of how much the mismatch risk on the pension balance sheet is contributing to the corporation's overall risk profile.
- There has been an emergence of single-purpose, arms-length agencies investing the national Pillar #1 pension reserves in Canada, Sweden, Norway, Ireland, New Zealand, and very recently, in Australia and France. There are also many such agencies investing Pillar #2 workplace-based pension assets in all the major pension reserves countries, including not just the list above, but also in the USA, the UK, the Netherlands, and Switzerland.

Governance – Organizational Issues at PERS

Alyson noted that Drucker was predictably direct in his views on pension fund governance and organizational matters. Being free of direct conflicts with specific union, business, or government agencies would not be enough. Pension funds would also have to be well-governed and managed, subject to the same competency standards as the boards and managements of the companies they invest in. This in turn suggests a need to define the ideal skill/experience set for a pension board of trustees, and a requirement to impose a matching search/implementation discipline.

Through her job interviews for the CEO position, Alyson had discovered that *PERS* currently does not have a formal process to impose such a discipline in the selection of its Board of Trustees. Instead, there is a strong 'representative' orientation to the Board selection process, with two Board members coming from the state legislature, two from the executive branch, three from various worker groups, and one from *PERS* pensioners. Only the ninth position – Board Chair - is filled through a consensus-based search process which attempts to match a candidate's actual skill/experience set against that set out in a Board Chair Job Description. Despite the way in which the Board of Trustees was selected, the Board seemed to be a reasonably effective body today (after all, it selected her as the organization's new CEO!). However, the question whether this outcome is the result of luck or of good management remains.

Finance – Investment Beliefs

As part of her 'due diligence' fact-finding research on *PERS*, Alyson had observed that *PERS* had the same 60-40 equity-debt asset mix as most other public sector pension funds. Why was that, she wondered? Is it because all of these funds have the same return expectations and the same risk-tolerance? Also, most of the organization's 50 investment mandates seemed to be of the traditional 'active' type, with external money managers being asked to 'beat' a specific capital market-based benchmark that reflected the money manager's 'style', but without being allowed to deviate much from the composition of that benchmark portfolio. Why was that, she wondered? Is this really the optimal way to implement an investment policy? She and *PERS*' Chief Investment Officer were destined to have some interesting conversations about investment beliefs, and the role that investment beliefs should play in *PERS*' future investment program.

Pension Contract – Risk Issues at *PERS*

Alyson noted that, officially, surplus or deficit-related decisions were not *PERS* issues at this point, as the recent conventional actuarial valuation showed plan assets and liabilities to be in balance at about \$50B each. However, Alyson wasn't convinced that this was really the case. She had been reading for some time now about the 'fair value' debate taking place between members of the economics, accounting, and actuarial professions. On the one hand, most actuaries seem to believe that the plan liability they calculate should be based on the expected return of plan assets. On the other hand, most economists, accountants, and even a few 'radical' actuaries argue that such calculations systematically understate the 'true' (i.e., default risk-free, or insured) value of the accrued pension liability.

Why is this? They explain it is because the economic 'fair value' of accrued pensions is independent of the chosen investment policy for plan assets. In other words, increasing the expected return on plan assets by taking on more risk cannot reduce the economic value of the accrued payment obligations. Instead, the economic value of pension liabilities should always be based on their 'best estimate' transaction value. To establish that transaction value, future pension payment obligations should be discounted using the market-based term structure of interest rates for high quality debt instruments, and not the higher expected return on plan assets. Using such a higher discount rate would result in an understatement of the accrued 'true' pension liability.

Very recently, Alyson attended a *Rotman International Centre for Pension Management (ICPM)* workshop which pushed this financial economics-based line of argument even further. The critical point made at the workshop was that the only truly risk-free DB pension plans are those that (a) have plan assets equal to the economic value of plan liabilities, and (b) are fully cash-flow matched on an asset-liability basis. Any DB plan which cannot meet these two conditions has risk embedded in it. This raises some interesting questions. For example, when such embedded risk exists, how does it manifest itself? In exposure to the possibility of increased contributions in the future? To the possibility of benefit reductions? To both? Further, who bears these risks? Today's taxpayers, active employees, or pensioners? Or future generations of taxpayers, active employees, or pensioners? Or possibly all of the above? If so, how is total risk exposure allocated between these stakeholder groups? It seemed to Alyson that these questions were not only interesting, but also important. Further, she was quite sure that no-one at *PERS* had good, clear answers for them.

She had been especially intrigued by a workshop presentation given by Niels Kortleve and Hein Leenders of the Dutch pension fund *PGGM*³. They showcased a computer model which seemed to offer new insights into questions related to the embedded risk in DB plans and how they are allocated. Alyson had eagerly accepted their offer to run the *PERS*

situation through the *PGGM* model. The results were both intriguing and disturbing. The first display compared the values of *PERS* assets and liabilities based on the recent conventional actuarial valuation as reported in the most recent *PERS* annual report, with their economic 'fair value' counterparts (see Table II). As the conventional valuation uses a market-based approach for valuing plan assets, the reported \$50B asset value matches that of its economic 'fair value' counterpart. The liability calculation, on the other hand, is a different story. The \$50B accrued pension 'liability' in the conventional actuarial report had been calculated assuming plan assets would earn a net real return of 4%. When the current real yield curve is substituted to discount the accrued future pension payments, an economic 'fair value' liability estimate of \$74B results. On this basis, the *PERS* funded ratio sinks from its reported comfortable 100% to a distinctly uncomfortable 68%.

Table II

A Tale of Two <i>PERS</i> Liabilities (2004)			
	<u>Asset Value</u>	<u>Liability Value</u>	<u>Funded Ratio</u>
Conventional Valuation Basis	\$50B	\$50B	100%
Economic Valuation Basis	\$50B	\$74B	68%

It was important to Alyson that she was able to verbalize the additional information that the economic valuation calculations conveyed. Specifically, the calculation told her that it would take \$74B of assets today to fully assure that all accrued pension obligations will be met in full, without needing to have recourse to additional funds or pension reductions at a later date. It now also became clearer what the conventional \$50B 'liability' calculation meant in economic terms. It is the amount of money that would be sufficient today to meet accrued pension payments if plan assets indeed earned the assumed 4% net real rate of return over the long term.

But, Alyson realized, the 4% was only an expectation. There was a material probability that plan assets would earn less than that for extended periods of time. In other words, Alyson realized that settling for a \$50B funding target and choosing a risky investment policy involves a gamble. There is now a significant possibility that somewhere down the road, people will either have to make additional contributions, accept lower than expected pensions, or experience some combination of the two. The current cost of eliminating that gamble is \$24B. In other words, the gamble could be eliminated by writing a \$24B check, and arranging plan assets so that proceeds (maturities plus interest) matched promised pension payments.

Is a Higher Contribution Rate the Answer?

It didn't seem fair to Alyson that the entire \$24B gamble should be loaded on the shoulders of future generations. Historically, the 15% of pay contribution rate into the pension plan had been shared 50-50 between employers and employees. She wondered what would happen if both parties began to pay an additional 2.5% of pay, raising the collective contribution rate to 20% of pay? Before showing Alyson the calculated *PERS* balance sheet implications of moving the contribution rate from 15% of pay to 20%, Niels and Hein first explained what the *PGGM* computer model was programmed to do.

It has the ability to very quickly calculate many possible *PERS* balance sheet outcomes over some future horizon (15 years hence, to 2020, in the examples) and to calculate the present value of those possible outcomes using a mathematical routine that takes into account both

the magnitudes of possible future balance sheet surpluses or deficits, and their uncertainty. The greater the uncertainty, the lower the present value. This discounting process is effectively equivalent to establishing the current market value (i.e., option value) of possible *PERS* balance sheet surpluses and deficits 15 years hence. The resulting 'Option Deficit' is the best estimate of the amount of money that would have to be paid to an insurer today to underwrite the payment of all possible plan deficits 15 years hence. The 'Option Surplus' is the best estimate of what a financial institution would be willing to pay today to acquire access to all possible plan surpluses 15 years hence^[4].

The results from the PGGM model confirmed what Alyson already suspected. Moving the contribution rate from 15% of pay to 20%, while maintaining a 60-40 equity-bond mix, does not solve *PERS*' current financial imbalance. The calculated present value of the new inflation-indexed liabilities that will be booked over the course of the next 15 years is \$71B, while the present value of future contributions is marginally lower at \$68B. Thus the cost of incurring new liabilities marginally exceeds to 20% of pay (in fact, it is 20.2% of pay). Thus even with a 20% contribution rate, running the *PERS* current 'pension deal' for another 15 years effectively raises the cost of extinguishing the financial gamble from \$24B (i.e., current assets of \$50B vs. current economic liabilities of \$74B) to \$27B (i.e., current assets plus the present value of future assets add up to \$118B vs. current liabilities plus the present value of future economic liabilities add up to \$145B). Stated differently, the newly-calculated *PERS* balance sheet indicates that \$32B would have to be paid to an insurer now to buy a 'put' option that would cover all potential deficits that could exist 15 years from now. At the same time, the 'call' value of all potential balance sheet surpluses that could exist 15 years from now is only \$5B (see Table III).

Table III

The Enhanced <i>PERS</i> Economic Balance Sheet (20% contribution rate to 2020)			
Assets		Liabilities	
Current Pension Fund	\$50B	Current Liabilities	\$74B
Contributions	\$68B	New Liabilities	\$71B
Option Deficit	\$32B	Option Surplus	\$5B

More Drastic Action Indicated

These results told Alyson that more drastic action than a 5-percentage point increase in contributions would have to be taken if *PERS*' current financial imbalance is to be seriously addressed. Rather than jacking up the contribution rate even higher, consideration would have to be given to reducing the level of the pension guarantee. To get a feel for the balance sheet sensitivity to reducing the level of the pension guarantee, she asked Niels and Hein to rerun the analysis with all assumptions the same, except that going forward, the pension guarantee would be reduced from final earnings and fully CPI-indexed post-retirement pensions to a career-average earnings basis, with no post-retirement updates.

The new analysis showed that such a drastic measure (i.e., cutting all future pre- and post-retirement indexation) would indeed shift the *PERS* balance sheet from a significant net deficit position to a significant net surplus, both on accrued and projected 'going-concern' bases. Current pension assets remain at \$50B, and the present value of future contributions remains at \$68B. However, without future indexation, current liabilities drop from \$74B to \$45B, and new liabilities from \$71B to \$37B. So taken together, the massive reduction of current and projected liabilities to 2020 from \$145B to \$82B represents a cost to current and future

pensioners of \$63B. As a result, the balance sheet's Option Deficit drops from \$32B to \$1B, and its Option Surplus rises from \$5B to \$37B (see Table IV).

Table IV

A PERS Surplus at Last			
Assets		Liabilities	
Current Pension Fund	\$50B	Current Liabilities (without indexation)	\$45B
Contributions (based on 20% of pay)	\$68B	New Liabilities (without indexation)	\$37B
Option Deficit	\$1B	Option Surplus	\$37B

This material balance sheet shift from a big deficit to a big surplus gave Alyson hope that all was not lost for *PERS* stakeholders. While the analyses performed with the *PGGM* model indicated that something more drastic than a contribution rate increase from 15% to 20% of pay was needed to place the *PERS* balance sheet on an even financial keel, there appeared to be a chance that something could be worked out involving both an upward adjustment in the contribution rate up from 15% to 20%, and continuing to offer future price indexation. However, indexation updates would have to become conditional on the strength of the *PERS* balance sheet.

Spreading the Pain Evenly

What benefit indexation update formula combined with the contribution rate increase from 15% to 20% might spread the financial pain as evenly as possible, Alyson wondered? Niels and Hein suggested trying the following indexation update formula:

Indexation rate:

- (1) under 100% funded on a Current Assets/Liabilities basis -> no indexation
- (2) 100%-130% funded -> partial indexation (linear between 100% and 130%)
- (3) over 130% funded -> full indexation
- (4) over 150% funded -> catch-up indexation

The *PGGM* computer model showed that this indexation update formula, combined with the 15% ->20% contribution rate increase, results in a balance sheet Option Surplus of \$24B versus an Option Deficit of \$1B. This represents a more balanced approach than the previous run which simply eliminated all future pre- and post-retirement indexation, resulting in an Option Surplus of \$37B against a \$1B Option Deficit. The Option Surplus now declines because, relative to no indexation, the conditional indexation update formula being tested adds \$13B of indexation to current and new liabilities. (see Table V). With the Current Assets/Nominal Liabilities ratio at 111% today, the update formula indicates only partial indexation would be provided initially. However, with a 20% contribution rate, the indexation rate is likely to improve over time. The *PGGM* model estimated an expected 80% indexation rate over the 15-year assessment period, with most of that expected indexation coming later in the 15-year assessment period.

Table V

Finding the Right Balance			
Assets		Liabilities	
Current Pension Fund	\$50B	Current Liabilities (without indexation)	\$45B
Contributions (based on 20% of pay)	\$68B	New Liabilities (with conditional indexation on accrued and new benefits)	\$50B
Option Deficit	\$1B	Option Surplus	\$24B

An important assumption behind Table V is that in 2020 (i.e., at the end of the 15-year assessment period), the prospective pension guarantee will continue to be nominal, and that any indexation beyond 2020 will also be conditional on affordability. The estimated Option Surplus of \$24B suggests a high likelihood that the post-2020 period will indeed commence with a significant level of indexation for *PERS* workers and retirees at that time.

So is maintaining a 60-40 asset mix, and moving the contribution rate from 15% to 20%, combined with the tested indexation update formula, the right financial policy mix to address the current financial imbalance on the *PERS* balance sheet, Alyson wondered? On the one hand, would it be fair to push the contribution rate well above 20%, moving it above the current cost price of a fully indexed future pension? Would this not mean placing an unwarranted burden on young and future workers and taxpayers? On the other hand, implementing this conditional indexation formula would impose a very considerable value loss on current pensioners and older workers. It seems that arriving at a defensible, fair policy balance will require calculating how a particular 'policy ladder' would financially impact the various *PERS* stakeholder groups (i.e., current and future tax payers, workers, and pensioners) in some standardized, comparable way.

Even with such calculations, it will still be impossible to avoid making some interesting retrospective value judgments. For example, if current pensioners and the older generations of current taxpayers and workers caused today's *PERS* balance sheet imbalance by choosing a high investment risk/low contribution rate strategy in the past that did not work out, should they not bear the consequences? So it seems that more work and careful thinking is required before any kind of specific proposal could be discussed with the Board of Trustees and eventually, with representatives of the various *PERS* stakeholder groups.

Is Risk-Sharing an Essential Pension Plan Feature?

Alyson was struck by the level of complexity that risk-sharing creates in traditional public sector and industry DB pension plans when it is properly specified and analyzed in a modern financial economics framework. The analyses performed by the *PGGM* model strongly re-enforced the reality that risk-sharing in traditional DB plans takes the form of younger stakeholder groups (present younger, and future workers and taxpayers) effectively guaranteeing pension payments to older stakeholder groups (present older workers and pensioners). In options terms, the young are the 'put' issuers in traditional public sector DB plans. In theory they are prepared to do this because they also own equally valuable 'call' options on better-than-expected future outcomes. The *PGGM* model helped make clear the condition under which this concept breaks down. It is when a DB plan's going-concern option deficit (outstanding 'puts') far exceeds its going-concern option surplus (outstanding 'calls'). The *PGGM* model also helps establish what actions (i.e., a fair and sustainable combination of contribution rate and benefit level adjustments) need to be introduced to re-establish 'put-call parity' on the pension balance sheet in such a situation.

These realities raised two important questions for Alyson. Given the general lack of understanding about the true economics of DB plans, and given the ability and apparent willingness of the current generation of plan stakeholders to financially favor themselves at the expense of future generations, are DB plans in their current form worth saving? Isn't the simplest, and least game-able 'policy ladder' one where pension plan members have their own target income replacement rates, accumulate their own financial reserves over their working lives in the form of risky assets and deferred annuity payments, and vary their own contribution rates over time, with their previously-set target income replacement rates as a constant compass?

Studies presented at the *ICPM* workshop Alyson attended recently seemed to confirm her intuition. They showed mature DB pension plans to be inherently unstable, with tendencies to either generate runaway surpluses, or degenerate into unfunded pay-go systems. Only the combination of an *irrevocable enforcement mechanism* and *integrated policy steering mechanisms* involving pre-determined contribution rate, benefit level, and investment policy adjustments create sustainable outcomes for mature DB plans^[5]. Alyson knew that neither mechanism existed at *PERS* today, nor were they likely to be put into place tomorrow. This reality made the finding in another workshop paper that the kind of individual 'life-cycle policy ladder' approach she was contemplating scored well in welfare/utility terms especially intriguing^[6]. An important practical litmus test was whether this kind of approach could fly in the real world. The approach sounded a lot like the TIAA-CREF formula which Peter Drucker praised as long as 30 years ago^[7]. There is nothing new under the sun!

Getting from Here to There

Of course there was the not inconsequential matter of getting from here to there. Alyson already knew from the *PGGM* analysis that it would take \$74B to keep current *PERS* pensioners and workers whole. In other words, it would take \$74B to create 150,000 personal member accounts with the same values as the current accrued pension promises 'owned' by the 150,000 *PERS* plan members, when these promises are valued on a risk-free basis. Unfortunately, plan assets amounted to only \$50B. Allocating each of the 150,000 members his/her share of the \$24B asset shortfall would not be a pleasant task.

And that is not all. Alyson understood that even if plan assets were \$74B rather than \$50B today, there would still be a transition challenge in moving to a TIAA-CREF type of formula. Why? Because in DB plans, pension accruals are backend-loaded. In other words, it costs far more to 'buy' a pension for a person's 35th year of service than for the 1st year of service. Yet, the contribution rate for young workers and old workers is the same. Thus even in a properly-costed and funded DB plan, younger workers still subsidize older workers. Given these two considerations, Alyson realized that, in the short term, it would be far easier just to keep the current system going and hope for a high-enough return on the current \$50B plus future contributions to bail everybody out!

Devising an Action Plan

The *ICPM* workshop and her work with the *PGGM* model confirmed for Alyson that addressing *PERS*' current balance sheet imbalance should indeed be her #1 priority. However, single-handedly changing the *PERS* pension contract is not part of her job description. Somehow, she would have to engage the parties that should and could play some role in redefining the *PERS* 'pension deal'. Where should she start, she wondered? With the *PERS* actuary? The *PERS* external auditor? The pension regulator? Should she first discuss this issue with fellow pension CEOs in a similar situation? Should she ask Niels and Hein to do more *PERS* balance sheet analyses to test other possible financial policy ladders involving

investment policy, contribution rate, and benefit indexation protocols? After all, the *PGGM* model analyses suggested that the search for the fairest, and therefore most sustainable 'policy ladder' may be not yet over. Maybe finding the least painful transition to sustainability first would be helpful to everyone. Of course the fairness question would always be subject to debate, with different stakeholder groups likely maintaining different points of view.

Then there was the reality of the upcoming Board of Trustees meeting. How much of what she had learned should she share with the Board? How should she go about it? Talk to the Chair first, and get his advice on how to introduce the topic? Regardless of where she started, Alyson realized that changes to the *PERS* pension contract would eventually have to be addressed and agreed to by representatives of *PERS* retirees, active members, and their employers. These would not be easy conversations. No doubt, by choosing to be an active participant in the much-needed pension revolution, *PERS*' new CEO is facing some big challenges in the coming weeks, months, and even years ahead. First among these challenges, she believed, is to play a catalyst role in transforming the *PERS* 'pension deal' into an arrangement that is transparent, fair between various stakeholder groups, and sustainable for decades to come, and in helping find a feasible transition path to it. That would be the trigger to the *PERS* pension revolution she was determined to lead.

ENDNOTES

- [1] See Drucker, Peter, "The Unseen Revolution: How Pension Fund Socialism Came to America", Harper & Row, 1976, and "The Pension Fund Revolution", Transaction Publishers, 1996.
- [2] For example, see Ambachtsheer, Keith, "Beyond Portfolio Theory: the Next Frontier", Financial Analysts Journal, Jan-Feb 2005, www.rotman.utoronto.ca/icpm.
- [3] See Kortleve, Niels, "DB Pension Plans and Fair Value: Practical Challenges", Workshop on Pension Plan Design, Risk, and Sustainability, May 31-June 1, 2005, Rotman International Centre for Pension Management, www.rotman.utoronto.ca/icpm. For technical details on the PGGM Analytic Model contact niels.kortleve@pggm.nl.
- [4] For more on the theory behind the PGGM model, see Chapman, RJ; Gordon, TJ; and Speed, CA, "Pensions, Funding and Risk", Session Paper, April 23, 2001, Institute of Actuaries and Faculty of Actuaries, www.actuaries.org.uk, and Jarvis, Stuart; Southall, Frances; and Varnell, Elliot, "Modern Valuation Techniques", Session Paper, February 6, 2001, Staple Inn Actuarial Society, www.sias.org.uk, and Cochrane, John, "Asset Pricing (revised)", Princeton University Press 2005, and forthcoming book entitled "Fair Value and Pension Fund Management" to be published by Elsevier, 2006.
- [5] See White, Alan, "Pension Fund Dynamics", and Hamilton, Malcolm, "Funding Strategies for Mature Pension Plans: Can the Risks Be Contained?", Workshop on Pension Plan Design, Risk, and Sustainability, May 31-June 1, 2005, Rotman International Centre for Pension Management, www.rotman.utoronto.ca/icpm.
- [6] See Ponds, Eduard, "The Value of Intergenerational Transfers within DB Plans", Workshop on Pension Plan Design, Risk, and Sustainability, May 31-June 1, 2005, Rotman International Centre for Pension Management, www.rotman.utoronto.ca/icpm.
- [7] See Ambachtsheer, Keith "DB Plans Under Siege: Can They Survive?", Workshop on Pension Plan Design, Risk, and Sustainability, Rotman International Centre for Pension Management, www.rotman.utoronto.ca/icpm.

Case Appendix
(repeat of Tables I-V)

Table I

A Short History of PERS Vital Statistics

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Actual Real Fund Return	6%	-3%	-5%	15%	12%
Contributions (\$B)	\$0.7B	\$0.7B	\$0.8B	\$0.8B	\$0.8B
Benefit Payments (\$B)	\$1.5B	\$1.8B	\$1.9B	\$1.9B	\$2.1B
Number of Pensioners (000s)	45T	47T	50T	53T	59T

Table II

A Tale of Two PERS Liabilities (2004)

	<u>Asset Value</u>	<u>Liability Value</u>	<u>Funded Ratio</u>
Conventional Valuation Basis	\$50B	\$50B	100%
Economic Valuation Basis	\$50B	\$74B	68%

Table III

The Enhanced PERS Economic Balance Sheet (20% contribution rate to 2020)

<u>Assets</u>		<u>Liabilities</u>	
Current Pension Fund	\$50B	Current Liabilities	\$74B
Contributions	\$68B	New Liabilities	\$71B
Option Deficit	\$32B	Option Surplus	\$5B

Table IV

A PERS Surplus at Last

<u>Assets</u>		<u>Liabilities</u>	
Current Pension Fund	\$50B	Current Liabilities (without indexation)	\$45B
Contributions (based on 20% of pay)	\$68B	New Liabilities (without indexation)	\$37B
Option Deficit	\$1B	Option Surplus	\$37B

Table V

Finding the Right Balance

<u>Assets</u>		<u>Liabilities</u>	
Current Pension Fund	\$50B	Current Liabilities (without indexation)	\$45B
Contributions (based on 20% of pay)	\$68B	New Liabilities (with conditional indexation on accrued and new benefits)	\$50B
Option Deficit	\$1B	Option Surplus	\$24B