Treasury Board and Finance—The Department's Oversight Systems for Alberta's Public Sector Pension Plans

SUMMARY

Why we did this audit

We started this project in 2011 because of concerns expressed by elected officials, the media and the public about the financial health of Alberta's public sector pension plans. As part of our audit planning, we met with those involved in Alberta's public sector pension system, including plan board members, officials from the department and others. We needed to understand:

- the roles and responsibilities of the various entities within Alberta's public sector pension plan system
- the risk management systems used

During our audit planning, we decided to focus the scope of our audit on assessing the adequacy of systems used to manage risks within Alberta's public sector pension plans. We did this because the sector did not appear to have well functioning risk management processes that made use of clearly articulated objectives for the plans, with clear targets and tolerances for the costs of the plans. We also chose to focus our audit on the department's systems because of its role of supporting the Minister of Finance, who is the trustee and administrator of the plans. The department supports the minister through the development of public sector pension legislation and policy.

In September 2012 the minister asked plan boards to consult with stakeholders about the sustainability of the plans and to submit proposals to ensure the plans continue to be affordable, sustainable and offer secure benefits. The department asked us to consider adding a second objective to our audit, which focused on assessing the adequacy of the department's sustainability review support processes. We agreed to the department's request.

We knew the sustainability review would not be complete by the time we had finished our audit. However, we wanted to provide the department with timely recommendations on areas where its sustainability review support processes could be improved. This would allow the department time to evaluate our recommendations and consider necessary actions to enhance its processes. We examined the department's sustainability review support processes up to July 2013. We formally provided our report to the department in December 2013.

What we examined

We audited the Department of Treasury Board and Finance's systems to monitor and evaluate the performance and sustainability of the following Alberta public sector pension plans:

- Local Authorities Pension Plan (LAPP)
- Management Employees Pension Plan (MEPP)
- Public Service Pension Plan (PSPP)
- Special Forces Pension Plan (SFPP)

We focused on the department because it monitors the plans and provides policy support to the minister, who is the trustee and administrator of these pension plans and oversees the entities shown in the governance chart in Appendix A.

Our objective was to assess if the department has adequate processes to:

- monitor and evaluate whether the plans are meeting their objectives, considering risks, costs and benefits
- evaluate proposed plan design and governance changes and the likelihood they will improve the plans' sustainability and their ability to meet their objectives

An overview of the plans is included in Appendix B.

What we found

Pension plans are facing funding challenges—Alberta's public sector pension plans have significant unfunded liabilities and contribution rates that have risen to levels where some employers and employees do not want to pay more. At December 31, 2012 those unfunded liabilities totalled $7.4 billion. Unfunded liabilities, simply put, are the amount of money needed to be put into the plans today to fully support promises made to retirees and current employees for services already provided. Unfunded liabilities do not include amounts required to pay for benefits related to future service.

To fix the plans—The minister needs to ensure plan benefits are secure and commensurate with an affordable and available amount of funding from both employees and employers.

Alberta pension plans not unique—These plans are not unique. Many other defined benefit plans face the same problem: they have significant unfunded liabilities and they risk having insufficient assets to meet their obligations unless they change something. Recent experience has shown that actual plan costs are much higher than the estimated costs originally used to set contribution levels.

The plans' objectives and tolerances for risk have not been clearly articulated by the plans' sponsor. Therefore, it is unclear whether the plans are meeting their objectives or operating within sustainable tolerances for risk. The plans are facing significant funding challenges and these plans are a significant cost to employers and employees. Therefore, a process to review the risks and costs facing the plans is necessary.

Better tools available to manage risk—The plans have used traditional pension industry methods to manage risk, primarily by spreading the effects of bad experience across contribution rates over a long time. But these methods allow the risks and costs of defined benefit plans to accumulate and be less transparent to stakeholders.

Defined benefit pension plans are starting to use better tools and strategies to assess and mitigate their risks. With proper standards and guidance, Alberta's public sector pension plans can use these risk management techniques to increase the likelihood that the plans are sufficiently funded to meet their obligations and costs do not become more than plan sponsors can afford.

Who should pay to fix the plans—This is a key question and the options are limited. Employers, funded typically by taxpayers, can pay higher contributions to the plans. In exceptional circumstances former employees may be asked to receive reduced benefits. Current and future employees can pay higher contributions and take lower benefits. It's hard to reform pension plans that owe a lot of money to former and current employees. Current and future employees help pay these costs, but they likely won't want to contribute more to plans that will pay them less benefits than their predecessors receive when they retire.

Inconsistent monitoring and evaluation—To varying degrees, the pension plan boards have implemented risk management systems. However, no one organization has clear responsibility to coordinate and monitor the performance of the plans or take a consolidated approach to managing risk. The department has managed risk to some extent by providing policy support to the minister, who is the trustee and administrator of the plans. Our audit focused on the department's processes, which are designed for its primary role in providing policy support and advice to the minister.

Sustainability review—The department has completed significant research and analysis on plan design, governance and sustainability risks as part of its review. This analysis supported the advice it provided to the minister. The department's review covered a sufficient range of the relevant issues but the depth of analysis on some issues was constrained by the time limits for the review.

The department's options for reform were also constrained by the existence of significant unfunded liabilities for past service that need to be funded. An option used in the private sector to manage pension risk is the conversion of defined benefit pension plans to defined contribution pension plans. This option was considered by the department in its analysis but was not pursued because of the existence of significant unfunded liabilities that are being paid for jointly by the contributions of employers and current employees. If the defined benefit plans were changed to defined contribution plans, it would be more likely that employers would have to pay a much larger share of the current unfunded liabilities than they are currently paying under the existing joint funding model.

What needs to be done

We recommend that the department:

- set standards for the plan boards to establish funding and benefit policies with:
  - tolerances for the cost and funding components
  - alignment between plan objectives and benefit, investment and funding policies
  - pre-defined responses when tolerances are exceeded or objectives are not met
- establish an Alberta public sector pension plan risk management system to support the minister in fulfilling his responsibilities for Alberta's public sector pension plans
- as part of its ongoing sustainability review:
  - validate the objectives for the review with stakeholders
  - evaluate and report on how each proposed change meets the objectives of the review
  - cost and stress-test all proposed changes to assess the likely and possible future impacts on the plans
  - conduct or obtain further analysis of what effect the proposed changes might have on employee recruitment and retention
  - prepare a detailed plan for implementing the proposed changes

We have based these recommendations on the department's current responsibilities within the public sector pension system. These recommendations will continue to be relevant even if responsibility for implementing them needs to shift if the current governance structure of the plans changes.

Why this is important to Albertans

The financial health and design of Alberta's public sector pension plans can affect the government's and other plan employers' ability to cost effectively deliver public services, attract and retain quality employees and provide a level of benefit security for plan members. Albertans need to know if Alberta's public sector pension plans are sustainable. The plans face retirees who are living longer and low interest rates resulting in large unfunded liabilities. The minister and department need performance measurement systems to help them assess whether the plans are continuing to meet their objectives.

The promissory relationship between employers and employees created by defined benefit pension plans makes it difficult to change plan benefits once established. Therefore, it is important to properly cost plan benefits and assess the likelihood that they can be funded at a contribution rate acceptable to the sponsors while withstanding risks. Otherwise, the sponsors may bear a higher cost than intended or beneficiaries may receive less than promised. The first and most important step in managing risk in defined benefit pension plans is to only make promises that have a high probability of being able to be kept. Even so, not all risks can reasonably be foreseen and there will be times when plans experience circumstances that take them beyond the tolerances they were designed to withstand.

Our recommendations are intended to help ensure that each plan's objectives and tolerances for its cost and funding components are clearly articulated. Clear objectives and risk tolerances will help the minister and department monitor plan performance. They will also help all stakeholders reach a consensus about what to do when a plan exceeds its tolerances. This should prompt timely responses to such risks as they arise. Furthermore, an improved approach to pension risk management should make it clear in advance who will bear which risks and costs when plans exceed their tolerances.

AUDIT OBJECTIVES AND SCOPE

Our objectives were to assess whether the Department of Treasury Board and Finance has adequate systems to:

- monitor and evaluate whether the plans are meeting their objectives, considering risks, costs and benefits
- evaluate proposed plan design and governance changes and the likelihood they will improve the plans' sustainability and their ability to meet their objectives

We included reporting from the plan boards[1] to the minister in our audit of the department's monitoring processes. We focused our audit on Alberta's public sector plans for which the minister is the trustee and administrator and which were included in the scope of the sustainability review.

This audit did not examine the investment management systems at Alberta Investment Management Corporation (AIMCo), which is responsible for investment of the plan assets, or the pension plan administration systems at Alberta Pensions Services Corporation (APS). APS has been delegated all functions in relation to administration of benefits of the pension plans.

[1] We focused our audit on the department's monitoring of LAPP, MEPP, PSPP and SFPP.

The scope of our audit included the department's systems to conduct its sustainability review and advise the minister. We conducted our audit while the review was ongoing, so that we could provide our audit findings to the department in a timely manner, prior to the completion of its review.

We conducted our field work from January 2013 to July 2013. We substantially completed our audit on the exit conference date in December 2013. Our audit was conducted in accordance with the *Auditor General Act* and the standards for assurance engagements set by the Canadian Institute of Chartered Accountants.

Prior to commencing our audit, we interviewed public sector pension plan stakeholders, including board members from each plan. We took into account feedback from these interviews in planning the scope of our audit work.

Disclosure of potential conflict of interest in our audit work

The Auditor General and employees of the Office of the Auditor General participate in one or more of the following Alberta public sector pension plans: MEPP, PSPP and the Supplementary Retirement Plan for Public Service Managers. We believe we have managed any potential conflict of interest with respect to this audit by ensuring that our report and recommendations do not express a view on the existing, proposed, or potential form or level of retirement benefits the plans provide to public sector employees.

THE DEPARTMENT'S ROLE AND PROCESSES

The criteria we used for our audit were developed from existing risk management frameworks. While the department accepted these criteria, it drew our attention to the fact that it views itself as a "policy shop" responsible for advising the minister with respect to his various roles in the pension system. As such, the branch of the department responsible for the public sector pension plans was forthright with us that their processes focused on policy development as opposed to risk management. We examined the policy setting process to reconcile our criteria with the branch's processes.

We compare an overview of the two processes as follows.

POLICY DEVELOPMENT PROCESS[2]	RISK MANAGEMENT PROCESS[3]
Issue identification—identify issues through environmental scanning, stakeholder questions/concerns, elected officials and questions and concerns from the public	**Establish context**—define objectives, define the external and internal environment, define criteria to evaluate the significance of risk and define the scope of risk management activities to be carried out
	Risk identification—identify sources of risk, events and their causes and potential consequences
Research and analysis—develop an accurate picture of the issue, who it is an issue for and how it can be best resolved	**Risk analysis**—determine the likelihood that positive and negative consequences can occur
	Risk evaluation—compare the level of risk in the risk analysis with criteria to evaluate the significance of risk

[2] Adapted from the Government of Alberta's Policy Development Process: Guidance for Alberta's Public Service, December 2011.
[3] Adapted from ISO 31000 Risk management–Principles and guidelines

POLICY DEVELOPMENT PROCESS	RISK MANAGEMENT PROCESS
Options development—identify options reflecting the research, but identify options that are consistent with economic and social realities	**Risk treatment**—select one or more options for modifying risks, decide whether risk remaining is tolerable and assess the effectiveness of the risk treatment
Decision making—various steps followed depending on the type of policy decision; documents used in decision making include the issue, background, options and recommended courses of action	
Implementation—plan for implementation including consideration of operational elements to implement policy, action plans and legislative development, if necessary	
Evaluation/performance measurement—evaluation and monitoring of the success of a policy	**Communication and consultation**—should take place during all stages of the process and **monitoring and review**—should encompass all aspects of the risk management process, noted on the previous page

At a glance the two processes are similar. Risk management seeks to identify potential risks and put in place strategies to mitigate them before they happen. Good policy development processes should do the same.

In 2012 and the years leading up to the sustainability review, the department continued its ongoing research into and analysis of whether public sector pension plans are sustainable. The outputs of the department's analysis included:

- identification of trends in governance and plan design in other jurisdictions
- evaluating concerns that plan stakeholders brought to the minister or department
- some modeling of each plan's ability to withstand further adverse experience

The department briefed the minister based on its analysis, concluding that all four plans face high, volatile costs. The boards of each plan also informed the minister of various risks as part of their annual risk reporting. In September 2012 the minister asked the plan boards to consult with stakeholders about the sustainability of the plans and submit proposals to ensure the plans continue to be affordable, sustainable and offer secure benefits. The minister requested proposals from the boards of LAPP, MEPP, PSPP and SFPP.

In March 2013 the four boards reported the results of their consultations and analysis to the minister. Their report included such items as consulting with stakeholders about potential plan design changes, obtaining legal interpretations and opinions, reporting issues with the current governance structure, costing potential plan design options and highlighting issues that are unique to their specific plans. A consistent theme in these reports to the minister was that governance needed to be reviewed or changed. However, LAPP and PSPP did not make recommendations for plan design changes. MEPP and SFPP essentially requested more time to further consider and consult on plan design changes. The minister then directed the department to come up with proposals.

In June 2013 the department researched options for governance and plan design changes and briefed the minister on the options. Within this briefing, the department developed a set of principles for sustainability and governance of the plans. These principles were shared with the plan boards in

August 2013 and were subsequently shared with the public on the Government of Alberta's website in September 2013. The briefing set out a process to review proposals for reforming governance, funding and benefit design.

On September 16, 2013 the minister announced proposed changes to all four plans. These proposals can be found at http://pensionsustainability.alberta.ca.

Proposed design changes to LAPP, MEPP and PSPP include:
- removing early retirement subsidies
- shifting from guaranteed cost of living adjustments (COLA) at 60 per cent of Alberta inflation to targeted COLA at 50 per cent of Alberta inflation for future service
- immediate vesting in the plans
- removing the limit of 35 years for pension accrual

Proposed design changes unique to MEPP include:
- closing the plan to new members with new managers—Managers hired by MEPP employers after the changeover date will participate in PSPP.
- changing the normal form pension for future service to be a pension paid for the life of the member, guaranteed for five years after pension commencement
- setting employee contribution rates to be the same as the employee rate under PSPP for the two per cent unit of benefit, with employers being responsible for the remaining cost of MEPP

Proposed changes to SFPP would be based on SFPP stakeholder recommendations to be implemented by the government before the plan would become exempt from being governed by the *Public Sector Pension Plans Act*.

Proposed governance structures for PSPP, LAPP and SFPP would also allow their sponsors to establish new plans outside of the statutes that currently govern all three plans. The proposed governance structures would also separate the roles of the sponsors[4] from those of its board of trustees.[5] A legislated cap on contribution rates is also proposed. Funding and benefit policies would set out how benefits will be reduced if this cap is reached and how benefit improvements or contribution adjustments will be made when the plan's funding improves. Proposed governance changes for MEPP would include discontinuing the MEPP board and replacing it with an advisory committee to provide advice to the minister.

A review of these plan design changes is complicated by the fact that the plans have unique characteristics and have many stakeholders: hundreds of employers, multiple unions and thousands of plan members (see Appendix B: Overview of pension plans). The Government of Alberta and its public agencies, along with Alberta's municipalities and police forces, are the large employers in these pension plans.

[4] Sponsors are responsible for designing the pension plan and determining benefits. Sponsors bear costs and risks of the plans.
[5] Board of trustee responsibilities include selecting the fund holder, providing investment direction to the fund holder, and executing the fund holder agreement and other services agreements. The board of trustees has a fiduciary responsibility to the plan's beneficiaries.

ELEMENTS OF A PENSION SYSTEM

To prepare our audit plan we first obtained an understanding of Alberta's pension plan system, the broad issues facing defined benefit pension plans and the processes to deal with them. A well functioning pension system comprises complex, interrelated components, risks and processes. To establish a context for our audit we found it useful to classify the system into three main elements:

- cost
- funding
- governance and administration

Each of these elements has sub-components or dependencies that significantly impact pension plan sustainability. In the diagram that follows, we map these elements and their related risks and processes. A glossary of pension terms is included in Appendix C, and a fuller description of the elements is in Appendix D: Elements of a pension system.

The processes with green framing are the ones we included in the scope of our audit. In the right-hand column the diagram illustrates the interrelatedness of the processes and who is responsible for them in Alberta. In some cases responsibility is clear and in others it is not.

Our work to obtain our understanding of the Alberta's pension system led us to focus on risk management. What we found as most lacking in the system was a well functioning risk management system. One that made use of clearly articulated objectives for plan design and clear targets and tolerances for the cost of these plans.

We did not see the risk management system implemented by way of the use of the analytical tools that estimate these parameters and integrate them with the components of the funding element. If these risk management tools were used to make risks and costs more transparent, stakeholders would understand that past promises and practices cannot be used as the benchmarks for a sustainable future. We therefore focused our audit on determining the extent to which these risk management tools have been implemented in the Alberta public sector pension plan system.

Based on our research, a root cause of unsustainable defined benefit pension plans has been a systematic underassessment of their risks. These risks are associated with funding stable benefits with variable investment returns and an associated lack of discipline in setting contribution rates that align with the level of benefits promised and security level desired. Stated another way, historically, pension promises were made without a full understanding of the risk adjusted cost of funding them securely.

ALBERTA'S PUBLIC SECTOR PENSION PLAN SYSTEM

Components | **Risks** | **Processes**

Cost

COST is dependent on:

- Level of benefits
- Inflation
- Longevity
- HR inducements
- Discount rate
- Benefit security level

Key risks from cost are:

- Level of benefits, too high/low
- Inflation higher than expected
- Longevity improving faster than expected
- HR inducements improperly costed, not meeting current HR needs
- Benefit security level not clearly articulated and not managed to
- Contribution rates used as proxy for cost do not reflect risk adjusted cost
- Risk adjusted cost unclear resulting in benefits higher than intended

Funding

FUNDING is dependent on:

- Contributions
- Stabilization mechanisms
- Investment returns and risk appetite
- Plan maturity
- Integration of funding policy with benefit cost

Key risks from funding are:

- Contributions are not set in relation to specific level of benefit security and benefit cost
- Joint funding limits availability of solvency funding mechanisms
- Reserves used for benefits improvement rather than risk management
- Mature plans can't rely on contributions to manage solvency
- Investment portfolio and contribution rates not coordinated to manage volatility tolerance

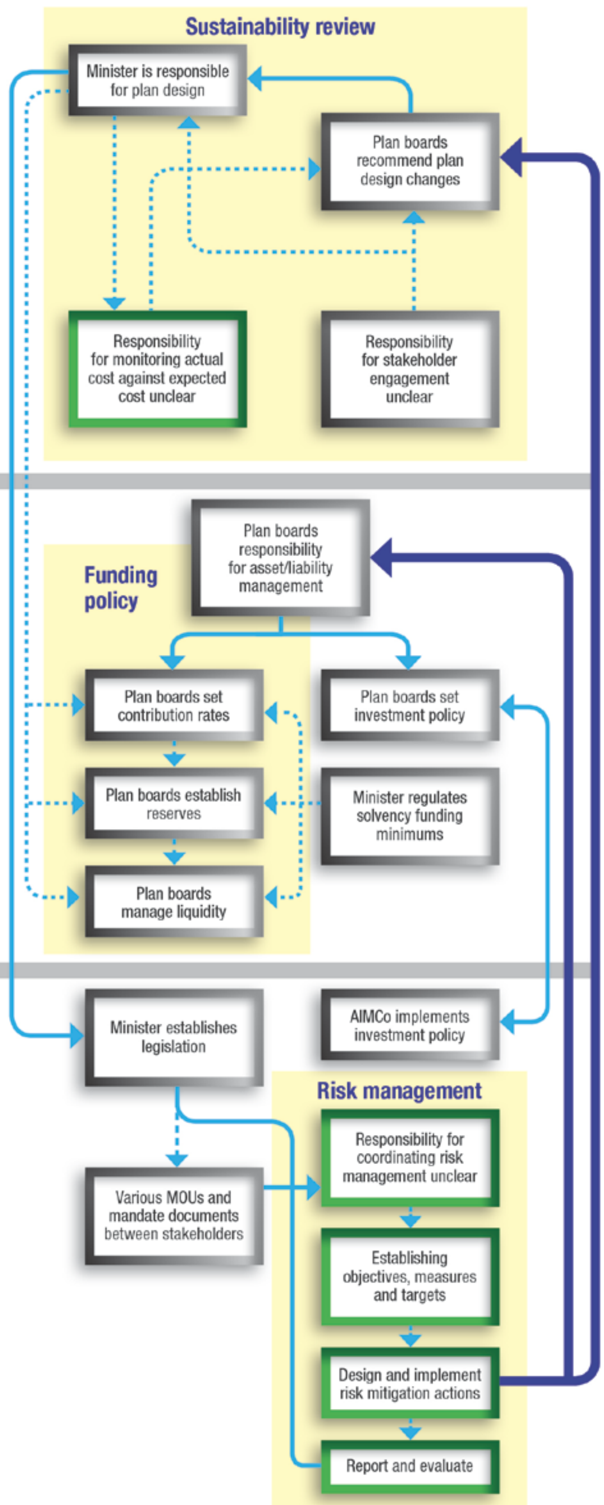
Governance and administration

GOVERNANCE AND ADMINISTRATION is dependent on:

- Clearly defined roles, responsibilities and structure
- Communication
- Risk management
- Investment management

Key risks from governance and administration are:

- Unclear roles and responsibilities results in inaction
- Objectives, measures and targets for plan design attributes are not clearly defined, communicated or managed against
- Process and risk inter dependencies not coordinated because systems not interconnected
- Risk tolerances and funding objectives unclear resulting in disconnect between investment policy and implementation



LEGEND: Inside audit scope | Outside audit scope

FINDINGS AND RECOMMENDATIONS—PENSION RISK MANAGEMENT SYSTEMS

Performance measures and funding policies

Background

Alberta's public sector defined benefit pension plans face significant decisions when determining how the plans will be funded. These decisions impact employees, employers, pensioners and taxpayers because they impact current contribution rates and the risk of contribution rate increases in the future.

Funding policies support the decision making process for funding defined benefit pension plans and they improve transparency of funding decisions for stakeholders. A funding policy formalizes the decision making process and is integrated with the plans' funding objectives.

RECOMMENDATION 1: POLICIES DESIGNED TO ACHIEVE PLAN OBJECTIVES

We recommend that the Department of Treasury Board and Finance set standards for the public sector pension plan boards to establish funding and benefit policies with:

- tolerances for the cost and funding components
- alignment between plan objectives and benefit, investment and funding policies
- pre-defined responses when tolerances are exceeded or objectives are not met

Criteria: the standards for our audit

- The department should have systems to monitor and evaluate whether the plans continue to meet their objectives and should report on pre-defined measures to the minister and plan stakeholders.
- Each plan should establish a funding and benefits policy that includes, for example, thresholds for the plan's funded ratio and contribution rates, and associated risk tolerances for variances in those measures.
- A plan design review should be initiated in accordance with the funding and benefits policy.

KEY FINDINGS

- The department monitored various measures and risks related to the plans. However, the measures of performance were not consistently integrated with objectives and targets for the pension plans.
- All four plans had funding policies that included thresholds for the plan's funded ratio. However, the policies did not specify tolerance levels for volatility in investment returns or contribution rates.
- Three of four plan funding policies were not clear on the circumstances that could lead to a plan design review.

Our audit findings

We reviewed the plans' funding policies, business plans, annual reports and annual risk reporting from the boards to the minister, to determine how the plans reported to stakeholders whether they were meeting their objectives.

Integration of performance measures with plan objectives and targets

The department's analysis of this information included various measures of risk and performance as well as environmental scanning in the public and private pension sectors. This analysis included looking at benefits provided, governance structures, plan liabilities, cost trends, longevity risks and other analyses. The department's analysis of sustainability and performance of the plans was not explicitly linked to objectives at the time the analysis was performed.

The plans' annual reports and annual risk reports to the minister included various measures of performance. The measures in the annual reports and annual risk reports were not integrated with each plan's goals or objectives. The plans also did not consistently report on whether they were meeting targets for these measures.

Plan objectives and their associated measures and targets were not stated clearly enough to guide plan monitoring and oversight. The department has not required the plans to articulate the tolerances for plan attributes and their interrelationships. Key attributes and their tolerances include:
- contribution rate maximums, minimums and volatility
- investment portfolio risk thresholds stated in terms of portfolio volatility
- maximum economic cost of benefits
- longevity
- inflation
- level of benefit security

It is therefore unclear what probability of benefit security the contribution rate and investment policies of the plans are designed to achieve and over what period. Furthermore, the alignment of this objective with others such as fairness to taxpayers and intergenerational equity amongst plan participants is unclear.

In September 2013 the government announced that it planned to put caps on the contribution rates. This is an example of a threshold that could be used to achieve clarity. However, the department also needs to ensure the plans determine how these contribution rate caps will align with other plan attributes. For example, the plans will need to determine how these caps align with the objective of benefit security and investment policy.

Contribution rates are currently determined in relation to the expected rate of return on invested assets. The plans could increase the risk of their investment portfolios, for example, to offset the contribution rate cap. The increased risk on benefit security that would result from this change may not be aligned with beneficiary or taxpayer expectations. One way the department could manage this risk is to require use of a proxy for the risk-free rate to set contribution rates, in combination with a requirement to maintain a fully funded plan. Another would be to specify the probability that a fully funded plan will be maintained by the combination of the plan's contribution rates and investment returns.

Other pension plan managers are using financial modeling to estimate the probability that contribution rate and investment policies in combination will ensure benefits can be funded. Some of the Alberta plans are beginning to use these models as part of making funding policy decisions, but could make better use of them by linking them with measures and targets for plan performance.

Plan funding policies

In some instances the plans' funding policies did contain measures, targets and tolerances for the plans' funded ratio. All four of the plans' funding policies we reviewed indicated that contribution rate stability was a funding objective. However, none of the plans reported measures or targets for contribution rate stability. Volatile investment returns can lead to unstable contribution rates; however, plan funding policies did not specify tolerances for investment volatility.

The four boards implemented their funding policies between 2011 and 2013. However, they did not integrate measures in the funding policies with objectives and targets in their business plans. Measures of targets and tolerances in funding policies were not consistently reported to stakeholders.

Circumstances that could lead to a plan design review

Only one plan funding policy we reviewed was clear on the circumstances that could lead to consultations about benefit design or sustainability. Based on the measures, targets and tolerances in the funding policies, if the funding policies had been in place during and immediately after the 2008 financial crisis, there would be no indication in the funding policy that plan design or sustainability consultations with stakeholders would need to be considered.

Implications and risks if recommendation not implemented

Without explicitly linking measures to the plans' objectives, the department cannot ensure that it is evident to stakeholders and decision makers whether Alberta's plans are meeting their objectives. Decisions about funding and benefits have a significant impact on plan stakeholders. Unclear disclosure of the circumstances that could lead to future reviews of benefit design could create a lack of stakeholder understanding about the decision making process.

Risk management system

Background

The department's pension policy branch is responsible for monitoring the public sector pension plan system and advising the minister, who is both the trustee and administrator of the plans.

We reviewed the plan boards' risk reporting to the minister and operating protocols between the plan boards, the department and the service providers—APS and AIMCo. We reviewed these items to determine to what extent the risk management processes for the plans are integrated with the department's monitoring and evaluation of whether the plans are meeting their objectives.

Risk management reporting is a tool to help management make informed decisions and prioritize activities. Managing risk includes avoiding or minimizing risk; however, it can also include risk taking to take advantage of opportunities. A plan's tolerance for risk can be impacted by several factors including its objectives and its stakeholders' appetite for risk. One plan might have more or less of an appetite for risk compared with another plan, so each plan's response to a given risk will vary based on a plan's unique circumstances. For example, a plan with a higher proportion of young, active members may be willing to take on more investment risk than a plan that has a higher proportion of members near or in retirement. The younger plan may decide it can absorb investment losses because it has a higher proportion of members and employers making contributions to the plan to make up for potential losses.

The plan boards, the service providers and the department are responsible for managing risks within their mandate for each pension plan. With several parties involved in managing and governing the plans, there is a risk that management activities will not be aligned with the tolerances and plan-specific objectives for each plan. By viewing and reporting risk management activities at an enterprise level, the various parties can improve coordination and the plans' ability to manage risk appropriately.

RECOMMENDATION 2: RISK MANAGEMENT SYSTEM

We recommend that the Department of Treasury Board and Finance establish an Alberta public sector pension plan risk management system to support the minister in fulfilling his responsibilities for those plans.

Criteria: the standards for our audit

- In supporting the minister in his roles of trustee and administrator, the department should have a risk management system that identifies the significant risks to achieving the plans' objectives; who owns each risk; the risk tolerance for each risk; the risk mitigation strategy; and risk measurement techniques to be applied. The department's system should take into account the risks and strategies identified by the plan boards, employers, AIMCo and APS.
- Risks should be communicated and responsibility for managing them should be accepted and acted upon.

KEY FINDINGS

- There is no one organization within the public sector pension system with clear responsibility for coordinating and monitoring the performance of the public sector pension plans.
- A practical means of moving from analyzing concerns and issues shared by the department, boards and stakeholders, to implementing responses has been missing.

Our audit findings

There is no one organization within Alberta's public sector pension plan system with clear responsibility for coordinating and monitoring the performance of the public sector pension plans and therefore able to take a sector-wide view of the system's risks. Because of the number of organizations and the integration of the system, risks need to be monitored for the individual organizations as well as for the system as a whole.

Risk management systems and reporting

We reviewed the annual risk reporting from the plan boards of LAPP, MEPP, PSPP and SFPP to the minister for the eight months ending in August of 2012 as well as the briefings to the minister by the department about the risk reports. We used this review to assess whether:

- the risk reporting to the minister linked the risks to plan objectives
- the risk reporting identified risk owners, risk tolerances for each risk, risk mitigation strategies and risk metrics
- risk owners accepted and communicated their responsibility for managing each risk to the minister

LAPP's risk report to the minister included a register of risks, including measures of risk and risk mitigation strategies. LAPP's risk register took an enterprise-wide view of risk, including a view of the risks that the service providers (AIMCo and APS) manage. While LAPP's risk reporting was formalized, the minister delegated the responsibility to LAPP to identify risks and have policies in place to mitigate risks. In contrast, the MEPP, PSPP and SFPP boards have mandates that are set out in operating protocols. These protocols indicate the board's responsibility to report risks to the minister but do not specify that the boards must ensure that policies are in place to mitigate the risks.

The risk reports did not consistently include:

- risk registers
- objectives at risk
- a risk owner who has both the accountability and authority to manage each risk and who has accepted responsibility for managing the risk
- who bears the risk, to what extent and the risk bearers' tolerance levels for each risk
- measurement for monitoring and reporting likelihood of consequences and severity of each risk
- quantitative measures as well as narrative descriptions of risk mitigation strategies

- risk mitigation strategies that are consistent with tolerance levels
- risks managed by all management groups including plan boards, advisory committees, service providers and the department

The department prepared considerable research and analysis with respect to the sustainability of the pension plans including risk identification

The department's pension policy branch has processes for policy analysis and development but it does not have a formal risk management system. From our many discussions with the branch's staff and our review of many of the documents they prepared, analyzing the pension sustainability issue in the last few years, it was evident that the branch is knowledgeable about the various risks and possible solutions to pension sustainability.

Similarly, the plan boards and their advisors have identified various sustainability issues and have implemented risk management systems to varying degrees. However, there is no risk management system for the public sector pension plan system as a whole. Despite the department, boards and stakeholders sharing many of the same concerns and having the same knowledge of risks facing the system, the response to these risks has mainly been limited to increasing contribution rates to a point that both employers and employees are questioning whether they can be practically raised further. A practical means of moving from analyzing these issues to implementing responses to them has been missing.

Implications and risks if recommendation not implemented

Pension plans with informal risk management processes are less likely to identify risks and implement risk management activities effectively. Because the system has been designed with multiple parties, a consolidated approach to risk management is necessary. Otherwise, plan boards, AIMCo, APS and the department are more likely to duplicate efforts, fail to identify and manage risks and fail to manage risks outside of the plans' and stakeholders' risk tolerances.

FINDINGS AND RECOMMENDATION

Sustainability support processes

Background

At the time of our audit, the sustainability review process was ongoing and not yet finalized. We considered whether the department had adequate processes to assess proposed plan design and governance changes.

RECOMMENDATION 3: SUSTAINABILITY SUPPORT PROCESSES

We recommend that the Department of Treasury Board and Finance:

- validate the objectives for the pension plan sustainability review with stakeholders
- evaluate and report on how each proposed change meets the objectives for the review
- cost and stress-test all proposed changes to assess the likely and possible future impacts on Alberta's public sector pension plans
- conduct or obtain further analysis of the impact of proposed pension plan design changes on employee attraction and retention
- prepare a detailed implementation plan for the changes

Criteria: the standards for our audit

The department's plan design review should:

- include consultation with stakeholders to validate the plan objectives and obtain feedback about the proposed changes throughout the process
- evaluate proposed plan design and governance changes thoroughly for alignment and likelihood of meeting the government's principles for reforms
- evaluate the costs and benefits of each alternative and should use analytical tools that consider a range of potential outcomes—The quantitative analysis should include expected or most likely outcomes as well as reasonably foreseeable adverse outcomes for key variables related to investment, longevity, inflation, interest rate risks or other variables.
- evaluate the impact of proposed plan design changes on total compensation costs and employee recruitment and retention
- conclude with an implementation plan that clearly considers necessary changes to regulatory, governance and administrative structures and how to deal with legacy issues and risks

KEY FINDINGS

- The department's principles for the reform of the pension plans have been developed without a specified process to validate them with stakeholders' objectives.
- Analysis of the proposed changes has not yet been evaluated thoroughly for alignment with and likelihood of meeting the government's principles for reforms, incorporating feedback from stakeholders in the analysis.
- The department has performed some costing and stress testing for the proposed changes; however, a comparative analysis of each option and stress testing of all combined changes has not been completed.
- The department has not completed a detailed implementation plan; however, we note that the department was still working out the details of its processes during our audit.

Our audit findings

We found that the department has undertaken a significant amount of analysis covering a wide breadth of issues related to plan sustainability. Their review included the three key components that affect the pension plan's sustainability: cost, funding, and governance and administration.

ELEMENTS	COMPONENTS	EVALUATED BY THE DEPARTMENT (Yes/No)	COMMENTS
Cost	**Level of benefit**	Yes	
	Inflation	No	Targeted indexing established as overall risk mitigation tool
	Longevity	Yes	Changes to benefits when retiring before 65
	HR inducements	Yes	Changes to benefits when retiring before 65
	Discount rate	No	Unclear whether return on plan assets is consistent with benefit security level
	Benefit security level	Yes	Evaluated managed defined benefit plan vs. target benefit plan vs. defined contribution plan
Funding	**Contribution rate setting**	Yes	Anecdotal consensus that contribution rates have reached practical ceiling
	Stabilization mechanisms	Yes	Targeted indexing for inflation proposed. Contribution rate caps proposed.
	Investment returns & risk appetite	No	
	Plan maturity	Yes	Target indexing for inflation proposed. Contribution rate caps proposed.
	Integration of funding policy & benefit cost	No	
Governance & Administration	**Roles, responsibilities & structure**	Yes	Department has proposed new structure
	Communication	No	
	Risk management	Yes	Targeted indexing for inflation and contribution rate cap proposed
	Investment management	No	Proposed that plans can choose an investment manager other than AIMCo

Further analysis is needed in the following key areas, to help ensure the department's sustainability review achieves its intended long-term results.

Principles for the reform of the pension plans

The department identified proposed principles for reforms of the pension plans and made them available to the public on September 16, 2013.

The department's plan for reviewing governance, funding and benefit design reform proposals includes obtaining feedback from employee and employer stakeholders. However, the purpose, content and necessary resources for the planned consultations were not specified at the time of our audit.

Analysis of the proposed changes

The department's comparison of options considered how some options for reform aligned with the government's principles. However, that analysis was not thorough. For example, the vision for reform indicated that the plans would be adaptable in changing circumstances in good times or bad; however, the plans had not yet been stress-tested with all options incorporated into the testing to support this conclusion. Stress testing means modeling how the plan would perform if significant risks were to occur.

Furthermore, one of the objectives was to ensure there was intergenerational fairness for members and taxpayers; however, we did not see how the analysis compared options considered against this principle.

Finally, the department's comparative analysis of proposed changes did not include feedback from stakeholders.

Costing and stress testing for the proposed changes

The department indicated to us that it had capacity to analyze costs as well as a range of potential outcomes resulting from proposed plan design changes. Its processes do not indicate whether it will quantify the costs of each option or whether it will assess a range of potential outcomes for all combined proposed plan design changes. It is therefore unclear whether the proposed reforms significantly increase the likelihood of the plans' sustainability.

Human resource risks

The department has not assessed the impact of the proposed plan changes on employee recruitment and retention. A difficulty for the department is that responsibility for assessing compensation strategies of public sector employees is spread across public sector employers. This makes it difficult for the department to obtain the information needed to assess the potential unintended consequences of plan changes on employers' ability to achieve their human resource objectives. Some of the plan boards have gathered qualitative survey data about the value of the pension plans to employees and their relative competitiveness with other public sector employers. However, we did not identify a coordinated process amongst public sector employers that would enable the department to assess the impact of proposed changes to the pension plans on employee recruitment and retention.

Implementation plan

At the time of our review, the department had developed the main steps to review governance, funding and benefit design reform proposals. This plan included an overall timeline for the review, consultations, announcements and approvals. The department also shared educational material with stakeholders on its website. However, we did not identify plans for continuous education as the review progresses and concludes.

The department had not developed a detailed implementation plan at the time of our review. We note that our review of their processes was underway while the department was still working out the details for this process.

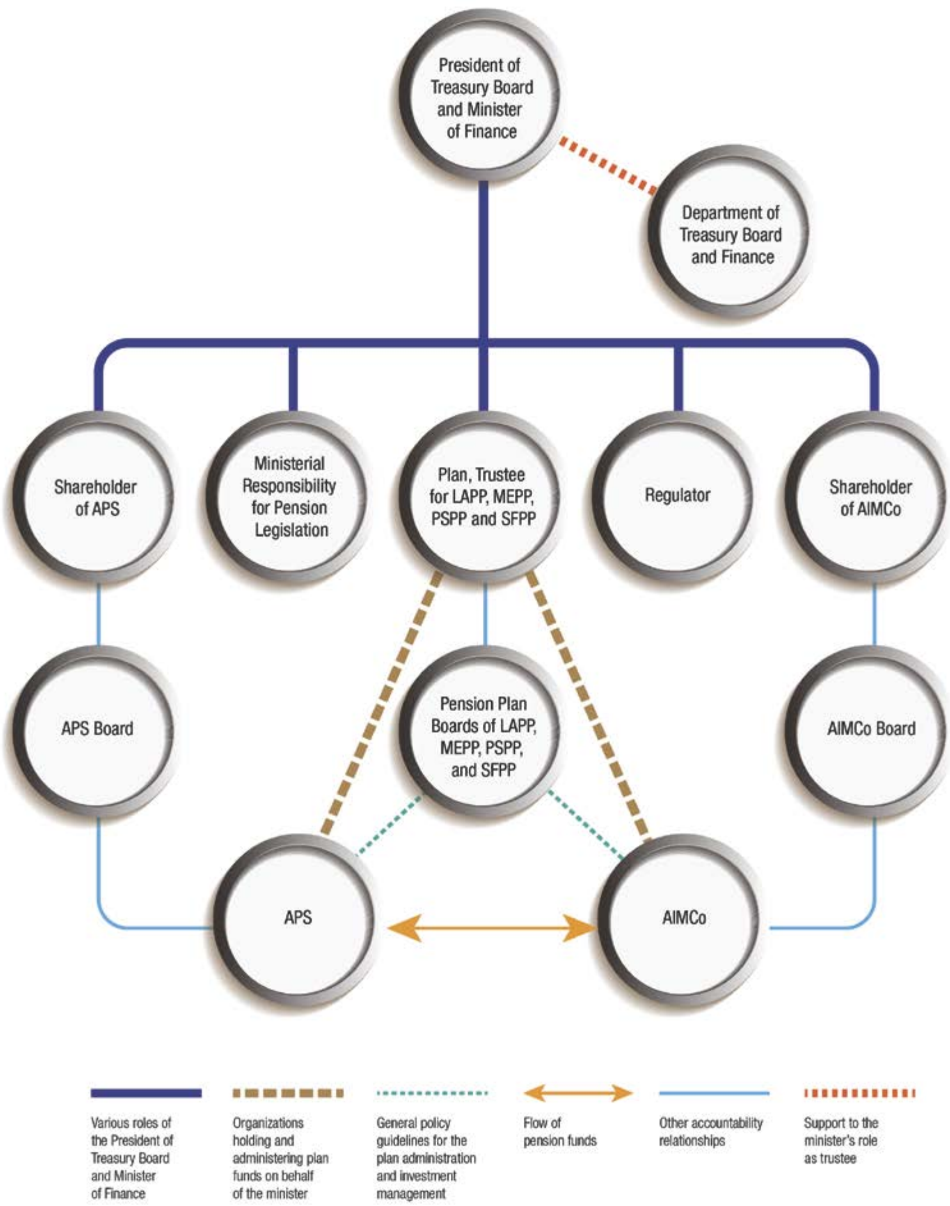
Implications and risks if recommendation not implemented

Without clear alignment between proposed plan changes and the government's objectives for the review, adequate financial analysis and consideration of human resource objectives, the department may not achieve its sustainability review objectives.

Appendix A

GOVERNANCE CHART

This diagram is applicable to LAPP, MEPP, PSPP and SFPP.



Appendix B

OVERVIEW OF PLANS

	LAPP	MEPP	PSPP	SFPP
Net assets available for benefits[1]	$22.86 Billion	$2.99 Billion	$7.30 Billion	$1.75 Billion
Pension obligation in financial statements[1]	$27.84 Billion	$3.29 Billion	$8.94 Billion	$2.25 Billion
Deficiency in financial statements[1]	$4.98 Billion	$0.3 Billion	$1.64 Billion	$0.5 Billion
Funded ratio in financial statements[1]	82%	91%	82%	78%
Solvency deficiency	$14.72 Billion[2]	$2.18 Billion[2]	$6.37 Billion[2]	$1.16 Billion[3]
Solvency funded ratio	61%[2]	58%[2]	53%[2]	57%[3]
Discount rate to value the pension obligation in financial statements[1]	5.8%	6.3%	6.4%	6.2%
Current service cost[4]	16.76%[3]	22.35%[2]	16.28%[3]	19.54%[3]
Contribution rate to pay for unfunded liabilities[4]	7.40%[3]	12.30%[2]	9.34%[3]	8.46%[3]
Employee contribution rate[4,5]	11.58%	12.80%	12.81%	13.45%
Employer contribution rate[4,5]	12.58%	21.85%	12.81%	14.55%
Separate AB Gov't contribution rate towards pre-1992 liablities[4,5]	-	-	-	1.25%
Total contribution rate[4,5]	24.16%	34.65%	25.62%	29.25%
Active members[6]	147,153	5,330	41,234	4,129
Deferred members[6]	27,831	1,044	15,677	185
Retirees receiving benefits[6]	49,767	3,957	22,178	2,278
Number of employers[7]	428	21	31	7
Retirement benefit	1.4% for each year of service based on the average salary of the highest 5 consecutive years up to the average YMPE[8] and 2% on excess	2% for each year of service based on the average salary of the highest 5 consecutive years	1.4% for each year of service based on the average salary of the highest 5 consecutive years up to the average YMPE and 2% on excess	1.4% for each year of service based on the average salary of the highest 5 consecutive years plus a bridge benefit of 0.6% for each year of service paid until age 65
Cost of living benefits	60% of Alberta CPI[9]	60% of Alberta CPI	60% of Alberta CPI	See footnote[10]
Unreduced pension available	At age 55 and when the sum of age and years of service is 85	See footnote[11]	At age 55 and when sum of age and years of service is 85	Age is 55 with 5 years' service or any age with 25 years of service

1 Amounts are based on the financial statements contained in the plans' 2012 annual reports.
2 Based on the plan's 2012 actuarial valuation.
3 Based on the plan's 2011 actuarial valuation.
4 Expressed as a percentage of salary.
5 2014 contribution rates.
6 Information obtained from the Government of Alberta's 2012–2013 Annual Report, page 59.
7 Information obtained from the plans' 2012 annual reports.
8 The year's maximum amount of pensionable earnings (YMPE) used to calculate contributions and benefits determined by the Canada Pension Plan.
9 CPI or consumer price index is an indicator of changes in consumer prices or the rate of inflation experienced by Albertans.
10 Cost of living adjustments are made at 60% of Alberta CPI for pre-2001 service. Effective January 1, 2013, a target of 30% of CPI will be applied for service after December 31, 2000.
11 For service before 1992, an unreduced pension is available if a participant is age 55 and has accrued five years of service. For service after 1991 if the participant's age and service is at least 80 or the participant is at least 60 years old, no reduction is applied.

Appendix C

GLOSSARY

Beneficiary A person who receives or will receive benefits from the pension plan.

Defined benefit pension plan A pension plan with benefits determined by a formula. Key factors that determine the benefit include the employees' historical salaries and number of years of service, among other factors.

Early retirement A retirement before the age set by the pension plan as the normal retirement age.

Economic cost of pension benefits The actuarially determined value of pension benefits discounted into today's dollars using a discount rate that reflects the risk in the cost of benefits.

Governance The structure and processes for overseeing, managing and administering a pension plan to ensure the fiduciary duties and other obligations of the plan are met.

Insolvent A pension plan can be considered insolvent when the present assets and expected contributions to the plan are insufficient to pay the benefits promised in full.

Mandate and roles document A document that includes the mandate, roles and responsibilities of a public agency, its members, the responsible minister, the accountability relationships of the agency and its duty to account to the responsible minister, among other items required by the *Alberta Public Agencies Governance Act*.

Normal form pension The default form of pension benefit is its normal form. An example is a pension paid for a member's lifetime, but guaranteed to continue to make payments for at least 10 years. Alternative forms of pension could include changing the guaranteed term of a pension or options to pay a spouse.

Risk adjusted cost A measure of pension benefits that considers the level of risk that the benefits will be paid.

Solvency deficiency The estimated liabilities of the pension plan minus the market value of plan assets if the plan were wound up and settled on the date of the actuarial valuation.

Sponsor Those responsible for setting the rules of the pension plan, arranging for the plan's administration and bearing the costs and risks of a pension plan.

Stress test A calculation of the impact of different scenarios on the assets and liabilities of a pension plan. An example would be measuring the impact of lower than expected investment returns.

Tolerance A predefined limit for an agreed upon measure that would not willingly be exceeded.

Trustee A person or entity who manages, administers and holds the investments of the plan.

Unfunded liability The amount by which the plan's pension obligations exceeds plan assets on a going concern basis.

Vested Pension plan members vested in a pension plan are entitled to benefits upon retirement.

Appendix D

ELEMENTS OF A PENSION SYSTEM

Cost

The cost of a defined benefit plan mainly depends on:

- **level of benefits**—The pension benefit that employees earn with units of service.
- **inflation**—Benefits may be increased with the rate of inflation. Extended periods of high inflation can have a significant impact on cost and therefore plan sustainability and can be difficult to mitigate with funding strategies.
- **longevity**—The average length of time people live has increased with each generation. If longevity improvements are underestimated cost can be significantly underestimated and therefore contributions rates set too low relative to the cost of benefits.
- **human resource inducements**—Benefits built into the plan design to achieve human resource objectives such as attraction, retention, or workforce downsizing (e.g., early retirement subsidies). Once built into the plan and established in employees' expectations, they can be difficult to reverse if human resources' objectives change.
- **discount rate**—The rate used to calculate the present value of the expected future benefit payments. The discount rate does not change the cash flows of the plan. However, selection of the discount rate can change the present value of future benefit payments significantly and, therefore, the current perceived cost of the plan. The discount rate, which incorporates the risk associated with the cash flows being discounted, is not always set commensurately with the benefit security level of the plan.
- **benefit security level**—The probability that the plan will deliver on the benefits promised. This depends on the level of contributions in relation to benefits and investment portfolio risk.

Plan design—The key process related to costing the plan is the plan design process. Here the sponsor(s) establish what the pension deal is and in doing so allocate the costs and risks of the plan between employers and employees. Effective consultation between employers and employees is important to ensure costs and risks are allocated in a clear manner that results in a win/win arrangement for the sponsors and beneficiaries. An ineffective consultation process on plan design can result in a sub-optimal outcome for the sponsor(s) and/or beneficiaries.

Each cost component in the above list must be estimated at the time a defined benefit plan is designed, to assess if the costs are reasonable in the circumstances. The estimate must then be used to set a funding policy commensurate with the cost. Since estimation is involved, it is certain that actuals will differ from these estimates. When actual costs differ significantly from the estimated cost, a defined benefit pension plan may prove unsustainable.

Ideally, during the initial plan design the tolerances for variance for each of these items from their estimate would be explicitly defined so that if they exceed those tolerances the sponsors and beneficiaries would have a common understanding that the plan's sustainability and design would be re-evaluated. Explicitly analyzing each of these components of cost also allows risks to be allocated amongst stakeholders (i.e., employers, current employees and pensioners) more granularly if so desired and agreed to.

In practice defined benefit pension plans do not usually define such tolerances at the outset and variances have been managed mainly through funding mechanisms described further on in the report. Alberta is not significantly different from others with defined benefit pension plans in this regard.

One potential reason for this is the belief by many that defined benefit pension plans include enduring promises to beneficiaries and that the sponsors have to fulfill those promises through the funding of the plan. These cost dependencies underlie both the feasibility and willingness of the sponsor to fulfill the promise, whether they are explicitly recognized by the stakeholders at the outset or not. It is therefore always possible that a sponsor's continuing commitment to the existing level of benefits may change if these components of cost differ significantly from those expected when the promise was made. Plan stakeholders may have difficulty accepting when the assumptions underlying the plan design have changed to such a degree that the promise is no longer affordable and sustainable.

In the worst possible scenario, sponsors and beneficiaries can only agree that the plan has become unsustainable after it has become insolvent. Whether these tolerances are defined explicitly at the outset or not, regularly monitoring actual costs against those estimated when the plan was designed is necessary to identify emerging risks to plan sustainability early on so that risk mitigation strategies can be evaluated and implemented to avoid reaching this worst case scenario.

Level of benefit – Plan benefits are usually defined by the proportion of pre-retirement income that will be replaced by post-retirement benefits per unit of service. Employers are not obliged to ensure that plans are designed to meet the retirement needs of their employees. However, doing so is a part of the value proposition of a defined benefit plan. At the same time the employer is interested in ensuring that employee salaries and other benefits are sufficient to attract and retain staff while being cost efficient.

Inflation – Because of a recent period of relatively low levels of inflation, inflation has not been identified as a large issue for defined benefit pension plans. The cost of Alberta's pension plans is dependent on inflation because benefits are partially indexed to inflation. The cost and contribution rates include the expectation of moderate amounts of inflation. However, if extended periods of high inflation were to occur the cost of such inflation could be difficult to manage through the funding system alone.

Longevity – During our knowledge gathering project and subsequent audit we observed stakeholders identified issues related to longevity and some of the human resource inducements related to early retirement.

When defined benefit pension plans initially were offered, employees typically worked for 40 or more years until turning 65, and had a life expectancy of 75. Alberta's more recent experience has been for employees to retire closer to 60 while living until their early to mid-80s, resulting in a retirement period that has doubled or tripled. In turn the ratio of contributing years to benefitting years has decreased significantly from the time when these plans were first established. This change in the proportion of time spent in pre- and post-employment is a result of increased longevity and early retirement.

The impact of increasing longevity is difficult to monitor because it occurs slowly over many decades. The cost of increased longevity is therefore also slowly built into contribution rates. Depending on the time lag between recognizing the impact of the change in longevity and funding for it this can have a significant impact on plan sustainability and intergenerational equity.

Potential technological improvements to health care, such as a cure for cancer, that dramatically increase the life spans of beneficiaries could have a much more sudden impact on expected longevity. Similar to high inflation, funding mechanisms may not be sufficient to mitigate a sudden significant improvement in longevity.

Human resource inducements – Some of the plan stakeholders we met with identified the issue of subsidized early retirements. Under current Alberta public sector pension plan rules an employee may retire several years before the age of 65, the age that has been traditionally considered the normal retirement age. The cost of being able to retire before 65 was subsidized in the plan's design to meet past human resource objectives. This led some to question the fairness of this arrangement in relation to taxpayers and whether or not it was consistent with the present human resource needs of the public service.

Discount rate – The discount rate does not change the cost of the plan but it does change the contribution rates and therefore the perceived cost of the plan. It also impacts which group of employees bears the costs of the plan. We observed that employers and employees frequently use contribution rates as a proxy for plan cost presumably since contributions are the direct in-year cash cost to them and are therefore transparent. Canadian public sector accounting standards permit pension obligations to be determined using the expected return on plan assets. However, by determining pension obligations using expected returns on assets and smoothing the impact of volatility on contribution rates through various actuarial and accounting techniques, the full risk and inherent volatility is not reflected in the accounting costs or contribution rates. The full economic cost can be significantly understated by these methods.

One method that can be used to reflect the risk in the cost of benefits (at least for the employer portion) is to use a risk-free discount rate. One proxy for the risk-free rate would be the Government of Alberta's own incremental borrowing rate since it has a AAA credit rating. In doing so, it demonstrates that the full economic cost of pension benefits can be significantly more than what the contribution rates derived from expected returns on plan assets imply. Private sector accounting standards require the use of yields on high quality bonds to be used in valuing pension plan liabilities for financial reporting purposes.

The department's analysis found that the economic cost is significantly more than the current service cost used to set contribution rates when a risk-free rate (2.66 per cent at the time of the analysis) is used. For example, while MEPP and SFPP have current service costs of about 20 per cent of salary when using the expected return on plan assets, the economic cost is approximately 35 per cent using the risk-free rate. Similarly LAPP and PSPP have a current service cost of about 15 per cent of salary when the expected rate of return on plan assets is used versus 25 per cent of salary when the risk-free rate is used. More tangible evidence that the full economic cost of benefits exceeds the current service cost can be determined by assessing what it would cost to transfer the public sector pension obligations to a financial institution by way of annuity purchases. This comparison would show that the current service contribution rates derived from expected returns on plan investments significantly understate the full economic cost of benefits.

By not recognizing the full economic cost of benefits, the risks that benefits result in an overly generous total compensation package or that pension benefits are not as securely funded as stakeholders might think, are not well understood. Those risks are therefore not as likely to be efficiently allocated, managed and monitored.

An example demonstrates the confusion that can be caused by discounting pension liabilities using expected returns on plan assets. Assume an employer proposes to give an employee $1 million in 10 years in respect of past service and this amount will be funded presently with a mix of investments expected to yield 6.5 per cent per year on average. The employer therefore contributes $530,000 to the plan today as determined by the plan's actuary.

Under present public sector accounting standards the employer will show no liability on its balance sheet since the plan's obligation is also discounted using the expected return on plan assets.

> **Plan assets of $530,000 less present value of obligation of $530,000**
> **= balance sheet liability of $0**

In contrast, if a risk-free interest rate is used to separate out the effect of risk resulting from funding the plan with risky assets, assumed in this case to be 4 per cent, then the liability is valued at $675,000 and the employer has to record a $145,000 liability on its balance sheet.

> **Plan assets of $530,000 less present value of obligation of $675,000**
> **= balance sheet liability of $145,000**

It is important to note that changing the discount rate does not change the amount—$1 million that the employer will pay to the employee—and therefore using the lower discount rate does not worsen the employer's financial position or further enrich the employee. Rather it simply makes the risk of relying on future investment returns to fund the benefits transparent.

Put another way, the present shortfall is real in both methods. Unfortunately, the first presentation and resulting funded ratio leaves the employer and employee with a sense that all is well while the latter seems to cause a sense of concern. It should not be a surprise to either party that the plan is presently underfunded since the essence of the business opportunity was to defer a portion of the employee's compensation and to try and fund part of the cost with investment returns. Instead, it should lead to important questions clarifying the terms of the arrangement between the two parties.

These questions include:
- Who bears the risk if the plan is still underfunded in 10 years if the investment returns are less than expected?
- What is one party willing to give up in exchange for transferring risk (e.g., investment, longevity, inflation) to the other party?
- What is the risk tolerance of both parties for that scenario?
- How can the risks be allocated, contributions set and investment portfolio be aligned to that risk tolerance?
- In light of the answers to these questions does the agreement to defer compensation and fund the cost with investment returns still align with both the employer's and employee's interests?

Benefit security level – The benefit security level is another significant issue. Beneficiaries of defined benefit plans have typically believed that benefits are guaranteed even though this is not always the case. The combination of a plan design and funding strategies will yield a certain unquantifiable probability of success. The variance in each of the cost and funding components can be modeled to yield a probability distribution of outcomes. Depending on the combination of plan design and funding strategy the expected probability of success may be considerably lower than the guaranteed level of security expected.

The security of plan benefits can be estimated using modeled ranges of variances and combinations of cost and funding dependencies. The models can estimate the probability that a particular contribution rate will be sufficient to pay the benefits promised. These estimated results are based on the model's inputs and assumptions, and could differ significantly from actual results. However, the models can illustrate, based on foreseeable ranges of outcomes, when there is a gap between a targeted security level and the estimated security level of a particular funding strategy.

These modeling techniques originated in the financial industry. Banks and insurance companies manage similar risks to those of pension plans, where the cash flows associated with assets on one side of their balance sheet vary from those associated with liabilities on the other side. In the financial industry, regulations and industry frameworks are in place establishing the use of these models to manage risk within targeted parameters. The Dutch pension system has been a leader in applying these techniques to the regulation of defined benefit and target pension plans.

The application of these modeling techniques together with establishing tolerances and targets is a significant improvement in pension risk management. While the use of these techniques does not guarantee pension plan sustainability, they do provide better insight into plan sustainability and what can be done to manage it. It is also an emerging area of practice in the management of pension plans. Alberta is not presently behind the norm in regulating and utilizing these techniques but risks falling behind as other jurisdictions look to these techniques to improve the management of pension risks.

Relationship to compensation – Lastly, a process that is not exclusive to and therefore not considered part of the pension system, but nevertheless bears on plan design, is determining whether the cost is reasonable or "fair."

For the plan design to represent a win/win arrangement it must be perceived as "fair" by taxpayers who typically fund the employers that pay a portion of the costs of these the plans. A widespread perception that the plans are unfair to taxpayers could prove to make the plans unsustainable even if employers and employees can otherwise agree on an arrangement that fully funds the plans. Employees both accept the employer's contribution as a component of their compensation and also fund the plan out of their salaries through employee contributions and expect that compensation practices will not be tested for fairness solely by what is politically saleable at a given point in time. A process is therefore necessary to demonstrate the plans are fair to taxpayers and employees.

The lesser prevalence of defined benefit pension plans in the private sector compared with the public sector is often cited as evidence that the public sector defined benefit plans are unfair. Others have gone as far as calculating the risk adjusted cost of the plans as evidence that they are too rich and therefore unfair.

These observations raise concerns but do not recognize the interrelationship of pension benefits with an employee's total compensation package. The form or cost of the pension plan is not so much the risk to taxpayers but rather how the other components of total compensation are balanced with that cost to ensure total compensation is in line with labour market value.

Salary + pension benefits + other benefits = total compensation

Starting from the assumption that total compensation is in line with labour market value then reductions to the pension component, without adjustment to the rest of the equation, could create false economies. The other components of compensation would be expected to increase to bring total compensation into equilibrium with the labour market value.

On the other hand, if total compensation exceeds labour market value focusing on one component of the equation unnecessarily limits the options of stakeholders to restore the balance.

In practice, a significant amount of analysis would need to be done to weigh total compensation against labour market value and measure the effects of changes in one component on another especially in a system with hundreds of employers and employee groups. At best, only estimates can be made. The risk of not attempting to do so during a plan design review increases the risk of unintended consequences following from plan design on the other components or human resources attraction and retention objectives. Perhaps more importantly the risk that changes cannot be demonstrated as fair to taxpayers or employees is also a risk and ultimately a risk to plan sustainability.

Funding

Funding is dependent on:

- **contributions**—Money put into the plan by employers and employees that is invested and that, in combination with investment returns, is expected to pay for the benefits of the plan. Contribution rates depend directly on the discount rate chosen and stabilization mechanisms used. Often contributions are perceived as the cost of the plan although they are not a conceptually sound measure of such.
- **stabilization mechanisms**—Comprise various techniques used to manage the volatility of contribution rates and plan funded ratio arising from investment volatility and variances in other component variances.
- **investment returns and risk appetite**—These are related. The more risk taken the higher the expected return but also the greater the variance in return.
- **plan maturity**—The proportion of working employees contributing to the funding of the plan in comparison to retired employees drawing benefits from the plan.
- **integrating the funding policy with benefit cost**—This helps ensure the benefit security level is achieved and it necessitates understanding the constraints on the other funding dependencies.

All pension plans rely on two sources to fund retirement benefits—contributions and returns on the invested contributions. In defined benefit plans the contribution levels are directly set in relation to the proportion of funding that is anticipated to come steadily from investment returns that can be uncertain and highly variable. Contribution rates have historically been determined as the residual of plan costs minus expected returns.

Since both investment returns and plan costs vary, so must contribution rates; but various stabilization mechanisms are used to dampen the effect of investment and cost volatility on contribution rates. Traditional pension funding strategies use combinations of margins on estimates and smoothing of losses and gains on assets to stabilize contribution rates with the expectation that these smoothing techniques can cope with investment and cost volatility over time. To a lesser extent some plans establish reserves to stabilize the plan by targeting a funded ratio in excess of 100 per cent. More sophisticated systems use complex models to establish the amount of the margins or reserves in relation to defined tolerances for key cost and funding components.

Solvency funding is another stabilization mechanism that pre-defines an accelerated increase in contributions to cover plan deficits in certain circumstances. Alberta's public sector pension plans are not subject to solvency funding requirements that are typical in the regulation of private sector defined benefit pension plans. The rationale for this difference between the private sector and public sector plans has not been formally communicated by the Government of Alberta.

Investment returns can and often usually do fund a significant portion of the pension cost. Pursuing higher returns through a plan's investment mix comes with greater risk and volatility in the returns. Because the traditional method of establishing contribution rates lowers the contribution rate when expected investment returns are increased without recognizing the associated risk from these higher expected returns, and because contribution rates are often perceived as the plan's cost, there is a risk that investment risk levels are not aligned with the expected or targeted benefit security level. This is because plan sponsors may increase the expected returns to lower or maintain the perceived cost. In the public sector the expected return is also used to value the plan's liabilities without consideration of the benefit security level. Increasing investment risk can be used to decrease the value of the liabilities to balance the funded ratio without recognizing the risk it places on maintaining the funded ratio.

Plans can also manage solvency risk by using current contributions to pay for past accrued benefits in years when investment returns are insufficient to do so. When this occurs the plans operate more akin to a pay-as-you-go plan than a funded plan. This works as long as the proportion of active employees to retirees is stable. However, when plans mature and the amount of contributions decreases in proportion to benefit payments, this method of managing solvency risk becomes less effective adding to sustainability risk.

This makes the process of integrating the funding components with the plan cost as opposed to the desired contribution rate critically important. A high or ill-defined investment risk appetite combined with a low tolerance for contribution rate volatility or increases, and inadequate stabilization mechanisms, creates a significant risk to plan sustainability particularly for mature plans.

The quality of a plan's funding policy and the rigour of its implementation through asset liability management, the system by which contribution rates and investment strategies are set consistently with the objective of funding desired benefit levels with a defined degree of certainty, is a key determinant of plan sustainability.

Governance and administration

This element is composed of:

- clearly defining roles, responsibilities and structure
- communication
- risk management
- investment management

In describing the cost and funding elements we have drawn attention to the interrelated components, risks and processes of a pension plan system. Clearly defining roles and responsibilities is part of the mechanism for joining these processes at their seams and ensuring effective communication occurs between the many stakeholders involved in the system. Good structure empowers process owners to act when necessary in a timely manner. However, structure does not ensure that empowered process owners will act when necessary.

Throughout the audit we observed a lack of confidence amongst stakeholders and some of the organizations responsible for the plans in each others' abilities to fulfill their responsibilities and a sense that responsibilities for certain functions were not appropriately allocated. This lack of confidence has impacted the ability of these groups to work together co-operatively despite sharing responsibility for achieving the same objectives.

Many we spoke with attribute this to the public sector pension plans' legislated governance framework, which was put in place two decades ago. Reviewing the governance structure has been cited by three of the plan boards as being a necessary part of reviewing the sustainability of the plans.

Through our research at the outset of this project, we noted numerous defined benefit pension plans, both in the private and public sectors, across the globe have experienced significant deterioration in their funded status. Amongst these many plans, mostly experiencing the same funding deterioration, are many different governance structures. So while alternative governance structures can be implemented, changes to the governance structure alone would not be the sole solution to plan sustainability.

The minister has several roles with respect to the governance of LAPP, MEPP, PSPP and SFPP. The roles are summarized at a high level in a diagram in Appendix A. The minister is the trustee of the plans and has delegated pension administration and investment management of the plans to APS and AIMCo, respectively. The minister is also the sole shareholder of the two service providers—APS and AIMCo.

Operating protocols between the plan boards, the department and APS require that the plan boards report to the minister an annual summary of the boards' activities in relation to their mandates and business plans. As required by the operating protocols, the boards, APS and the department also report risks, opportunities and strategic considerations related to the plans that should be dealt with by each other. The operating protocols also set out general guidelines for the content of the pension plan annual reports.

The plan boards of LAPP, MEPP, PSPP and SFPP have legislated powers, which differ amongst them, with respect to setting contribution rates, amending plan benefits and setting general policy guidelines on the investment and management of the plans' assets. Given the plan boards' legislated mandate, the boards have developed funding policies to support their decision making process. The funding policies of the plans were developed between 2011 and 2013 by the pension plan boards. Under the *Public Sector Pension Plans Act*, with the exception of MEPP, the contribution rates and benefits can only be changed on the boards' recommendation. The MEPP board must only be consulted with prior to amending contributions or benefits. Regulations establish plan rules with respect to contribution rates and benefit changes.

The department assists the minister with ongoing monitoring of the pension plans by briefing the minister on the risk reporting from the plan boards. The department monitors the sustainability of the plans and conducts research and analysis as part of that monitoring process. The department also plays a significant role in clarifying the roles and responsibilities by collaborating with the plan boards, APS and AIMCo with respect to the governance of the plans. The department has collaborated with various parties on operating protocols and, more recently, on the drafting of mandate and roles documents.

It is clear from any view of the structure that the Minister of Finance fills the leadership role in the existing system. The minister is responsible for making significant timely decisions as trustee, administrator, policy maker and the individual with ministerial responsibility for the *Public Sector Pension Plans Act* and regulations. The minister also has a responsibility to look out for the interests of Alberta taxpayers as joint funders of the plans. Inherent in all of these roles are a number of conflicting stakeholder interests that have to be balanced. How these conflicts in stakeholder interests can be effectively managed is a significant issue for policy makers to consider.

Another typical leadership function is to build consensus amongst followers so that change can be implemented when necessary. From the year 2000 onwards, the period in which the plans funded status deteriorated; there were 10 different ministers of finance who had responsibilities to deal with other than just Alberta's public sector pension system. In this complex system with multiple stakeholders, the lack of continuity in this leadership role poses a significant risk in the ability of the system to respond to adverse experience in a timely manner. A system to establish consensus for when and how to implement change without continuity in leadership is necessary to make the plans sustainable.

Another significant attribute of the Alberta public sector pension plan structure is that both the employer and employees are responsible for funding the plans. In the private sector, typically only the employer is responsible for funding deficits. This shared funding structure is thought to provide a medium of "fairness" in that employees share the risk and cost of plans.

When a plan deficit occurs, only current and future employees can fund the employee share over an extended period of time (e.g., 15 years). This can create inequities between past, current and future employees. Practically speaking, current and future employees will not likely pay for benefits accruing to past employees if current employees' contribution rates are significantly more than the value of their own expected pension benefits. If current and future employees will not support the plan, then the options are limited to: the employer is left to assume more of the past liability; retired employees will receive benefits that are less than promised; or the plan risks insolvency. This means changing the pension promise for current or future employees is difficult while they bear the cost and risks of benefits given to past employees.

The use of the pension funding methodology and resulting contribution rates to define the cost of benefits and the incorporation of various margin and smoothing techniques reduces the transparency of the risks associated with the defined benefit pension plans. As noted above, contribution rates are set in relation to the expected investment returns on the plan's assets. The returns vary in accordance with the relative risk of the asset portfolio. A riskier portfolio will lead to a higher expected return and therefore lower cash contribution rates. However, higher expected investment return rates come with more volatility in the returns resulting in greater risk that these returns will be insufficient to fund pension benefits.

Many believe that this risk is to be controlled by oversight of the investment manager's performance in achieving the expected rate of return. While an investment manager should be evaluated on the degree to which they maximize the return of a portfolio given a particular risk tolerance, the decision about investment risk appetite is the responsibility of the sponsors. In Alberta, the pension plan boards have had the responsibility for operationalizing the risk tolerance through investment and contribution rate policies.