



Superintendent
of Pensions
2016
Report



Superintendent of Pensions

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TABLE OF CONTENTS

2 MESSAGE FROM THE SUPERINTENDENT

3 SECTION 1 – SUPERINTENDENT OF PENSIONS

3 Roles and Responsibilities

- 3 Administering the *Employment Pension Plans Act (EPPA)*
- 3 Reciprocal Agreements
- 4 Key Activities as at December 31, 2016
- 4 Key Objectives and Challenges for 2017 and Onwards
- 5 Key Challenges for the Coming Years
- 6 Regulating Plans
- 6 Cancelled Plans

7 SECTION 2 – ANALYSIS OF HISTORIC TRENDS – 2006-2016

14 SECTION 3 – SUPERVISED PLANS

14 Plan Funds

- 14 Contributions

15 Plan Information

- 15 Active Members
- 15 Jurisdictions

17 Funding and Solvency

- 17 Assets
- 18 Liabilities
- 19 Unfunded Liabilities and Solvency Deficiencies
- 20 Assets in Excess of Liabilities
- 20 Going Concern and Solvency Ratios

22 Actuarial Assumptions

- 22 Asset Valuation Method
- 23 Mortality Tables and Withdrawal Rates
- 23 Interest Rate Assumptions
- 24 Salary Assumptions
- 25 Salary – Interest Differential Assumptions
- 26 Hours Worked Assumptions

MESSAGE FROM THE SUPERINTENDENT

I am pleased to present the latest report on the status of pension plans registered in Alberta. The report is designed to give the reader information on various features of the private pension system, including regulatory activity, the types of plans being registered, and the funding of those plans.

This report differs from previous reports in that those reports were completed as of June 30 which coincided with the filing of actuarial valuations and annual information returns for plans with a year end of December 31.

As the filing deadline for an actuarial valuation has now been extended to nine months after a plan's year end, the effective date for the report was adjusted to December 31, 2016.

The report is divided into three sections:

- **Section 1** – provides, an outline of the Superintendent's roles and responsibilities, a brief description and overview of activities, key objectives for the coming years and challenges faced by the Office of the Superintendent of Pensions in ensuring pension plans are effectively regulated.
- **Section 2** – provides summary of key trends over the decade ending December 31, 2016.
- **Section 3** – examines plan membership and the types of plans registered under the *Employment Pension Plans Act* including funding, solvency, and actuarial assumptions used in defined benefit (DB) pension plans.

I appreciate the continued cooperation and support of the pension industry. This report is part of our ongoing efforts to improve communication and provide useful information to the pension industry, as we strive to meet our mission to provide a fair and balanced regulatory environment that supports the development and maintenance of strong and stable pension plans.

I look forward to continuing to work in partnership with our stakeholders throughout the coming year.

Sincerely,

[Original signed by]

Nilam Jetha
Superintendent of Pensions

SECTION 1 – SUPERINTENDENT OF PENSIONS

Roles and Responsibilities

Administering the *Employment Pension Plans Act (EPPA)*

The office of the Superintendent of Pensions (the Superintendent's Office), a branch of Alberta Treasury Board and Finance, is responsible for the administration and enforcement of the *Employment Pension Plans Act, 2012, Chapter E8.1 (EPPA)*.

The Superintendent administers and enforces the *EPPA*, which came into force on September 1, 2014, and is the successor to the *EPPA 2000*. The *EPPA* applies only to private sector pension plans with Alberta members.

Every Alberta pension plan must be registered, with the exception of certain plans exempted by section 10 of the *Employment Pension Plans Regulation (EPPR)*. The registration of a pension plan allows the Superintendent's Office to ensure that each plan continues to comply with the terms and conditions of the *EPPA*.

- Registered pension plans are monitored to ensure they are administered correctly and that plan funds are sufficient to cover earned benefits and that the required contributions to the plan are made.
- Pension plan applications or amendments that do not meet the requirements of the *EPPA* may be refused registration.
- A Certificate of Registration may be cancelled if a plan does not comply with the requirements of the *EPPA*. A Certificate of Registration is also cancelled when a plan terminates and all assets of that plan have been paid out.

Reciprocal Agreements

The Alberta government is party to two reciprocal agreements, one with the Government of Canada and one with all provinces having similar pension legislation to Alberta's *EPPA*. These agreements are authorized by Part 14 of the *EPPA*.

- Both agreements provide for the reciprocal registration, examination, and inspection of pension plans.
- Under the agreements, a pension plan that is subject to the legislation of more than one authority is supervised by the authority having jurisdiction over the greatest number of plan members (the "regulatory authority").
- Where the agreements apply, and Alberta is the regulatory authority, the Superintendent's Office carries out the duties and responsibilities and administers the legislation of the other pension jurisdictions.

Key Activities as at December 31, 2016

- The new *Employment Pension Plans Act (EPPA)* and Employment Pension Plans Regulation (EPPR) became effective September 1, 2014.
- Administration of the Financial Hardship Unlocking Program was transitioned from the Government of Alberta to the financial institutions holding the funds on behalf of former plan members.
- The EPPR was amended to permit Collectively Bargained Multi-Employer Plans (CBMEPs) to apply for exemption from solvency funding as of January 1, 2015.
- Stakeholder outreach was expanded to plan sponsors and administrators, legal and actuarial service providers, Boards of Trustees and industry associations to facilitate the roll-out of the new *EPPA* and how it affects the pension community.

Key Objectives and Challenges for 2017 and Onwards

- Identifying areas of the *EPPA/EPPR* requiring review and revision with a goal of developing a strategic plan to guide future legislative changes.
- Increasing the number of onsite reviews of specific pension plans.
- Assessing the impact of the current economic environment on pension plan affordability, specifically solvency funding.
- Assessing the level of contribution rates to defined contribution plans to determine the amount of pension income being provided to plan members.
- Determining how many defined benefit plans are open and/or closed to new members and/or have frozen service or earnings for future service for current members.

Key Challenges for the Coming Years

- The appropriate degree of funding for a defined benefit pension plan and whether solvency funding is an appropriate funding standard;
- The short and long-term effects the current economic climate will have on the existence and affordability of pension plans;
- The appropriateness of fees charged, investment options provided and investment information provided to members in defined contribution plans; and
- The use of default funds in member directed defined contribution plans.

Pension industry representatives are encouraged to provide the Office of the Superintendent of Pensions with their thoughts and suggestions as we work to maintain a vibrant and strong pension system.

Regulating Plans

As of December 31, 2016, the Superintendent's Office was responsible for the supervision of **753** pension plans.

- A total of **633** of those plans had registered status under the *Employment Pension Plans Act (EPPA)*.
 - 451 of these plans contained only defined contribution (DC) provisions including three Collectively Bargained Multi-Employer Plans (CBMEPs); and
 - 182 of these plans contained defined benefit (DB) provisions (82 of these also contained DC provisions). 22 of these plans were CBMEPs. Of these, 17 contained DB only provisions and five contained both DB and DC provisions.
- Of the remaining **120** plans, all of which were still subject to the Act and Regulation:
 - two had been reviewed but required further documentation before they could be registered;
 - 30 were plans whose only members are classified as designated under the Income Tax Regulations (Canada). Because of their small number of members, they have been excluded from this report so as not to skew the defined benefit data.
 - 86 were terminating but awaiting cancellation of the certificate of registration; and
 - two were in delayed windup status.

Cancelled Plans

The Superintendent's Office cancelled Certificates of Registration for **77** pension plans during the period under review. The terminated plans covered **8,685** members. Consistent with previous years, the majority of the members affected (6,677) continued membership in another registered pension plan.

The following table outlines why plans were cancelled and shows the membership distribution.

| Table 1.1 – Cancelled Pension Plans | | |
|---|-------------------------|----------------------------------|
| Reason for Cancellation | Number of Pension Plans | Total Number of Members Affected |
| Bankruptcy | 1 | 55 |
| Company Dissolved | 0 | 0 |
| Financial/Administrative Considerations | 4 | 163 |
| Merged with Another Plan | 21 | 6,677 |
| No Active Members Left in Plan | 13 | 40 |
| Other | 24 | 737 |
| Replaced by Individual or Group RRSPs | 14 | 1,013 |
| Replaced by a New Plan | 0 | 0 |
| TOTAL | 77 | 8,685 |

SECTION 2 – ANALYSIS OF HISTORIC TRENDS 2006-2016

In this section, we highlight trends in the number of plans, members, assets and plan cancellations over the last decade.

Supervised Plans

→ *All Active plans plus plans in the process of terminating or being registered.*

CBMEPPs

→ *Collectively Bargained Multi-Employer Plans.*

DB

→ *Defined Benefit.*

DC

→ *Defined Contribution.*

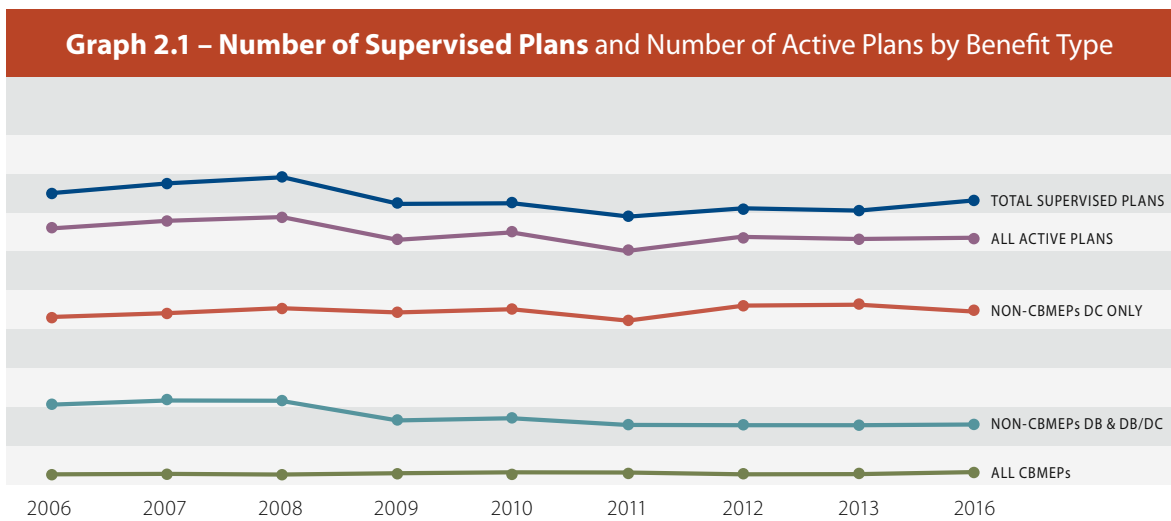
DB/DC

→ *Mix of both DB and DC.*

Report Year

→ *All Report Years are as at June 30, with the exception of the oldest (2006) which is at March 31 and the newest (2016) which is at December 31.*

| Table 2.1 – Number of Supervised Plans and Number of Active Plans by Benefit Type | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|
| Report Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2016 |
| TOTAL SUPERVISED PLANS | 746 | 772 | 797 | 725 | 718 | 690 | 714 | 705 | 723 |
| ALL ACTIVE PLANS | 661 | 679 | 693 | 637 | 652 | 608 | 645 | 638 | 633 |
| NON-CBMEPs DC | 427 | 441 | 451 | 445 | 455 | 426 | 465 | 461 | 447 |
| NON-CBMEPs DB & DB/DC | 211 | 215 | 218 | 168 | 171 | 156 | 154 | 151 | 160 |
| All CBMEPs | 23 | 23 | 24 | 24 | 26 | 26 | 26 | 26 | 26 |

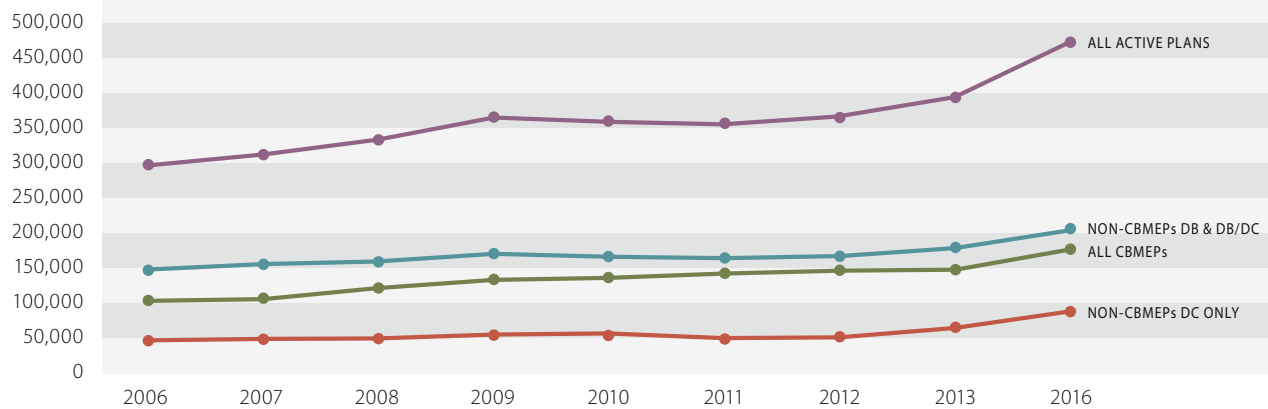


Key Observations – There has been little change in the total number of active plans registered in Alberta under the *Employment Pension Plans Act* over the 10 year period ending December 31, 2016. The number of Defined Benefit (DB) plans has decreased from the **200** range up to 2008 to the **150** range afterwards.

Table 2.2 – Number of Members in Active Plans by Benefit Type

| Report Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2016 |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| ALL ACTIVE PLANS | 299,562 | 315,347 | 335,065 | 364,509 | 362,341 | 358,165 | 367,977 | 395,424 | 473,032 |
| NON-CBMEPs DB & DB/DC | 148,051 | 158,354 | 161,805 | 172,939 | 168,436 | 164,798 | 167,391 | 179,870 | 204,588 |
| All CBMEPs | 104,502 | 107,888 | 120,332 | 135,663 | 137,276 | 143,158 | 146,405 | 149,086 | 177,959 |
| NON-CBMEPs DC | 47,009 | 49,105 | 52,928 | 55,907 | 56,629 | 50,209 | 54,181 | 66,468 | 90,485 |

Graph 2.2 – Number of Members in Active Plans by Benefit Type

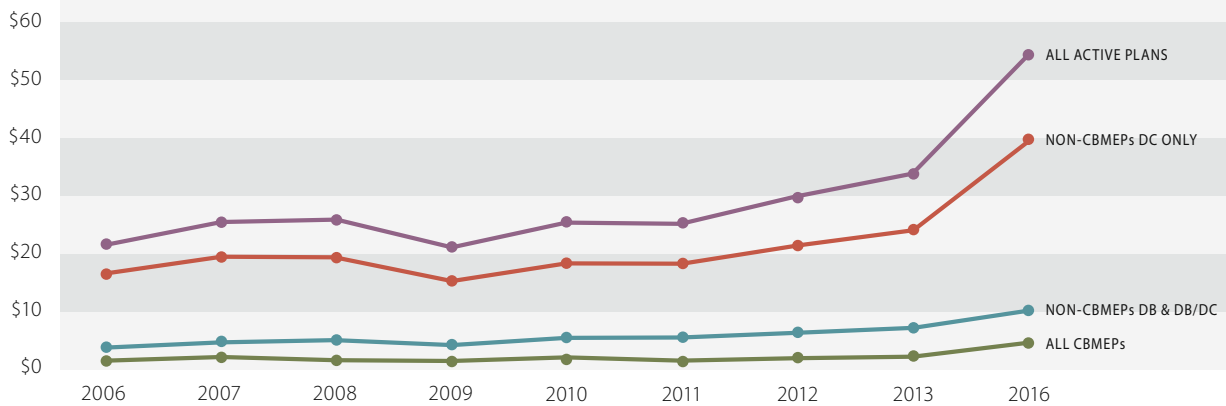


Key Observations – The number of active, retired and deferred members has steadily increased from 300,000 to 473,000, an increase of **60%**. Increases have occurred in all types of plans: 38% in DB plans, 70% in Collectively Bargained Multi-Employer Plans (CBMEPs) and 92% in Defined Contribution (DC) plans. DC plan membership, in spite of its growth of 92% still represents only 19% of total plan membership as of 2016, a small increase from the 16% as of 2006.

Table 2.3 – Market Value of Assets (Billions) in Active Plans by Benefit Type

| Report Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2016 |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| ALL ACTIVE PLANS | \$21.80 | \$25.58 | \$25.90 | \$21.18 | \$25.66 | \$25.40 | \$30.03 | \$33.83 | \$54.35 |
| NON-CBMEPs DB & DB/DC | \$16.60 | \$19.40 | \$19.50 | \$15.37 | \$18.60 | \$18.40 | \$21.42 | \$24.08 | \$39.87 |
| All CBMEPs | \$3.90 | \$4.50 | \$4.90 | \$4.46 | \$5.37 | \$5.37 | \$6.64 | \$7.43 | \$10.31 |
| NON-CBMEPs DC | \$1.30 | \$1.68 | \$1.50 | \$1.35 | \$1.69 | \$1.63 | \$1.97 | \$2.32 | \$4.17 |

Graph 2.3 – Market Value of Assets (Billions) in Active Plans by Benefit Type

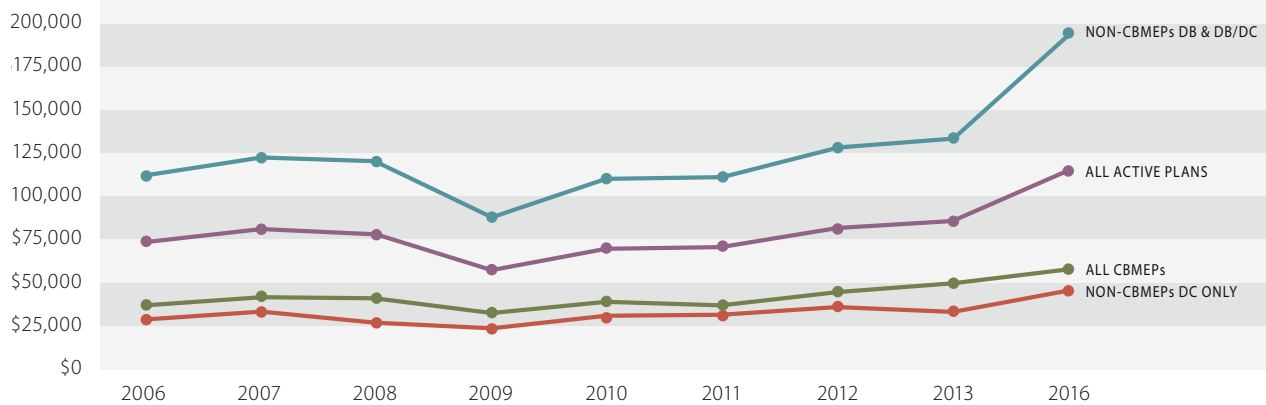


Key Observations – Assets have increased to \$54 billion over the decade, a **149%** increase. DB plans have increased by 140%; CBMEPs by 164% and DC plans by 221%.

Table 2.4 – Average Market Value of Assets per Plan Member in Active Plans by Benefit Type

| Report Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2016 |
|-----------------------|-----------|-----------|-----------|----------|-----------|-----------|-----------|-----------|-----------|
| NON-CBMEPs DB & DB/DC | \$112,100 | \$122,500 | \$120,500 | \$88,900 | \$110,400 | \$111,700 | \$128,000 | \$133,900 | \$194,900 |
| ALL ACTIVE PLANS | \$72,800 | \$81,100 | \$77,300 | \$58,100 | \$70,800 | \$70,900 | \$81,600 | \$85,600 | \$114,900 |
| All CBMEPs | \$37,300 | \$41,700 | \$40,700 | \$32,900 | \$39,100 | \$37,500 | \$45,400 | \$49,800 | \$57,900 |
| NON-CBMEPs DC | \$27,700 | \$34,200 | \$28,300 | \$24,100 | \$29,800 | \$32,500 | \$36,400 | \$34,900 | \$46,100 |

Graph 2.4 – Average Market Value of Assets per Plan Member in Active Plans by Benefit Type

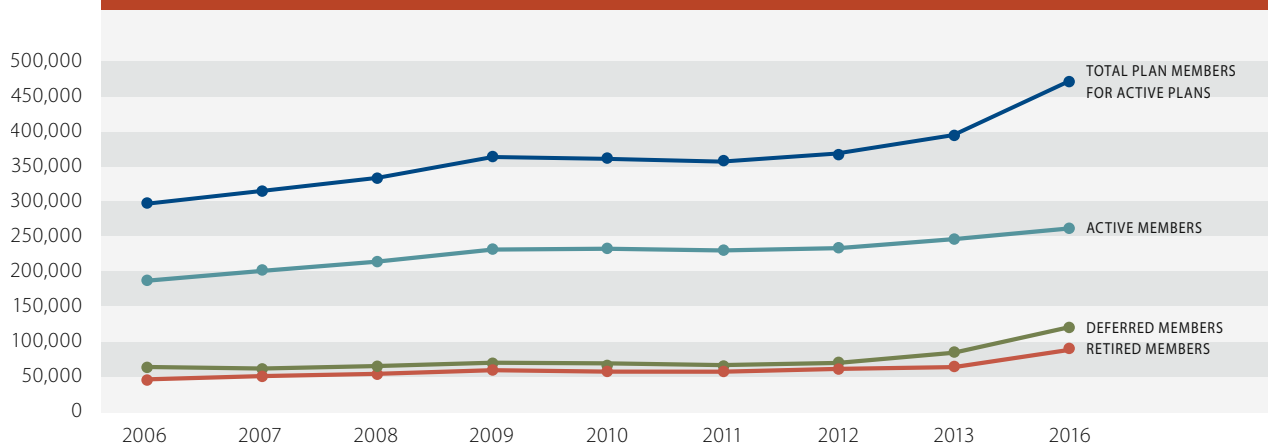


Key Observations – Assets per plan member have increased by **58%** to \$114,900 over the decade with DB plans having significantly more assets per member (\$194,900) than either CBMEP’s (\$57,900) or DC plans (\$46,100).

Table 2.5 – Number of Members in Active Plans by Type of Membership

| Report Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2016 |
|-------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| TOTAL PLAN MEMBERS FOR ACTIVE PLANS | 299,562 | 315,347 | 335,065 | 364,509 | 362,341 | 358,165 | 367,977 | 395,424 | 473,032 |
| ACTIVE MEMBERS | 189,479 | 201,604 | 215,134 | 233,970 | 234,290 | 232,486 | 236,074 | 246,799 | 262,658 |
| DEFERRED MEMBERS | 64,589 | 61,711 | 65,129 | 69,318 | 67,953 | 66,813 | 70,105 | 83,826 | 121,463 |
| RETIRED MEMBERS | 45,494 | 52,032 | 54,802 | 61,221 | 60,098 | 58,866 | 61,798 | 64,799 | 88,911 |

Graph 2.5 – Number of Members in Active Plans by Type of Membership

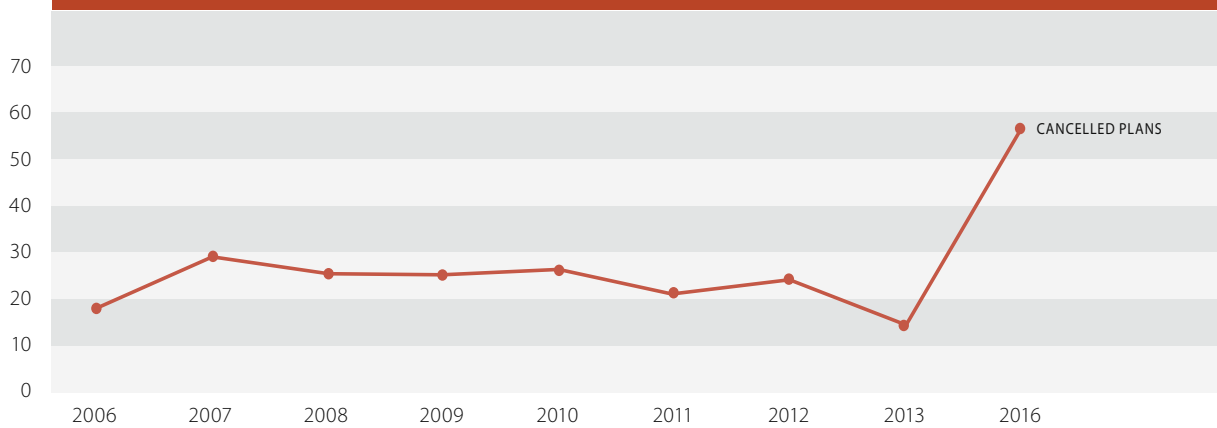


Key Observations – By type of member, Actives have increased by **39%**, Deferreds by **88%** and Retirees by **95%**.

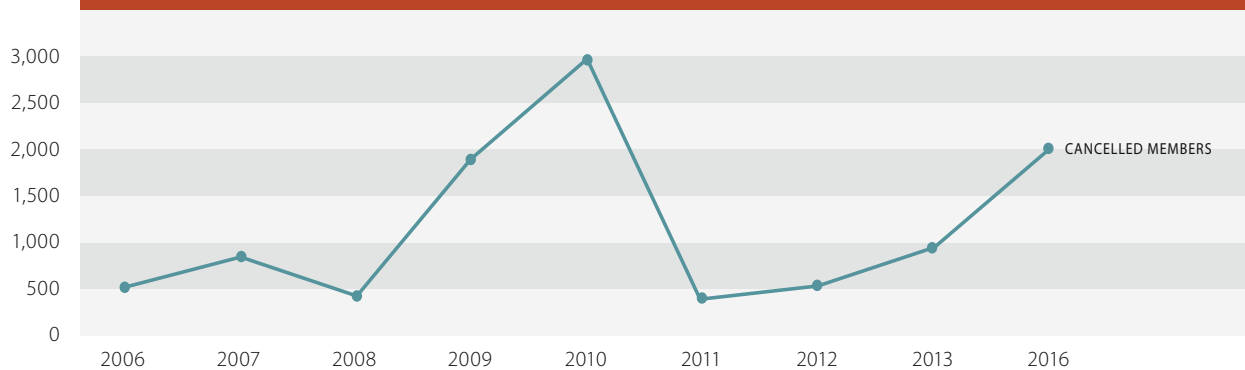
Table 2.6 – Number of Cancelled Plans and Members in the Report Year*

| Report Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2016 |
|-------------------|------|------|------|-------|-------|------|------|------|-------|
| CANCELLED PLANS | 18 | 29 | 25 | 25 | 26 | 21 | 24 | 14 | 56 |
| CANCELLED MEMBERS | 518 | 840 | 423 | 1,921 | 3,004 | 391 | 547 | 975 | 2,008 |

Graph 2.6 – Number of Cancelled Plans in the Report Year*



Graph 2.7 – Number of Cancelled Members in the Report Year*



*Excludes plans where members transferred to another registered pension plan.

Key Observations – There has been an increase in plan cancellations (excluding cancellations where the members were transferred to another plan) in 2016 compared to prior years, but the number of plan members affected in any year remain less than **1%**.

SECTION 3 – SUPERVISED PLANS

Plan Funds as at December 31, 2016

Contributions

Required contributions to pension plans before the application of forfeiture credits and excess assets for the year was **\$7.19** billion.

- This amount includes employee required contributions, employee voluntary contributions, employee optional ancillary contributions, employer current service contributions, and employer special payments to amortize solvency deficiencies and/or unfunded liabilities.
- Required employer contributions were about \$6.26 billion. Approximately \$191 million in required employer current service contributions were offset by using existing excess assets and forfeiture credits. This represents about 4.7% of total required employer current service contributions.
- Special payments in respect of solvency deficiencies were \$1.67 billion while special payments in respect of unfunded liabilities were \$537 million for total special payments of \$2.20 billion.
- Required employee contributions were about \$850 million with an additional \$82 million in employee voluntary and optional ancillary contributions.

The following table outlines contributions made during 2016.

| Table 3.1 – Contributions to Registered Pension Plans | | | |
|--|------------------------|------------------------|------------------------|
| Contribution Type | GROSS | OFFSET | NET |
| <i>Employee Contributions</i> | | | |
| Required | \$850,287,353 | | \$850,287,353 |
| Voluntary | \$37,846,074 | | \$37,846,074 |
| Optional Ancillary | \$43,828,235 | | \$43,828,235 |
| Sub-Total Employee Contributions | \$931,961,662 | | \$931,961,662 |
| <i>Employer Contributions</i> | | | |
| Current Service | \$3,798,407,440 | | \$3,798,407,440 |
| Contingency Reserve | \$254,582,995 | | \$254,582,995 |
| Forfeitures Used to Offset | | (\$28,533,259) | (\$28,533,259) |
| Excess Assets Used to Offset | | (\$162,218,458) | (\$162,218,458) |
| Sub-Total Employer Contributions | \$4,052,990,435 | (\$190,751,717) | \$3,862,238,718 |
| <i>Employer Special Payments</i> | | | |
| Unfunded Liability Payments | \$537,934,752 | | \$537,934,752 |
| Solvency Deficiency Payments | \$1,666,527,173 | | \$1,666,527,173 |
| Sub-Total Employer Special Payments | \$2,204,461,925 | | \$2,204,461,925 |
| Sub-Total Employee Contributions | \$931,961,662 | | \$931,961,662 |
| Sub-Total Employer Contributions and Special Payments | \$6,257,452,360 | (\$190,751,717) | \$6,066,700,643 |
| TOTAL EMPLOYEE AND EMPLOYER | \$7,189,414,022 | (\$190,751,717) | \$6,998,662,305 |

Plan Information as at December 31, 2016

Active Members

A total of **663** active and suspended pension plans covering 262,658 active members were supervised by the Superintendent's Office as of December 31, 2016.

- **390** pension plans with 100 active members or less (totaling 12,307 members) accounted for 61.6% of all registered pension plans and 4.7% of all active members.

The following table provides a full breakdown of plans by membership size.

| Membership Range | Number of Plans | Number of Members |
|-------------------------|------------------------|--------------------------|
| 0 - 100 | 390 | 12,307 |
| 101 - 500 | 146 | 30,991 |
| 501 - 1,000 | 37 | 27,599 |
| 1,001 - 5,000 | 47 | 84,125 |
| 5,001 - 15,000 | 13 | 107,636 |
| TOTAL | 633 | 262,658 |

Jurisdictions

Of the active and suspended plans, **84.7%** of members were employed in Alberta and 5.1% of members were employed in Ontario – the second largest province of employment.

The remaining 10.2% were employed in the other provinces and territories. A small number of members were employed outside Canada.

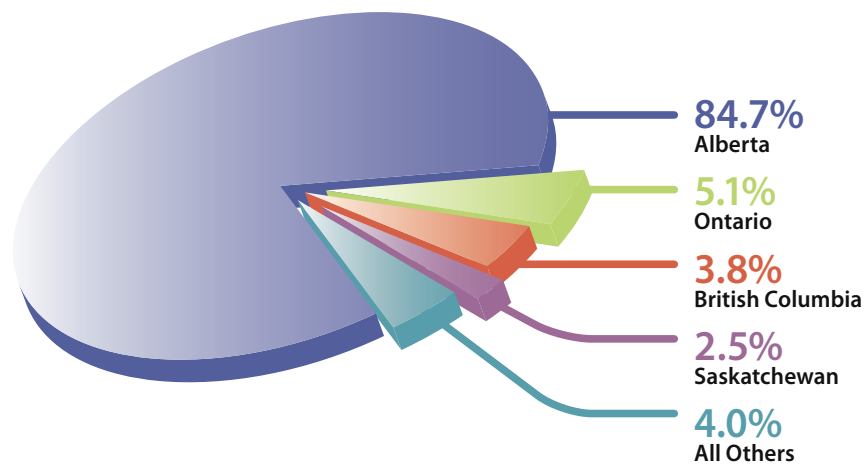
Note that these figures do not include the thousands of Albertans who are members of pension plans registered in other jurisdictions or in the Alberta public sector plans that are not registered under the *EPPA*.

The following table lists the number of plans and the breakdown of membership in each jurisdiction. There is some overlap, as some plans had members in several jurisdictions. The accompanying graph is a province-by-province comparison of percentages of members.

Table 3.3 – Active Membership by Jurisdiction

| Jurisdiction | Percentage of Members (%) | Number of Plans | Number of Members |
|-----------------------|---------------------------|-----------------|-------------------|
| Alberta | 84.71% | 618 | 222,503 |
| Ontario | 5.05% | 112 | 13,255 |
| British Columbia | 3.78% | 133 | 9,930 |
| Saskatchewan | 2.51% | 108 | 6,593 |
| Manitoba | 1.22% | 72 | 3,193 |
| Newfoundland | 0.99% | 31 | 2,594 |
| Quebec | 0.64% | 49 | 1,682 |
| New Brunswick | 0.44% | 20 | 1,151 |
| Nova Scotia | 0.38% | 39 | 1,005 |
| Northwest Territories | 0.13% | 15 | 343 |
| Outside Canada | 0.11% | 21 | 286 |
| Yukon Territory | 0.04% | 7 | 101 |
| Prince Edward Island | 0.01% | 5 | 22 |
| Nunavut | 0.00% | 0 | 0 |
| TOTAL | 100.00 | 1,230 | 262,658 |

Graph 3.1 – Distribution of Active Members by Jurisdiction



Funding and Solvency as at December 31, 2016

The balance of Section 3 deals nearly entirely with DB provisions, so the three CBMEPs with DC only provisions have been included with the rest of the DC plans - this differs from Section 2 where it was useful for trending purposes to include all the CBMEPs in one group.

Assets

The market value of assets of active and suspended pension plans registered in Alberta as of December 31, 2016 was about **\$54.35 billion**.

- The market value of assets attributable to plans with only DC provisions was about \$4.17 billion.
- The market value of assets attributable to pension plans with DB provisions (excluding CBMEPs) was about \$39.87 billion.
- The market value of assets attributable to CBMEPs was about \$10.31 billion.
- The per-member market value of assets was approximately:
 - \$46,100 for members and former members under a DC provision;
 - \$194,900 for members and former members under a DB provision; and
 - \$57,900 for members and former members under a CBMEP.
- Average market value of assets per plan were approximately:
 - \$9.25 million for DC provisions;
 - \$249.18 million for DB provisions; and
 - \$468.53 million for CBMEPs.
- The difference in assets among the types of plans is explained by the few very large DB plans and CBMEPs versus a large number of small DC plans.
- Where appropriate, this report has separated the 24 CBMEP plans from the remainder of the plans registered with our office.

The following table gives a breakdown of total assets and average assets by plan type.

| Type of Plan | Number of Plans | Number of Members | | Total Market Assets (Thousands) | Average Assets Per Plan (Thousands) | Average Assets Per Member ¹ |
|---------------|-----------------|-------------------|----------------|---------------------------------|-------------------------------------|--|
| | | Active | Total | | | |
| DB CBMEPs | 22 | 82,120 | 177,959 | 10,307,691 | 468,531 | 57,922 |
| DB ALL OTHERS | 160 | 109,032 | 204,588 | 39,868,084 | 249,176 | 194,870 |
| ALL DC ONLY | 451 | 71,506 | 90,485 | 4,172,714 | 9,252 | 46,115 |
| TOTAL | 633 | 262,658 | 473,032 | 54,348,490 | 85,859 | 114,894 |

¹ Based on total number of members (i.e., active, deferred and pensioners).

The data up to this point of Section 3 was extracted from the most recent filed **Annual Information Return** for each plan. The data is for all plan members (active, deferred and retired) and for all types of benefit provisions (defined contribution and defined benefit) so the totality of membership and assets for active and suspended plans have been represented.

Liabilities

The balance of Section 3 excludes all DC plans and any data from DC provisions that may exist in DB plans. From this point forward, the data shown relates only to DB plan membership that was extracted from the most recent **Actuarial Valuation Report (AVR)** filed for each plan. The AVR for a DB plan is filed at least once every three years, but some plans file annually or every two years. As a result, any differences in numbers (such as membership) are not comparable to the number shown in the earlier part of Section 3 which is based on data from the latest filed **Annual Information Return**.

Going-Concern Basis

Going-concern liabilities for active and suspended DB pension plans averaged about \$213.1 million per plan and \$120,276 per member. The following table shows liabilities by plan type on a going-concern basis.

| Table 3.5 – Going-Concern Plan Liabilities by Plan Type | | | | | | |
|---|-----------------|----------------------|----------------|-----------------------|----------------------------------|------------------------------------|
| Type of Plan | Number of Plans | Number of DB Members | | Total Liability | Average Total Liability Per Plan | Average Total Liability Per Member |
| | | Active | Total | | | |
| DB Non-CBMEP | 160 | 63,883 | 147,603 | 30,204,247,521 | 188,776,547 | 204,632 |
| DB CBMEPs | 22 | 78,327 | 174,787 | 8,571,676,154 | 389,621,643 | 49,041 |
| TOTAL | 182 | 142,210 | 322,390 | 38,775,923,675 | 213,054,526 | 120,276 |

Termination Basis

Termination (solvency) liabilities for active and pending DB pension plans averaged about \$463.4 million per plan and \$261,596 per member. The following table shows liabilities by plan type on a termination basis.

| Table 3.6 – Solvency Liabilities by Plan Type | | | | | | |
|---|-----------------|----------------------|----------------|-----------------------|----------------------------------|------------------------------------|
| Type of Plan | Number of Plans | Number of DB Members | | Total Liability | Average Total Liability Per Plan | Average Total Liability Per Member |
| | | Active | Total | | | |
| DB Non-CBMEP | 160 | 63,883 | 147,603 | 35,855,321,202 | 224,095,758 | 242,917 |
| DB CBMEPs | 22 | 78,327 | 174,787 | 48,480,742,299 | 2,203,670,105 | 277,370 |
| TOTAL | 182 | 142,210 | 322,390 | 84,336,063,501 | 463,384,964 | 261,596 |

Unfunded Liabilities and Solvency Deficiencies

An unfunded liability exists when liabilities are greater than assets calculated on a going-concern basis (assuming the plan continues in operation). Such deficits must be amortized in 15 years or less.

A solvency deficiency exists when assets would be insufficient to cover all liabilities if the plan were to terminate as of the valuation date. However, because a solvency deficiency is a calculation of an amount requiring an accelerated amortization (five years), it includes credit for the first five years of unfunded liability special payments. Therefore, it is not a pure representation of the wind-up position of the plan. The solvency ratio is a better representation of the wind-up position as it excludes credit for future special payments.

Total unfunded liabilities were \$1.82 billion while solvency deficiencies totaled \$7.912 billion.

- 57 registered pension plans with DB provisions (excluding CBMEPs), covering 70,290 total members, had an unfunded liability.
- 115 plans with DB provisions (excluding CBMEPs), covering 115,824 total members, had a solvency deficiency.
- A total of 53 plans with DB provisions had *both* an unfunded liability and a solvency deficiency.
- four CBMEPs, covering 26,536 total members, had an unfunded liability.
- 19 CBMEPs, covering 165,730 total members, had a solvency deficiency.
- A total of four CBMEPs had *both* an unfunded liability and a solvency deficiency.

The following table outlines the unfunded liability and solvency deficiency by plan type.

| Table 3.7 – Unfunded Liability and Solvency Deficiency by Plan Type | | | | | |
|--|------------------------|----------------------|---|-------------------------|---------------------------|
| Type of Plan | Number of Plans | Total Members | Total Unfunded Liability or Deficiency | Average Per Plan | Average Per Member |
| <i>Unfunded Liability</i> | | | | | |
| DB | 57 | 70,920 | (1,643,285,093) | (28,829,563) | (23,171) |
| CBMEP | 4 | 26,536 | (174,186,900) | (43,546,725) | (6,564) |
| TOTAL | 61 | 97,456 | (1,817,471,993) | (29,794,623) | (18,649) |
| <i>Solvency Deficiency</i> | | | | | |
| DB | 115 | 115,824 | (5,201,328,397) | (45,228,943) | (44,907) |
| CBMEP | 19 | 165,730 | (2,710,214,535) | (142,642,870) | (16,353) |
| TOTAL | 134 | 281,554 | (7,911,542,932) | (59,041,365) | (28,100) |

Assets in Excess of Liabilities

Going-Concern

- 103 plans with DB provisions (excluding CBMEPs), covering a total of 76,683 members, had plan assets in excess of their plan liabilities on a going-concern basis.
- 18 CBMEPs, covering a total of 48,251 members, had plan assets in excess of their plan liabilities on a going-concern basis.

Solvency

- 45 plans with DB provisions (excluding CBMEPs), covering a total of 231,779 members, had plan assets in excess of their plan liabilities on a solvency basis.
- Three CBMEPs, covering a total of 9,057 members, had plan assets in excess of their plan liabilities on a solvency basis.

The following table provides further information on plans with excess assets on either a going-concern or solvency basis.

| Table 3.8 – Assets in Excess of Liabilities by Plan Type | | | | |
|--|-----------------|----------------|------------------------------------|-------------------|
| Type of Plan | Number of Plans | Total Members | Total Assets Exceeding Liabilities | Average Per Plan |
| <i>Going Concern</i> | | | | |
| DB | 103 | 76,683 | 1,026,678,366 | 9,967,751 |
| CBMEP | 18 | 148,251 | 1,108,845,679 | 61,602,538 |
| TOTAL | 121 | 224,934 | 2,135,524,045 | 17,648,959 |
| <i>Solvency</i> | | | | |
| DB | 45 | 31,779 | 235,429,907 | 5,231,776 |
| CBMEP | 3 | 9,057 | 48,144,000 | 16,048,000 |
| TOTAL | 48 | 40,836 | 283,573,907 | 5,907,790 |

Going Concern and Solvency Ratios

Going Concern Funded Ratio

- **Of the plans with defined benefits, excluding CBMEPs:**
 - 64.4% had a funded ratio of 1.00 or better;
 - 30.0% had a funded ratio between 0.85 and 1.00;
 - 5.6% had a funded ratio of less than 0.85; and
 - the asset-weighted average funded ratio was 1.00.
- **Of the CBMEPs:**
 - 81.8% had a funded ratio of 1.00 or better;
 - 18.2% had a funded ratio between 0.85 and 1.00;
 - 0% had a funded ratio of less than 0.85; and
 - the asset-weighted average funded ratio was 1.13.

Solvency Ratio

• Of the plans with defined benefits, excluding CBMEPs:

- 24.4% had a solvency ratio of 1.00 or better;
- 50.6% had a solvency ratio between 0.85 and 1.00;
- 25.0% had a solvency ratio of less than 0.85; and
- the asset-weighted average solvency ratio was 0.89.

• Of the CBMEPs:

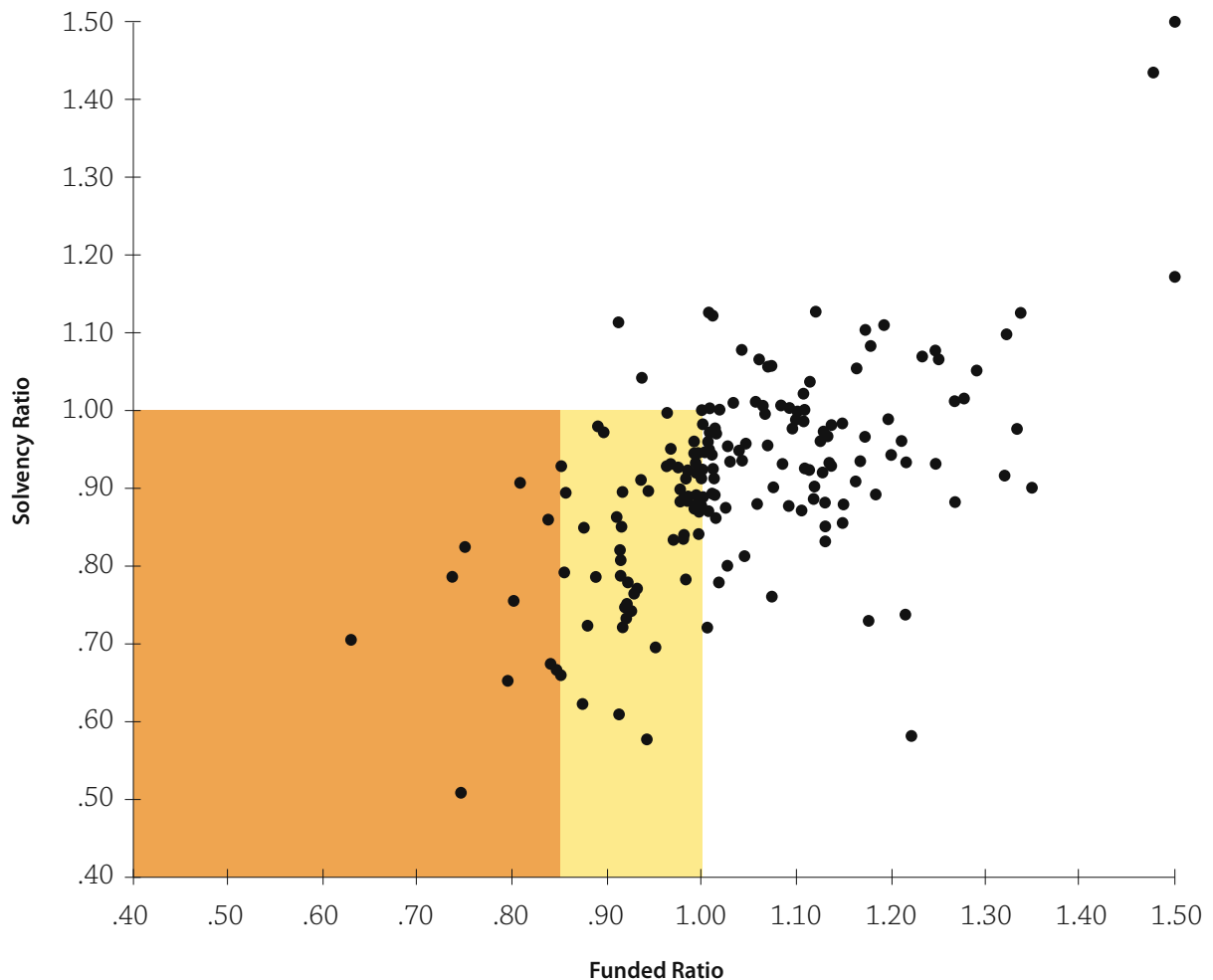
- 13.6% had a solvency ratio of 1.00 or better;
- 22.7% had a solvency ratio between 0.85 and 1.00;
- 63.6% had a solvency ratio of less than 0.85; and
- the asset-weighted average solvency ratio was 0.81.

A total of 10 plans with defined benefits are exempt from making solvency payments because they are classified as a publicly funded plan.

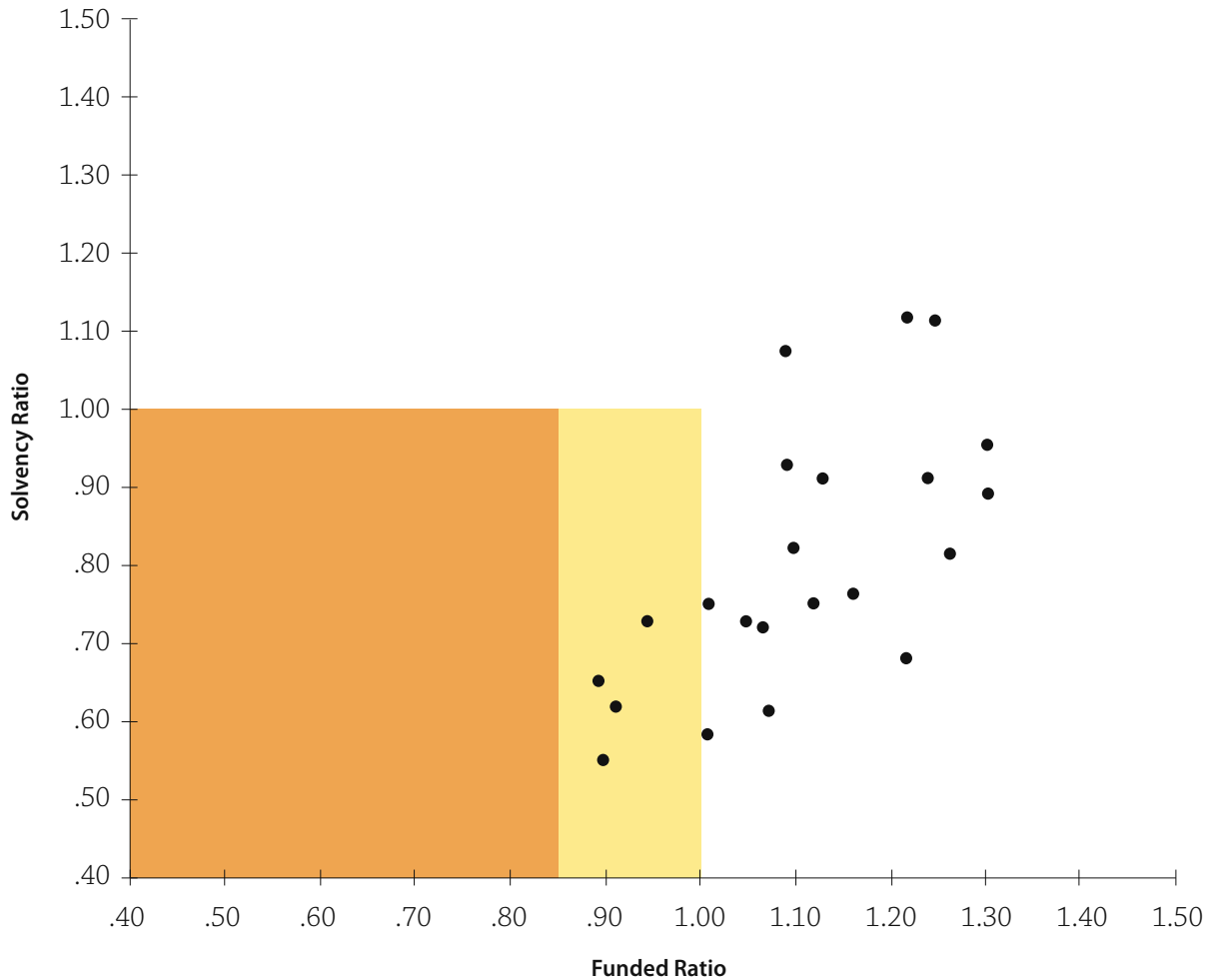
A total of 19 CBMEPs applied for and were granted an exemption from making solvency payments. Three CBMEPs and 89 other DB plans were granted extensions to the solvency amortization period.

The following two graphs illustrate the funded and solvency ratios for plans with DB provisions (except CBMEPs) and CBMEPs with DB provisions only, respectively.

Graph 3.2 – Funded Ratio vs. Solvency Ratio for Plans with DB Provisions (Except CBMEPs)



Graph 3.3 – Funded Ratio vs. Solvency Ratio for CBMEPs



Actuarial Assumptions as at December 31, 2016

Asset Valuation Method

Market value of plan assets was the most popular method for determining the value of the assets of a pension plan.

- The majority of plans, 78%, used market; another 21.5% used an average/adjusted market value.
- The remaining 0.5% of plans used book value or adjusted book, a blend of book and market value, or used other methods for valuing the actuarial value of assets of the pension plan.

The following table summarizes asset valuation method by plan type.

Table 3.9 – Asset Valuation Method

| Type of Plan | DB | | CBMEP | | ALL |
|--|------------|---------------|-----------|---------------|------------|
| | # | % | # | % | |
| Adjusted/Average Market (includes smoothing) | 33 | 20.6% | 6 | 27.3% | 39 |
| Market Value (includes adjustments for payables/receivables) | 126 | 78.8% | 16 | 72.7% | 142 |
| Other (specify) | 0 | 0.0% | 0 | 0.0% | 0 |
| Book Value | 1 | 0.6% | 0 | 0.0% | 1 |
| TOTAL | 160 | 100.0% | 22 | 100.0% | 182 |

Mortality Tables and Withdrawal Rates

DB Provisions (Non-CBMEPs)

The CPM 2014 (Canadian Pensioner Mortality) was used by **90.6%** of pension plans with DB provisions. Another 7.5% used the UP 94 (GAM 94 without margins) table and 1.9% used the GAM 83 (adjusted) table. The remaining 1.2% of the plans used either a true sample mortality or some other mortality table.

CBMEPs

The CPM 2014 (Canadian Pensioner Mortality) was used by **98.1%** of CBMEPs and the other 1.9% used the UP 94 (GAM 94 without margins) table.

The percentage of plans using a withdrawal assumption was 51.3%.

Interest Rate Assumptions

A long-term interest assumption of **6.5%** or less was used by all but two plans, as shown by the following table.

| Table 3.10 – Interest Assumptions | | | |
|--|-------------------------|-----------------------|---------------------|
| Rate (%) | DB Pension Plans | CBMEP DB Plans | All DB Plans |
| More than 6.5 | 2 | 0 | 2 |
| 6.26 - 6.5 | 2 | 3 | 5 |
| 6.01 - 6.25 | 0 | 0 | 0 |
| 5.76 - 6 | 22 | 3 | 25 |
| 5.51 - 5.75 | 17 | 6 | 23 |
| 5.26 - 5.5 | 37 | 5 | 42 |
| 5.01 - 5.25 | 18 | 2 | 20 |
| 4.76 - 5 | 27 | 2 | 29 |
| 4.51 - 4.75 | 7 | 0 | 7 |
| 4.26 - 4.5 | 5 | 0 | 5 |
| 4.01 - 4.25 | 2 | 0 | 2 |
| 3.76 - 4 | 6 | 0 | 6 |
| 3.51 - 3.75 | 3 | 0 | 3 |
| 3.26 - 3.5 | 4 | 0 | 4 |
| 3 - 3.25 | 3 | 0 | 3 |
| Less than 3 | 5 | 1 | 6 |
| TOTAL | 160 | 22 | 182 |

Salary Assumptions

A total of **114** pension plans with DB provisions used a salary escalation assumption as shown in the following table. The salary escalation assumption is the sum of inflation, productivity, and merit assumptions.

| Table 3.11 – Salary Escalation Assumptions | |
|---|---------------------------|
| Rate (%) | Number of DB Plans |
| More than 5.5 | 3 |
| 5.26 - 5.5 | 4 |
| 5.01 - 5.25 | 3 |
| 4.76 - 5 | 3 |
| 4.51 - 4.75 | 3 |
| 4.26 - 4.5 | 3 |
| 4.01 - 4.25 | 2 |
| 3.76 - 4 | 13 |
| 3.51 - 3.75 | 9 |
| 3.26 - 3.5 | 25 |
| 3.01 - 3.25 | 14 |
| 2.76 - 3 | 28 |
| 2.51 - 2.75 | 0 |
| 2.25 - 2.5 | 4 |
| 0 | 46 |
| TOTAL | 114 |

Salary – Interest Differential Assumptions

The following table shows the amount by which the interest assumption exceeded the salary escalation assumption in DB pension plans that used a salary escalation assumption.

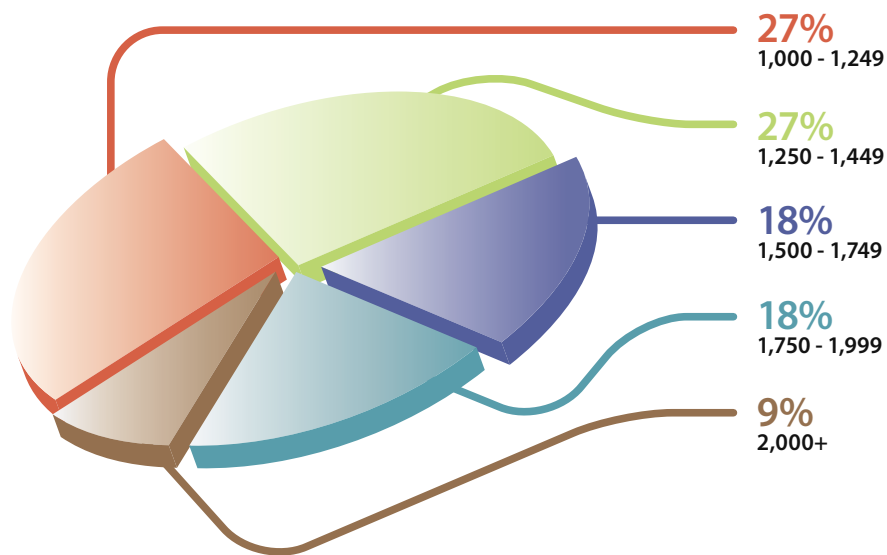
| Rate (%) | Number of DB Plans |
|-----------------|---------------------------|
| 3.01 or Higher | 1 |
| 2.76 - 3.00 | 5 |
| 2.51 - 2.75 | 4 |
| 2.26 - 2.50 | 14 |
| 2.01 - 2.25 | 11 |
| 1.76 - 2.00 | 24 |
| 1.51 - 1.75 | 10 |
| 1.26 - 1.50 | 11 |
| 1.01 - 1.25 | 4 |
| 0.76 - 1.00 | 7 |
| 0.51 - 0.75 | 4 |
| 0.26 - 0.50 | 4 |
| 0.01 - 0.25 | 13 |
| 0.00 or Less | 2 |
| Total | 114 |

Hours Worked Assumptions

The final assumption surveyed was average hours worked by a member in a plan year, which applies only to CBMEPs with DB provisions.

The following graph shows a breakdown of the hours worked assumption used by plans and the number of active members assumed by the actuary in completing the valuation report. The unweighted mean average hours per plan is 1,513.

Graph 3.5 – Average Hours of Work per Member Assumption for CBMEPs





Alberta

The Office of the Superintendent of Pensions is a branch of Financial Sector Regulation and Policy, a division of Alberta Treasury Board and Finance.

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