
**2015 Report on the
Funding of Defined Benefit Pension Plans in Ontario**

*Overview and Selected Findings
2012-2015*

Financial Services Commission of Ontario

April 2016

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2015 Report on the Funding of Defined Benefit Pension Plans in Ontario

Overview and Selected Findings 2012-2015

1.0 INTRODUCTION

The Financial Services Commission of Ontario (FSCO) is an agency of the Ministry of Finance that regulates Ontario registered pension plans in accordance with the Pension Benefits Act (PBA) and Regulation 909, as amended (Regulation).

FSCO has prepared this report to provide pension stakeholders with up-to-date funding, investment and actuarial information related to defined benefit (DB) pension plans in Ontario. The information is presented on an aggregate basis for the pension plans included in the study and there is no disclosure of plan-specific information. Except for the trends analysis in Section 4, the report is based on the latest filed valuation reports for DB pension plans that have valuation dates between July 1, 2012 and June 30, 2015, and financial statements for the fiscal year ending between July 1, 2014 and June 30, 2015. For the purposes of the trends analysis, data was drawn from the reports filed for DB pension plans with valuation dates between July 1, 2011 and June 30, 2015.

1.1 Risk-Based Monitoring

FSCO began its risk-based approach to monitor the funding and investment of DB pension plans by collecting key actuarial and financial data through the Actuarial Information Summary (AIS).¹ To broaden this approach, FSCO later implemented the collection of financial and investment data through the Investment Information Summary (IIS). The information available through these reports is used to create a database, and a selective risk-based review system is used to identify individual reports for compliance reviews.

In order to implement a more comprehensive and integrated approach towards assessing pension plan risks, FSCO initiated the Enhanced Risk-Based Regulation (RBR) Project. The first phase of the project was the development of a RBR framework so that consistent principles could be applied to the development of FSCO's pension regulatory processes and activities. The framework was finalized in the fall of 2011.

As part of the framework, FSCO identified five broad risk categories on which it would focus: Funding, Investment, Administration, Governance, and Sponsor/Industry. Within each of the risk categories, FSCO identifies certain risk indicators/factors in a system-based Risk Indicator Tool

¹ The AIS is a standardized form, developed jointly by FSCO, the Canada Revenue Agency, Financial and Consumer Affairs Authority of Saskatchewan, and the Régie des rentes du Québec. It is required to be completed by an actuary and filed with FSCO in conjunction with a funding valuation report.

(RIT), to help prioritize which plans should be selected for a more detailed risk assessment through a Tier 1 or Tier 2 review.

Between 2012 and 2014, FSCO conducted several pilot projects to refine the RIT and Tier 1 review. These projects yielded valuable information on how FSCO could perform a more holistic risk review of pension plans. Driven by the experience from the pilot projects, FSCO continues towards the full implementation of the RBR framework by adopting the structure, roles and responsibilities, processes and measures to cement FSCO's risk-based approach to the regulation of pension plans.

1.2 Funding Relief Measures

1. In August 2007, Ontario introduced changes to the funding rules in the Regulation for multi-employer pension plans (MEPPs). The Regulation provides temporary funding relief for Specified Ontario Multi-Employer Pension Plans (SOMEPPs) that filed reports with valuation dates on or after September 1, 2007 and before September 1, 2010. The end date for this temporary funding relief was extended twice – once to September 1, 2012 and then to September 1, 2017. During this period, a SOMEPP is exempt from the requirement to fund on a solvency basis.
2. In June 2009, the Regulation was amended to provide temporary solvency funding relief for other Ontario registered DB pension plans meeting certain eligibility conditions. The temporary solvency funding relief measures are effective with the first filed report with a valuation date on or after September 30, 2008 and before September 30, 2011 (solvency relief report).

These measures provide for:

- the deferral of special payments required to liquidate any new going concern and new solvency deficiency for up to 12 months;
- the consolidation of existing solvency special payments into a new five-year payment schedule; and
- the extension of the period for liquidating a new solvency deficiency from five years to a maximum of 10 years, with member consent.

In November 2012, the Regulation was amended to continue providing temporary solvency relief for eligible Ontario-registered DB pension plans. These temporary solvency funding relief measures apply to the first filed report with a valuation date on or after September 30, 2011 and before September 30, 2014. The relief measures are similar to the ones provided in the June 2009 amendment and include the option of consolidating existing solvency special payments into a new five-year payment schedule, and allowing new solvency deficiencies to be amortized over 10 years instead of five years, with member consent. In addition, the Regulation has been amended to generally allow all plans to defer, for up to one year, the start of special payments required to liquidate a new going concern unfunded liability or new solvency deficiency.

3. In May 2011, the Ontario government implemented changes that would provide solvency funding relief to certain pension plans in the public sector and broader public sector. The funding relief is to be provided in two stages over a number of years. Those pension plans that meet the criteria for temporary Stage 1 solvency funding relief are named in Schedule 1 of Ontario Regulation 178/11. Similarly, those pension plans that meet the criteria for temporary Stage 2 solvency funding relief will be named in Schedule 2 of Regulation 178/11. The substantive relief measures are outlined in Regulation 178/11. Eligibility criteria, the application process and additional conditions as well as examples of steps that eligible pension plans could take and the measurement of financial impacts are not part of the regulation, but are outlined in a [technical paper](#) issued by the Ministry of Finance.²
4. In November 2015, new regulation was filed to provide additional solvency funding relief for certain public sector pension plans. Previously, pension plans in Stage 2 of the broader public sector solvency funding relief program were able to make interest only payments for the first three years in Stage 2 and amortize the balance of their Stage 2 solvency deficit over the remaining seven years. This option was only available to plans that entered Stage 2 on or before December 31, 2014. The amending regulation extended this option to all plans accepted to Stage 2.
5. In November 2015, the Ontario government released its [2015 Economic Outlook and Fiscal Review](#) (Economic Statement). According to the Economic Statement, the Ontario government intends to extend temporary solvency funding relief measures, as provided in 2009 and 2012, for an additional three years for the first valuation report filed starting on December 31, 2015.
6. The Economic Statement also announced that the government will expedite a review of the solvency funding rules.

This report contains additional details and summary statistics relating to the use of these relief measures.

1.3 DB Pension Plan Reporting

The AIS and IIS databases provide FSCO with the information it needs to compile relevant pension plan funding and investment data, and identify certain DB pension plan trends in Ontario. FSCO's 2015 Report is its 12th annual report on the funding and investment of DB pension plans in Ontario.

² Details of framework and the technical paper can be found at:
<http://www.ontariocanada.com/registry/view.do?postingId=11343&language=en>

1.4 Key Findings

The 2015 Report's key findings are summarized below. It is important to note that the analyses of the funding data are based on actual information from reports filed with FSCO with valuation dates between July 1, 2012 and June 30, 2015. Therefore, the information is drawn from a three-year period and does not have a common date. This is in contrast to the projected solvency ratios which are estimates as at a common date.

Funding Data

1. The 1,283 pension plans included in our data had valuation dates of their last filed reports distributed as follows:

Valuation Date of Most Recently Filed Report

	July 1, 2012 to June 30, 2013	July 1, 2013 to June 30, 2014	July 1, 2014 to June 30, 2015	July 1, 2012 to June 30, 2015
Number of plans	74	949	260	1,283
Percentage of plans	6%	74%	20%	100%

2. Overall, the funded position of pension plans improved slightly compared to what was reported in the 2014 Report on the Funding of Defined Benefit Pension Plans in Ontario (the 2014 Report).³ In particular:
 - ❖ the median funded ratio on a *going concern* basis has increased from 105% to 106%, and
 - ❖ the median funded ratio on a *solvency* basis has increased from 92% to 93%.
3. Compared to the 2014 Report, there was a decrease in the percentage of plans that were less than fully funded both on a going concern and a solvency basis at their last valuation date. Specifically:
 - ❖ 31% of the plans were less than fully funded on a going concern basis (versus 36% in the 2014 Report), and
 - ❖ 75% of the plans were less than fully funded on a solvency basis (versus 77% in the 2014 Report).

³ FSCO's 2014 Annual Report on the Funding of Defined Benefit Pension Plans in Ontario is available at: <https://www.fSCO.gov.on.ca/en/pensions/actuarial/Documents/2014DBFundingReportv2.pdf>

4. Assumptions and methods for the going concern valuations continue to be quite uniform when compared to prior valuations. For example, the trend analysis shows that:
 - ❖ over 99% of the plans used the unit credit cost method (either with or without salary projections);
 - ❖ over 99% of the plans used either a market or smoothed market value of assets (72.7% used a market value, 27.1% used a smoothed market value and 0.2% used a book value);
 - ❖ the average interest rate assumption used for going concern valuations decreased from 5.52% to 5.12% over a four-year period, based on reports with valuation dates from July 1, 2011 to June 30, 2015. The reports included in our analysis with valuation dates between July 1, 2014 and June 30, 2015 showed that 94% used an interest rate at or below 6.0%; and
 - ❖ all of the plans with valuation dates between July 1, 2012 and June 30, 2015 used a mortality table with a base year of 1994 or later.

Projected Solvency Ratio as at December 31, 2015

In addition to looking at the actual information contained in the filed valuation reports, an estimate has been made of the projected solvency ratio for all the plans in aggregate as at a common date of December 31, 2015, in order to provide a snapshot of the estimated solvency funded status of pension plans at a more current date.

1. The median solvency ratio for pension plans was 93% based on valuation dates of the most recently filed reports (which cover a three-year period as previously noted). In comparison, the projected median solvency ratio as at December 31, 2014 and December 31, 2015 was estimated to be 88% and 83% respectively.
2. The projections use information contained in the most recently filed valuation reports and estimates the following elements to determine the estimated solvency ratio:
 - ❖ the investment returns based on an assumed representative pension plan asset mix;
 - ❖ the effect of changes in interest rates from the valuation date of each plan's report to the projection date; and
 - ❖ the required contributions specified in each plan's report.
3. The minimum required contributions for 2015, including employer normal cost, member required contributions and special payments, are estimated to decrease by 6% from \$8.4 billion for 2014 to \$7.9 billion for 2015.

Temporary Funding Relief Data

The statistics on the utilization of the temporary funding relief measures as of December 31, 2015 are as follows:

- ❖ Of the 72 MEPPs that contain a defined benefit provision, 49 plans have elected to be treated as a SOMEPP. These 49 MEPPs represent 93% of the total plan membership covered by the 72 MEPPs.
- ❖ The opportunity to elect temporary solvency funding relief introduced on June 23, 2009 has ended. The three permissible funding relief options were available only for the first filed report with a valuation date on or after September 30, 2008 and before September 30, 2011. [FSCO's 2013 Report](#) provides final statistics on the 2009 solvency relief.
- ❖ Effective November 1, 2012, the Regulation was amended to continue providing temporary solvency relief similar to the measures introduced in 2009. Of the 1,283 DB pension plans and 181 frozen DB plans that are in our data, 1,425 plans are eligible for the 2012 Solvency Funding Relief and have filed their solvency relief report under these provisions. Of these 1,425 eligible plans, 270 (21%) elected to use one or both of the available solvency funding relief options.
- ❖ In May 2011, the Ontario government implemented changes that would provide solvency funding relief to certain pension plans in the public sector and broader public sector. There were three windows of opportunity for eligible plans to apply for temporary solvency funding relief under these provisions. The third and final window for applications closed on December 31, 2012. There are 25 pension plans named in Schedule 1 and, as of March 2016, there are 18 pension plans named in Schedule 2 of Ontario Regulation 178/11.

Trends Analysis Data

The trend analysis shows a deterioration in the solvency ratios for valuation dates in the 12-month period ending June 30, 2015, compared with the solvency ratio reported in the previous 12-month period. The median solvency ratio in reports with valuation dates in the 12-month period ending June 30, 2015 is 86%. In comparison, the median solvency ratio for reports with valuation dates in the 12-month period ending June 30, 2013 and June 30, 2014 are 73% and 93% respectively.

Of the 260 pension plans that filed a report with a valuation date between July 1, 2014 and June 30, 2015, 125 (48%) have a solvency ratio of less than 85%. In comparison, the percentage of plans with a solvency ratio of less than 85% in the two 12-month periods ending June 30, 2013 and June 30, 2014 are 83% and 18% respectively.

Investment Data

1. The typical asset allocation of pension funds between fixed income and non-fixed income did not change significantly, but the allocation in alternative investments shows an increasing trend over time.
2. Large plans have higher average returns and lower investment fees than smaller plans.
3. MEPPs generally invested more of their pension funds in non-fixed income assets but did not achieve better performance than did single employer pension plans (SEPPs).
4. There do not seem to be significant differences in asset mix, average return and average investment fees between plans of different benefit types.

2.0 FUNDING DATA ANALYSIS

This section provides an analysis and summary of the funding data, including actuarial assumptions and methods, for DB pension plans with valuation dates between July 1, 2012 and June 30, 2015. The data was compiled from the AIS and valuation reports that FSCO received on or before the data cutoff date of December 31, 2015.

Generally, valuation reports must be filed once every three years on both a going concern and solvency basis. However, solvency concerns revealed in a valuation report require annual filing until solvency concerns no longer exist. Early filings may be required when events such as plan mergers, partial windups, or sales of businesses occur, and may also be done on a voluntary basis. Unless otherwise noted, the analysis in this report is based on data from a plan's most recently filed valuation report in order to avoid double counting.⁴

For the purposes of this report, the following plans are excluded in order to focus on the plans that are of most interest to our stakeholders and to ensure that the results of our analysis are not skewed:

- designated plans,
- plans where members are no longer accruing future DB or defined contribution (DC) benefits (referred to as frozen plans),
- seven large public sector plans, and
- plans that have been wound up or are in the process of winding up.

⁴ The Trends Analysis in Section 4 uses data from reports with valuation dates in the different periods and therefore may include more than one valuation report from a pension plan.

Table 2.1 presents a profile of the 1,283 pension plans that have been included in the database used for the funding data analysis. Additional details on the plans that were analyzed are in Section 8.0 of this report.

Table 2.1 - Summary of Included Plans

Plan/ Benefit Type	# of Plans	Active Members	Retired Members	Other Participants	Total Participants	Market Value of Assets (\$ Millions)
Final Average	366	131,223	91,848	36,281	259,352	56,018
Career Average	104	16,769	13,946	8,514	39,229	3,468
Flat Benefit	174	32,903	67,668	17,750	118,321	18,739
Hybrid	397	173,181	178,292	83,339	434,812	64,004
Frozen Hybrid	170	23,899	41,659	18,227	83,785	9,547
MEPP	72	384,351	115,135	400,171	899,657	26,422
Total	1,283	762,326	508,548	564,282	1,835,156	178,199
Average Age		49.93	70.92	48.86		

Table 2.2 summarizes the profiles of 181 frozen DB plans and seven large public sector plans that were excluded from the database. 69 plans that have wound up or are in the process of winding up have also been excluded from the database.

Table 2.2 - Summary of Excluded Plans

Plan Type	Plan Sub- Type	# of Plans	Active Members	Retired Members	Other Participants	Total Participants	Market Value Of Assets (\$ Millions)
Public Sector Pension Plans	Large Public Sector	7	758,044	438,218	153,268	1,349,530	325,088
	Average Age		45.17	71.29	53.83		
Frozen DB Plans	No Future DB/DC accruals	181	9,033	27,255	11,210	47,498	6,285
	Average Age		50.78	75.67	44.80		

2.1 Summary of Funding Data

Of the 1,283 plans that were analyzed, which together cover 1,835,156 plan members, 396 plans (31%) were less than fully funded on a going concern basis. These 396 underfunded plans cover 1,109,485 (60%) of the total plan members.

On a solvency basis, 957 plans (75%) of the 1,283 plans were less than fully funded and cover 1,585,471 plan members (86% of total members).

Tables 2.3a, 2.3b, 2.4a, and 2.4b show the distribution of underfunded plans by plan/benefit type and by membership.

Table 2.3a – Distribution of Underfunded Plans on a Going Concern Basis by Plan Type

Plan/Benefit Type	By Plan		
	Total Number of Plans	Number of Underfunded Plans	% of Total Plans by Plan/Benefit Type
Final Average	366	117	32%
Career Average	104	18	17%
Flat Benefit	174	29	17%
Hybrid	397	127	32%
Frozen Hybrid	170	66	39%
MEPP	72	39	54%
Total	1,283	396	31%

Table 2.3b – Distribution of Underfunded Plans on a Going Concern Basis by Membership

Plan/Benefit Type	By Membership		
	Total Number of Members	Number of Members in Underfunded Plans	% of Total Membership by Plan/Benefit Type
Final Average	259,352	137,184	53%
Career Average	39,229	5,620	14%
Flat Benefit	118,321	53,551	45%
Hybrid	434,812	136,873	31%
Frozen Hybrid	83,785	30,036	36%
MEPP	899,657	746,221	83%
Total	1,835,156	1,109,485	60%

Table 2.4a - Distribution of Underfunded Plans on a Solvency Basis by Plan Type

Plan/Benefit Type	By Plan		
	Total Number of Plans	Number of Underfunded Plans	% of Total Plans by Plan/Benefit Type
Final Average	366	258	70%
Career Average	104	86	83%
Flat Benefit	174	134	77%
Hybrid	397	284	72%
Frozen Hybrid	170	131	77%
MEPP	72	64	89%
Total	1,283	957	75%

Table 2.4b - Distribution of Underfunded Plans on a Solvency Basis by Membership

Plan/Benefit Type	By Membership		
	Total Number of Members	Number of Members in Underfunded Plans	% of Total Membership by Plan/Benefit Type
Final Average	259,352	197,318	76%
Career Average	39,229	35,825	91%
Flat Benefit	118,321	106,491	90%
Hybrid	434,812	305,802	70%
Frozen Hybrid	83,785	75,265	90%
MEPP	899,657	864,770	96%
Total	1,835,156	1,585,471	86%

Table 2.5 provides summary information grouped by plan maturity (as measured by the proportion of solvency liabilities relating to pensioners).

Table 2.5 – Funding Information Grouped By Maturity

Proportion of Solvency Liabilities relating to Pensioners	Number of Plans	Total Membership	Solvency Assets (\$ Millions)	Solvency Liabilities (\$ Millions)	Ratio of Solvency Assets to Solvency Liabilities	Ratio of Active Members to Pensioners
Less than 25%	233	238,882	11,637	13,523	86%	5.6 : 1
25% ≤ ratio < 50%	578	1,103,421	72,494	88,112	82%	2.4 : 1
50% ≤ ratio < 75%	379	342,569	57,731	62,601	92%	0.6 : 1
75% and over	93	150,284	35,838	40,428	89%	0.2 : 1
Total	1,283	1,835,156	177,699	204,664	87%	1.5 : 1

Tables 2.6 and 2.7 provide a more detailed breakdown of the going concern and solvency funded ratios with respect to different types of DB pension plans.

For all plans that were analyzed, the median funded ratios were 106% on a going concern basis and 93% on a solvency basis. Forty-eight (66.7%) of the 72 MEPPs had a solvency ratio of less than 85%. These 48 plans have approximately 835,550 active, retired and former members, which represent approximately 93% of the total MEPP membership.

Table 2.6 - Going Concern Funded Ratio

Funded Ratio (FR)	Final Average	Career Average	Flat Benefit	Hybrid	Frozen Hybrid	MEPP	All Plans
FR < 0.60	1	1	0	2	0	0	4
0.60 ≤ FR < 0.80	13	0	1	8	5	3	30
0.80 ≤ FR < 0.90	43	2	9	37	22	9	122
0.90 ≤ FR < 1.00	60	15	19	80	39	27	240
1.00 ≤ FR < 1.20	191	64	90	203	69	29	646
FR ≥ 1.20	58	22	55	67	35	4	241
Total	366	104	174	397	170	72	1,283
Median Ratio	1.05	1.08	1.10	1.05	1.00	1.00	1.06

Table 2.7 - Solvency Funded Ratio

Solvency Ratio (SR)	Final Average	Career Average	Flat Benefit	Hybrid	Frozen Hybrid	MEPP	All Plans
SR < 0.60	1	0	1	0	0	7	9
0.60 ≤ SR < 0.80	32	11	22	22	13	39	139
0.80 ≤ SR < 0.85	20	6	11	29	16	2	84
0.85 ≤ SR < 0.90	77	22	38	70	39	8	254
0.90 ≤ SR < 1.00	128	47	62	163	63	8	471
1.00 ≤ SR < 1.20	91	16	37	104	27	6	281
SR ≥ 1.20	17	2	3	9	12	2	45
Total	366	104	174	397	170	72	1,283
Median Ratio	0.94	0.91	0.90	0.94	0.92	0.76	0.93

2.2 Summary of Actuarial Assumptions and Methods

The key actuarial assumptions and methods used in going concern valuations are outlined below:

- Over 99% of the plans used the unit credit cost method (with salary projections for final average plans and hybrid plans with final average benefits) to calculate their going concern liabilities.

Table 2.8 - Liability Valuation Method

Liability Valuation Method	# of Plans	% of Plans
Unit Credit (with salary projection)	881	68.7%
Unit Credit (with no salary projection)	399	31.0%
Entry Age Normal	2	0.2%
Aggregate	1	0.1%
Total	1,283	100.0%

- Assets were most frequently valued using a market or market-related approach, with over 99% of the plans using either a market or smoothed market value.

Table 2.9 - Asset Valuation Method

Asset Valuation Method	# of Plans	% of Plans
Market	933	72.7%
Smoothed Market	348	27.1%
Book	2	0.2%
Total	1,283	100.0%

- For going concern valuations, all plans used a mortality table with a base year of 1994 or later. Approximately 89% of the plans have used mortality rates based on the Canadian Pensioners' Mortality tables (CPM-RPP2014) and improvement scales published in the Final Report, Canadian Pensioners' Mortality on February 13, 2014 by the Canadian Institute of Actuaries (CIA) (the 2014 CIA CPM Study).-The final report includes three new sets of mortality tables (collectively known as the CPM-RPP2014 tables) as well as two sets of improvement scales.

The three mortality tables are:

1. 2014 Mortality Table (CPM2014) - developed from the combined experience exhibited under the public and private sector plans included in the RPP Study;
2. 2014 Public Sector Mortality Table (CPM2014Publ) - based on the separate experience exhibited under the public sector plans included in the RPP Study; and
3. 2014 Private Sector Mortality Table (CPM2014Priv) - based on the separate experience exhibited under the private sector plans included in the RPP Study.

The AIS will be amended to identify the actual mortality table and projection scales used as well as any modifications thereof.

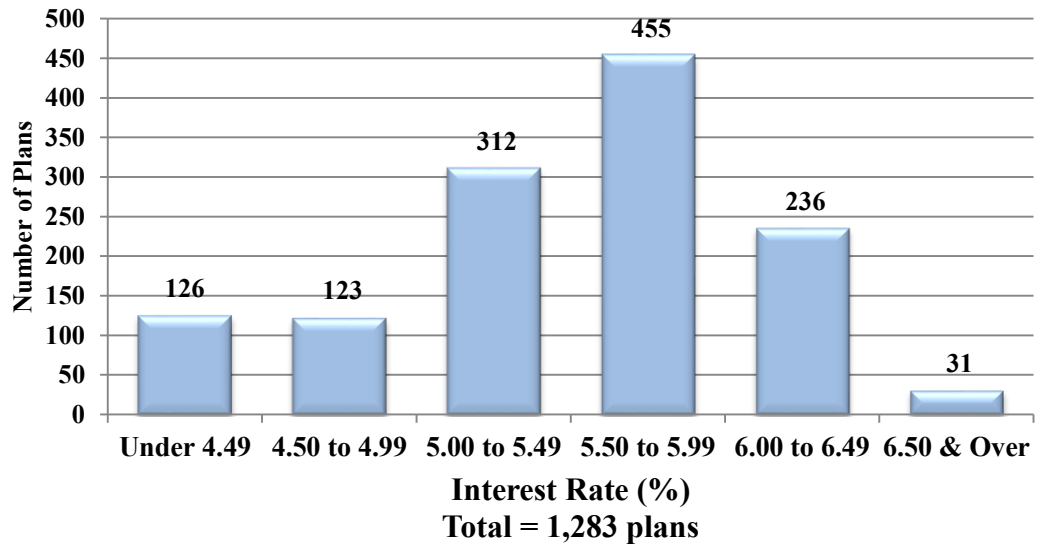
Table 2.10 - Mortality Assumption

Mortality Assumption	# of Plans	% of Plans
1994 GAM Static	1	0.1%
1994 GAR	2	0.2%
1994 UP	117	9.0%
1994 UP with variation	24	1.9%
CPM-RPP2014	1,138	88.7%
RP2000 or RP2000 with variation	1	0.1%
Total	1,283	100.0%

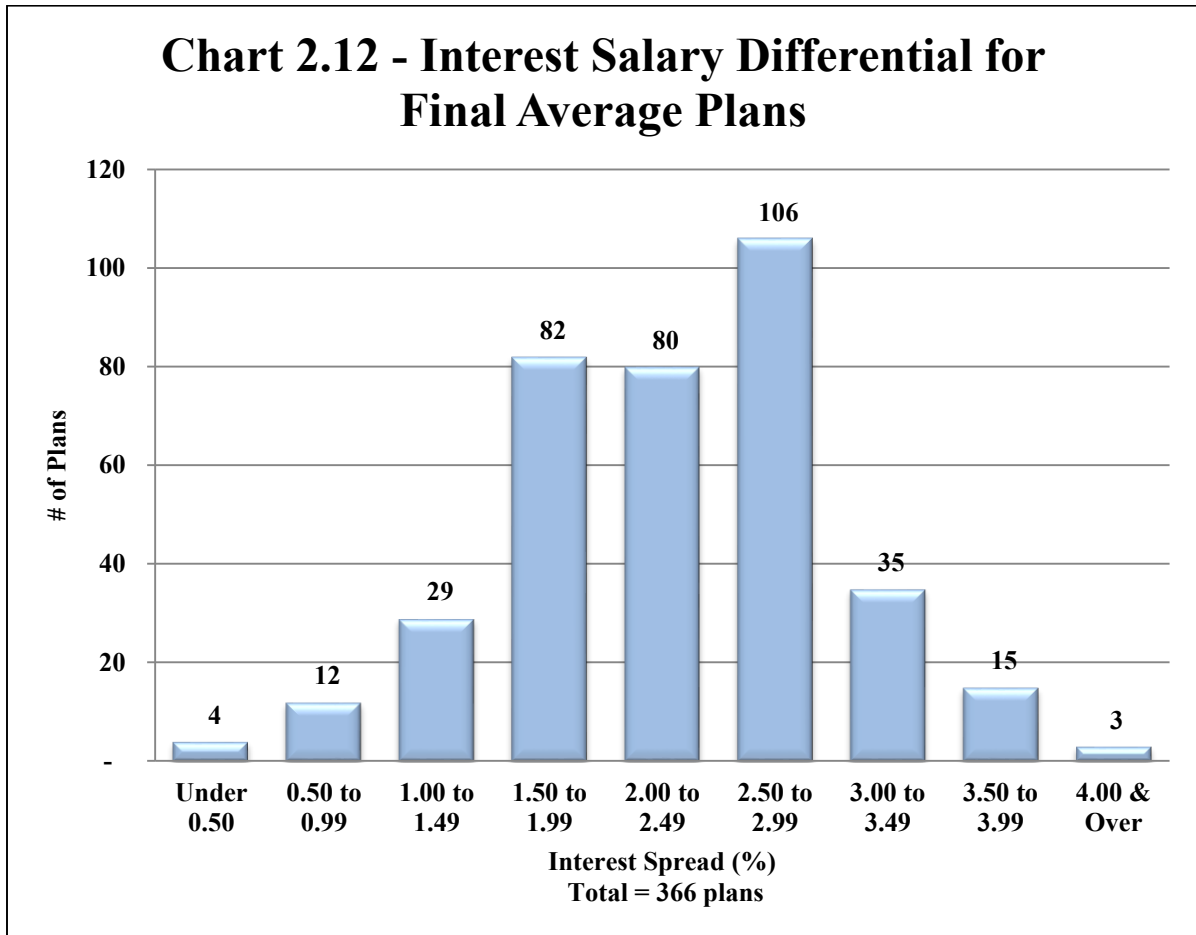
- Interest rate assumptions used to value the going concern liabilities were generally lower than in prior years, with approximately 94% of plans using a rate at or below 6.00%. Rates continued to fall within a relatively narrow range, with 74% of the plans using a rate between 5.0% and 6.0% inclusive.⁵

⁵ Of the 31 plans that used a going concern interest rate assumption of 6.50% or over, 26 plans used an interest rate of exactly 6.50%. Of the 236 plans that used a going concern interest rate assumption in the range of 6.00% to 6.49%, 187 plans used an interest rate of exactly 6.00%.

Chart 2.11 - Going Concern Interest Assumption



- For final average earnings plans, the difference between the interest assumption and the salary increase assumption used in going concern valuations, typically fell within a range of 1.5% to 3.0% inclusive. This accounts for 79% of all plans providing final average benefits.⁶ The average spread between the interest assumption and the salary increase assumption was 2.17%.



⁶ Of the 35 final average plans with an interest-salary differential in the range of 3.00% to 3.49%, 21 plans had an interest-salary differential of exactly 3.00%. Of the 106 final average plans with an interest-salary differential in the range of 2.50% to 2.99%, 44 plans had an interest-salary differential of exactly 2.50%. Of the 80 final average plans with an interest-salary differential in the range of 2.00% to 2.49%, 43 plans had an interest-salary differential of exactly 2.00%.

- Table 2.13 shows the provision for wind up expenses that was used in solvency valuations, grouped by plan membership size, including active members, former members and other plan beneficiaries.⁷ The expense allowance is also expressed as average dollar amounts per plan and per plan member. The average expense allowance per member generally decreases as plan membership size increases. The reverse pattern appears for plans with 10,000 or more members. Since there are only a small number of plans in the last two size categories (i.e., more than 5,000 members), greater caution should be exercised when interpreting the results for plans of this size.

The average per member wind up expense allowances are generally comparable to those reported in the 2014 Report, with slight increases for all plans in all plan membership ranges except for the 10,000 to 49,999 membership range where the average wind up expenses decreased slightly.

Table 2.13 - Provision for Wind Up Expenses

Plan Membership	Total Plans	Total Membership	Wind Up Expenses		
			Total WU Expenses	Average Per Plan	Average Per Member
<100	388	19,167	22,840,750	58,868	1,192
100-499	482	116,942	65,369,900	135,622	559
500-999	148	102,945	39,356,700	265,924	382
1,000-4,999	187	393,837	105,576,400	564,580	268
5,000-9,999	33	235,050	43,612,000	1,321,576	186
10,000-49,999	24	403,894	161,614,000	6,733,917	400
All Plans	1,262	1,271,835	438,369,750	347,361	345

3.0 TEMPORARY FUNDING RELIEF

This section provides membership and funding statistics, as well as the impact on funding costs for plans that used the temporary funding relief measures available under the PBA and Regulation.

3.1 Specified Ontario Multi-Employer Pension Plans (SOMEPPs)

For a MEPP that elects to be treated as a SOMEPP, the contributions to the plan must not be less than the sum of:

- the normal cost;
- the remaining special payments for any previously established going concern unfunded liability; and

⁷ For confidentiality reasons, the three plans each with more than 50,000 total membership were excluded from this analysis. Solvency valuations that did not explicitly disclose a provision for wind up expenses were also excluded from this analysis.

3.2 2009 Solvency Funding Relief

Effective June 23, 2009, and for a temporary period, the administrator of a plan that had met certain criteria may choose one or more of the following three funding relief options in the first filed report with a valuation date on or after September 30, 2008 and before September 30, 2011 (referred to herein as the 2009 solvency relief report):⁹

Option 1 - Defer, up to one year, the start of special payments required to liquidate any new going concern unfunded liability or new solvency deficiency determined in the 2009 solvency relief report.

Option 2 - Consolidate special payments for pre-existing solvency deficiencies into a new five-year payment schedule that starts on the valuation date of the 2009 solvency relief report.

Option 3 - With the consent of active and former members if the plan is not jointly governed, extend the period for liquidating the new solvency deficiency from five years to a maximum of 10 years.

The opportunity to elect temporary solvency funding relief introduced on June 23, 2009, has ended. [FSCO's 2013 Report](#) provides final statistics on the 2009 solvency relief.

3.3 2012 Solvency Funding Relief

Effective November 1, 2012, the Regulation was amended to continue providing temporary solvency relief for private sector pension plans that was introduced by the government in June 2009. The temporary solvency funding relief measures being provided in this amendment are similar to the measures introduced in 2009, and apply to the first filed report with a valuation date on or after September 30, 2011 and before September 30, 2014 (referred to herein as the 2012 solvency relief report). The measures include:

Option 4 - Consolidate existing special payments for solvency deficiencies into a new five-year payment schedule that starts on the valuation date of the 2012 solvency relief report; and

Option 5 - Extending the period for liquidating a new solvency deficiency determined in the report from a maximum of five years to a maximum of ten years, subject to the consent of the plan members.

There is no option corresponding to Option 1 from the 2009 funding relief measures, as the Regulation has been amended to permit all plans to defer, for up to one year, the start of special payments required to liquidate a new going concern unfunded liability or new solvency deficiency.

⁹ More information on temporary solvency funding measures is available at:

<https://www.fsrao.ca/temporary-solvency-funding-relief-measures>

Based on the valuation reports included in the database, a total of 235 eligible plans elected to use one or more of the 2012 funding relief options. In addition, 25 of the frozen DB plans described in Table 2.2 have also elected to use 2012 solvency funding relief. These 260 plans are referred to as the ‘2012 Electing Plans’ in this report. Our analysis omits two designated plans and eight wound up plans that elected 2012 solvency relief.

Because the election of 2012 solvency funding relief is based on the first report filed with a valuation date on or after September 30, 2011 and before September 30, 2014, the number of plans electing relief may increase for plans that have not filed a valuation report within the election period.

Table 3.3 shows the distribution of options chosen by the 2012 Electing Plans. As shown below, the use of Option 4 was the most prevalent choice, accounting for 73% of all plan elections. The next most common choice was the combination of Options 4 and 5, which accounted for 18% of plan elections. Of the 260 plans that elected various options under the 2012 solvency funding relief, 157 of those plans also made an election for solvency relief under the 2009 solvency funding relief options.

Table 3.3 - Distribution of 2012 Solvency Relief Options Elected

Election	Number of Plans	% of Plans	Previously Elected 2009 Solvency Relief
Option 4 only	189	73%	113
Option 5 only	24	9%	16
All Options	47	18%	28
Total	260	100%	157

Of the 1,283 DB pension plans and 181 frozen DB plans, there are 1,425 plans that are eligible for 2012 solvency funding relief and that have filed their 2012 solvency relief reports. Table 3.4 presents, for eligible plans that have filed their 2012 solvency relief reports, the percentage of plans that have elected to use one or more of the 2012 solvency funding relief options.

Table 3.4 – Percentage of Eligible Plans Electing 2012 Solvency Relief Options

	Number of Plans	Number of Eligible Plans That Have Filed 2012 Solvency Relief Report	2012 Electing Plans	
			Number of Plans	Percentage of Plans
Plans in database	1,283	1,248	235	19%
Frozen DB Plans	181	177	25	14%
Sub-Total	1,464	1,425	260	18%
Wound Up Plans			8	
Designated Plans			2	
Sub-Total			270	

Of the 1,425 eligible plans that have filed their 2012 solvency relief reports, 260 plans elected to use one or more of the 2012 solvency funding relief options

Tables 3.5 and 3.6 present a profile of the 2012 Electing Plans as at December 31, 2015.

Table 3.5 Membership Information for the 2012 Electing Plans

	Number of Plans	Membership Count			
		Active Members	Retired Members	Other Participants	Total
Plans in database	235	74,311	76,350	26,476	180,137
Frozen DB Plans	25	1,297	2,223	2,438	5,958
Total	260	75,608	78,573	31,914	186,095
Median		79	73	40	192

Table 3.6 Funding Information for the 2012 Electing Plans

	Number of Plans	Solvency Assets	Solvency Liabilities	Ratio of Solvency Assets to Solvency Liabilities
		(\$ Millions)		
Plans in database	235	25,247	28,724	87.9%
Frozen DB Plans	25	532	569	93.5%
Total Value	260	25,779	29,293	88.0%
Median Value		22	24	81.7%

In November 2015, the Ontario government released its [2015 Economic Outlook and Fiscal Review](#). According to the Economic Statement, the Ontario government intends to extend temporary solvency funding relief measures, as provided in 2009 and 2012, for an additional three years for the first valuation report filed starting on December 31, 2015.

3.4 Solvency Funding Relief for Broader Public Sector Pension Plans

In May 2011, the Ontario government implemented changes that would provide solvency funding relief to certain pension plans in the public sector and broader public sector. These changes were implemented by Ontario Regulation 178/11.

The funding relief is to be provided in two stages (referred to as Stage 1 and Stage 2):

- Stage 1 relief starts from the plan's Stage 1 valuation date which is set out in the Schedule to Ontario Regulation 178/11. It is a three-year period during which plans would be permitted to fund to a lower solvency standard with required minimum interest payments.
- At the end of Stage 1, each plan would be assessed by the Minister of Finance, based on technical measures, to determine whether sufficient progress had been made in meeting their sustainability commitments.

4.0 TRENDS ANALYSIS

The following trends analysis incorporates data from all filed reports with valuation dates between July 1, 2011 and June 30, 2015.

4.1 Solvency Funded Status

Table 4.1 shows a breakdown of plans by solvency ratios for the following valuation periods:¹⁰

- 2011 Valuation Period denotes valuation dates between July 1, 2011 and June 30, 2012
- 2012 Valuation Period denotes valuation dates between July 1, 2012 and June 30, 2013
- 2013 Valuation Period denotes valuation dates between July 1, 2013 and June 30, 2014
- 2014 Valuation Period denotes valuation dates between July 1, 2014 and June 30, 2015

The majority of plans have a valuation date of either December 31 or January 1. Plans that have solvency concerns are required to file valuation reports annually. Having filed a report in more than one of the valuation periods noted above, they would be represented in more than one valuation period.

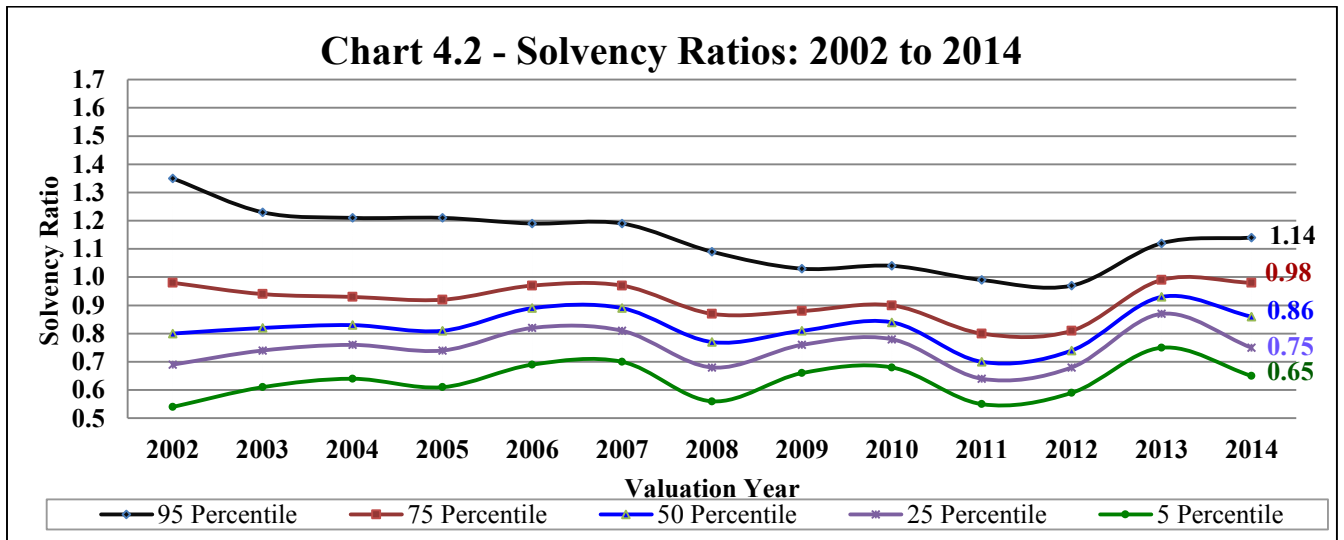
Table 4.1 – Breakdown of Plans by Solvency Ratios

Solvency Ratio (SR)	2011		2012		2013		2014	
	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans
SR < 0.60	54	10.9%	49	6.8%	5	0.5%	7	2.7%
0.60 ≤ SR < 0.80	327	65.7%	474	66.2%	93	8.2%	94	36.3%
Sub-Total < 0.8	381	76.6%	523	73.0%	98	8.7%	101	39.0%
0.80 ≤ SR < 0.85	48	9.6%	69	9.6%	110	9.7%	24	9.3%
0.85 ≤ SR < 0.90	25	5.0%	60	8.5%	209	18.5%	27	10.4%
0.90 ≤ SR < 1.00	24	4.8%	36	5.0%	439	38.8%	48	18.5%
Sub-Total < 1.00	478	96.0%	688	96.1%	856	75.7%	200	77.2%
1.00 ≤ SR < 1.20	14	2.8%	15	2.1%	249	22.0%	49	18.9%
SR ≥ 1.20	6	1.2%	13	1.8%	26	2.3%	10	3.9%
Total	498	100.0%	716	100.0%	1131	100.0%	259	100.0%
Median Ratio	0.70		0.73		0.93		0.86	

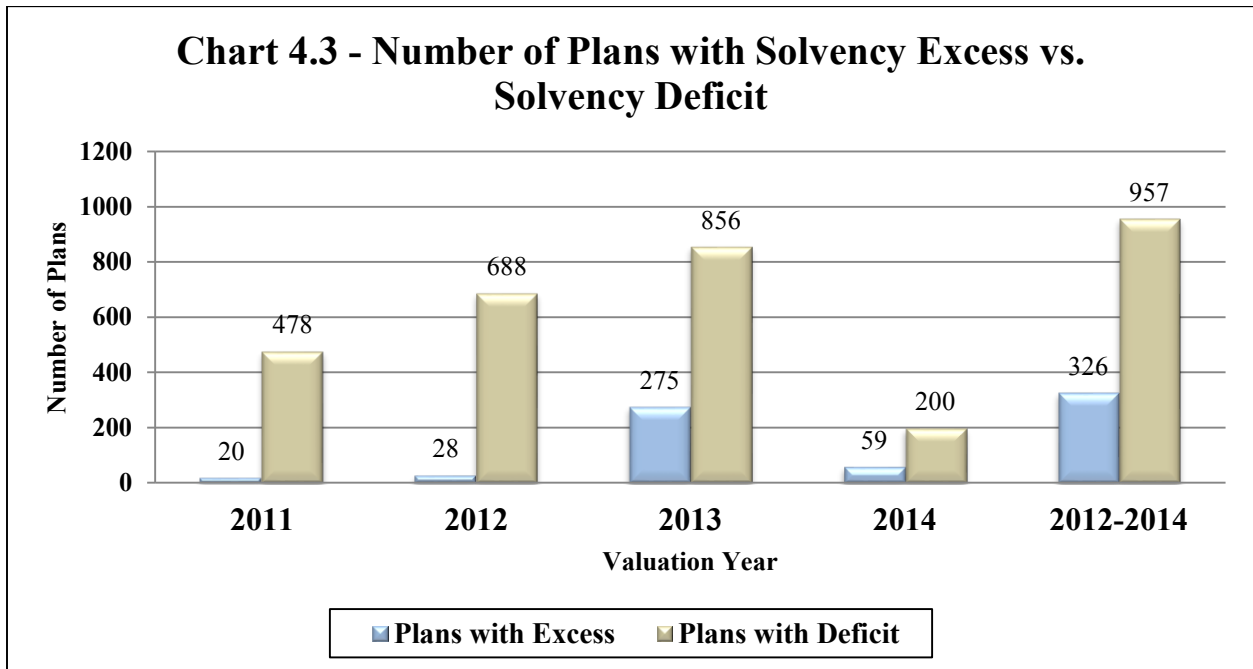
Table 4.1 shows that the solvency ratios have deteriorated during the 2014 valuation period after having improved during the 2012 and 2013 valuation periods. The percentage of plans with a solvency ratio less than 0.85 has increased dramatically from 18.4% in 2013 to 48.3% in 2014. The proportion of underfunded plans on a solvency basis (i.e., a solvency ratio less than 1.0) also increased slightly from 75.7% in 2013 to 77.2% in 2014.

¹⁰ The number of plans for 2011-2012 inclusive may differ from those reported in the 2014 Report due to (a) reports filed after last year's cutoff date of Dec. 31, 2014, and (b) plans that have been wound up, converted to a DC arrangement, or became a frozen DB plan with no DB/DC accruals.

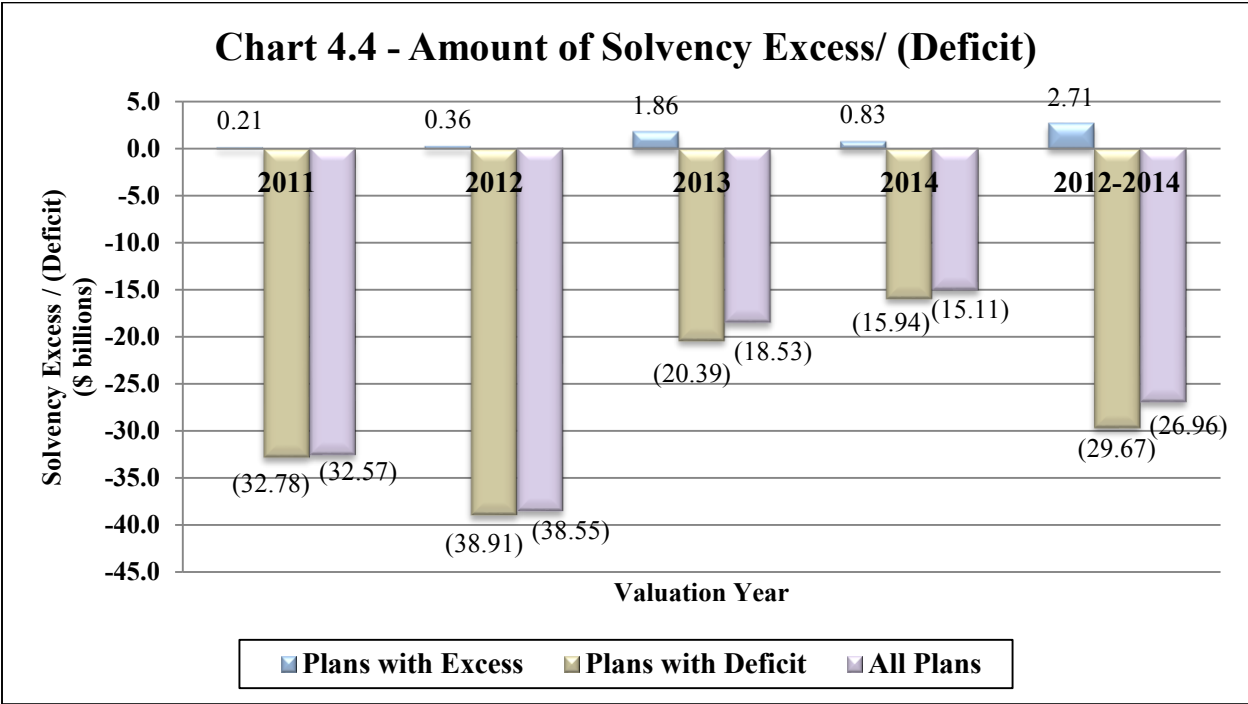
Chart 4.2 shows the distribution of solvency ratios at different percentiles from 2002 to 2014. Since the 2007 valuation period, the solvency ratios of pension plans have been volatile.



Charts 4.3 and 4.4 compare plans with a solvency excess to those with a solvency deficit for each of the four valuation periods from 2011 to 2014, as well as for the three-year valuation period of 2012 to 2014.¹¹ Chart 4.3 compares the number of plans and Chart 4.4 compares the amount of solvency excess or deficit. The number of plans with solvency excesses has remained well below the number of plans with solvency deficits.



¹¹ Individual valuation periods include those plans that filed a report with a valuation date that fell during that individual period. The 2012-14 period includes only the last funding valuation report filed for a plan with a valuation date falling between July 1, 2012 and June 30, 2015. The total number of plans included in each of the 2012, 2013 and 2014 valuation periods is therefore higher than the number of plans included in the combined period 2012-2014.



On a dollar amount basis, the latest filed reports during 2012-2014 valuation periods (i.e., July 1, 2012 to June 30, 2015) revealed a *net* solvency deficit of \$26.96 billion (after allowance for expenses) on solvency liabilities of \$204.66 billion. This represents the total level of underfunding for the 1,283 DB plans analyzed in the 2015 Report, exclusive of the seven large public sector plans and the other excluded plans previously described. In contrast, the *net* solvency deficit shown in the 2014 Report was \$25.94 billion for the prior three valuation periods (i.e. July 1, 2011 to June 30, 2014).

Under the Regulation, where a valuation report filed with FSCO discloses that a solvency deficiency exists, the employer is required to make special payments to eliminate the deficiency within five years. These rules are modified for plans that availed themselves of either the solvency relief measures, or that are being treated as SOMEPPs.

Ontario’s legislation allows certain benefits (e.g., post-retirement indexation, consent benefits, excluded plant closure and excluded permanent layoff benefits) to be excluded in the determination of solvency liabilities. There were 248 plans that excluded one or more of these benefits, resulting in a reduction of liabilities totaling \$21.83 billion. Thus, the total *wind up* funding shortfall for those plans that filed a report with valuation dates between July 1, 2012 and June 30, 2015 would have exceeded their *net* solvency deficit by the same amount. This translates into a wind up funding deficit of \$48.79 billion (\$26.96 billion plus \$21.83 billion), after making allowances for expenses, on wind up liabilities of \$226.49 billion. It measures the funding shortfall of all the plans in the database if they were to have wound up at their last valuation dates. Of course, this only depicts a hypothetical scenario as the majority of pension plans continue operating on a going concern basis.

4.2 Actuarial Assumptions

Going Concern Interest Rate

Table 4.5 shows the interest rate assumptions used in the going concern valuations. Since 2011, there has been a trend to use lower interest rate assumptions. This downward trend has been reported since FSCO started publishing trend statistics.

Table 4.5 - Interest Rate Assumption by Valuation Period

Rate (%)	2011		2012		2013		2014	
	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans
Rate < 4.00	17	3.4%	21	2.9%	34	2.9%	28	10.8%
4.00 ≤ Rate < 4.50	14	2.8%	35	4.9%	48	4.2%	20	7.7%
4.50 ≤ Rate < 5.00	37	7.4%	74	10.3%	109	9.6%	30	11.6%
5.00 ≤ Rate < 5.50	99	19.9%	153	21.4%	271	24.0%	70	27.0%
5.50 ≤ Rate < 6.00	160	32.1%	262	36.6%	421	37.2%	64	24.8%
6.00 ≤ Rate < 6.50	144	29.0%	140	19.6%	220	19.5%	41 [†]	15.8%
6.50 ≤ Rate < 7.00	27	5.4%	31	4.3%	28	2.5%	6	2.3%
Rate ≥ 7.00	0	0.0%	0	0.0%	1	0.1%	0	0.0%
Total	498	100.0%	716	100.0%	1,131	100.0%	259	100.0%
Average (%)	5.52%		5.40%		5.40%		5.12%	

[†] Of the 41 plans that used a going concern interest rate assumption in the range of 6.00% to 6.49%, 35 plans used an interest rate of exactly 6.00%.

The average of the assumed interest rates declined from 5.52% to 5.12% over the period July 1, 2011 to June 30, 2015. As has been the case since the 2011 valuation period, the most prevalent assumed interest rates remained within the 5.00% to 6.00% range.

The proportion of plans using an interest rate assumption of 6.00% or higher has decreased each period, from 34.4% of plans in the 2011 valuation period to 18.1% in the 2014 valuation period. Of the 2014 valuations filed, 95.4% of them used an assumed interest rate at or below 6.00%.

Solvency Interest Rates

Chart 4.6 shows the non-indexed commuted value basis over the preceding six-year period based on the Canadian Institute of Actuaries' Standards of Practice – Practice Specific Standards for Pension Plans. On June 9, 2015, Actuarial Standards Board promulgated the use of the 2014 Canadian Pensioners Mortality Table (CPM2014) combined with mortality improvement scale CPM Improvement Scale B (CPM-B), effective October 1, 2015. Use of mortality improvement scale CPM-B1D2014 is acceptable as an interim measure for calculations up to and including December 31, 2016. Regulations under the Pension Benefits Act were filed and came into effect on December 10, 2015, mandating the mortality rates determined according to these tables be used for calculation of commuted values on termination.

The Government of Canada (GoC) bond yields used in calculating the non-indexed commuted value interest rates and non-indexed annuity proxy interest rates have declined over the period from January 2008 to December 2015.

The Canadian Institute of Actuaries frequently updated the methodology for estimating the cost of purchasing a group annuity over this period.

The most recent [guidance](#) was issued on January 28, 2016 from the Committee on Pension Plan Financial Reporting (PPFRC). It concluded that for valuations with effective dates between December 31, 2015 and December 30, 2016, an appropriate discount rate for estimating the cost of purchasing a non-indexed group annuity, prior to any adjustment for sub- or super-standard mortality, would be determined as the unadjusted average yield on Government of Canada (GoC) marketable bonds with maturities over 10 years (CANSIM series V39062) increased arithmetically by between 60 to 110 basis points (bps), in conjunction with the 2014 Canadian Pensioners' Mortality Table (CPM2014) combined with mortality improvement scale CPM Improvement Scale B (CPM-B) with no adjustments for sub- or super-standard mortality (CPM2014Proj). The spread above the CANSIM series V39062 would be determined based on the duration of the liabilities expected to be settled through the purchase of a group annuity.

Chart 4.7 shows the non-indexed interest rates for annuity purchases since 2009 as set out in the Canadian Institute of Actuaries' (CIA) Educational Notes which provide guidance for Assumptions for Hypothetical Wind up and Solvency Valuations. Effective June 30, 2013, the CIA began issuing guidance based on the duration of the liabilities expected to be settled through the annuity purchase. The chart shows estimated interest rates based on liabilities with a medium duration, where applicable. The mortality table used to estimate the applicable interest for annuity purchases was changed in September 2015, from UP94Proj to CPM2014Proj resulting in a significant discontinuity in the applicable interest rate spread. For example, the chart shows an annuity proxy rate of 3.19% at September 31, 2015 which is based on the CANSIM v39062 rate of 2.09%, a medium duration of 11.0 years, and the corresponding spread of 110 basis points. Had UP94Proj been used, the spread would likely be approximately 63 basis points lower.

Chart 4.6 - Commuted Value Rates

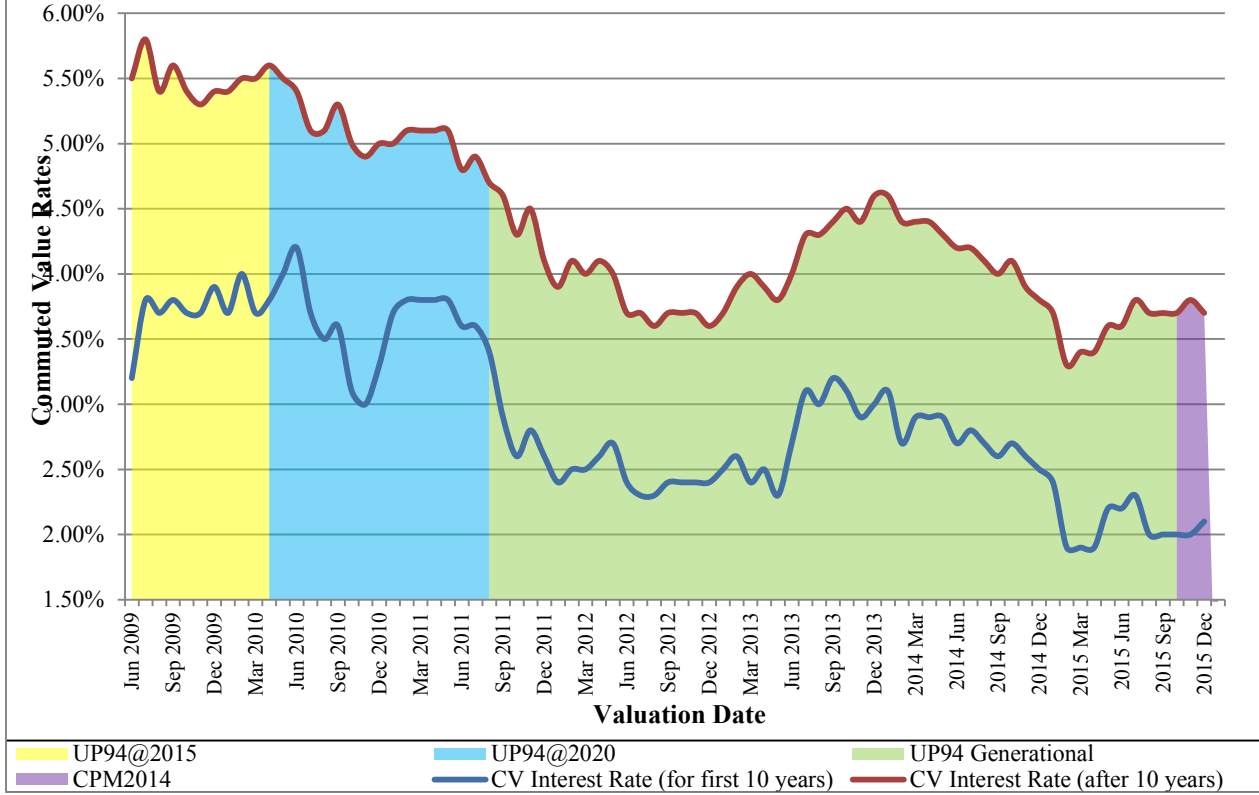
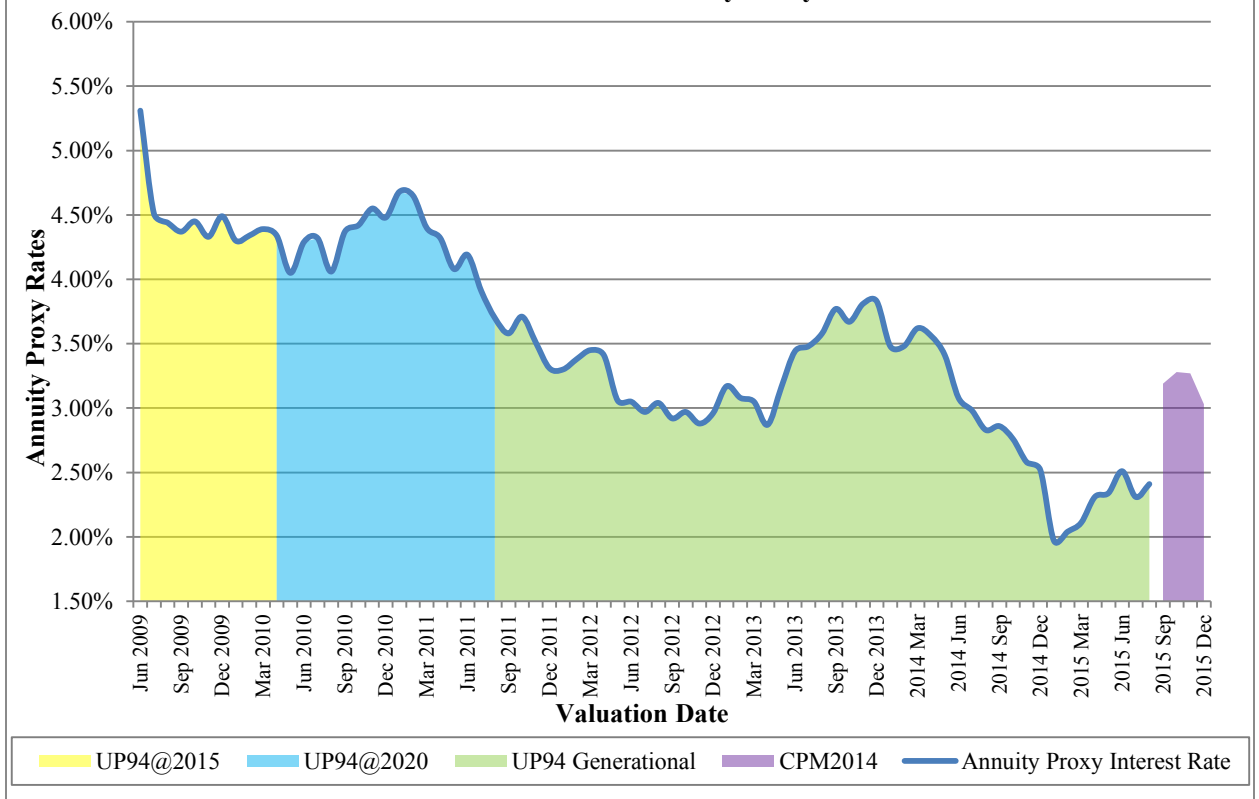


Chart 4.7 - Annuity Proxy Rates



Mortality Basis

Table 4.8 shows the distribution of the mortality tables used in going concern valuations. Starting in the 2011 valuation period, all plans used a mortality table with a base year of 1994 or later, i.e., the 1994 tables (GAM, GAR, UP). The majority of plans have begun using the Canadian pensioners' mortality tables (CPM-RPP2014) and improvement scales published in the 2014 CIA CPM Study.

Table 4.8 - Mortality Assumption by Valuation Period

Mortality Assumption	2011		2012		2013		2014	
	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans
1994 GAM static	10	1.1%	2	0.4%	0	0.0%	2	0.2%
1994 GAR	8	0.9%	3	0.6%	6	0.8%	0	0.0%
1994 UP	793	89.5%	432	86.8%	624	87.0%	60	5.5%
CPM-RPP2014	0	0.0%	0	0.0%	1	0.1%	1,004	91.4%
Other ¹²	75	8.5%	61	12.2%	87	12.1%	32	2.9%
Total	886	100.0%	498	100.0%	718	100.0%	1,098	100.0%

Data used in the preparation of this report does not contain information to distinguish between the three CPM mortality tables or projection scales used nor any possible variations of these tables. The AIS will be amended to identify the actual mortality table and projection scales used, as well as any modifications thereof.

¹² Starting in the 2011 valuation period (i.e. valuation dates on or after July 1, 2011), all plans that used "Other" mortality assumptions used a variation of other post-1994 mortality tables (e.g., a variation of the UP94 table, RP2000, etc.).

5.0 INVESTMENT DATA ANALYSIS

The plans included in the investment data analysis are a subset of the 1,283 plans identified in section 2 of this report. This subset consists of plans that have filed an IIS for the most recent monitoring cycle (fiscal year ends between July 1, 2014 and June 30, 2015). There are 1,238 plans included in the investment data analysis, representing 96.5% of the plans included in the funding data analysis.¹³

For hybrid plans, only the defined benefit assets are included in the data.

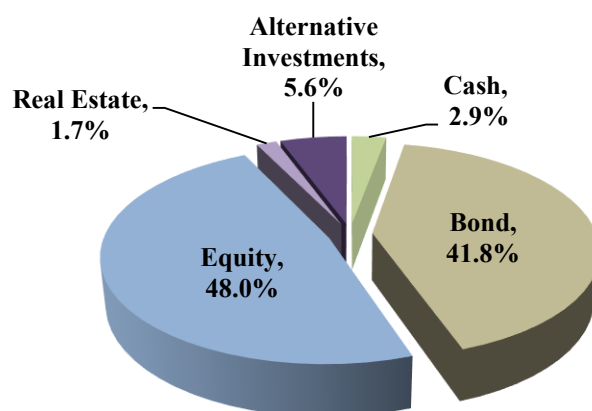
5.1 Summary of Pension Fund Profiles

In aggregate, the asset mix of the 1,238 pension funds for the most recent monitoring cycle is described in Table 5.1 and depicted in Chart 5.2.

Table 5.1 – Investment Profile of All Plans as a Whole

Asset Class ¹⁴	Market Value (\$ Millions)	% of Total Investments
Cash	5,383	2.9%
Bond	78,111	41.8%
Equity	89,590	48.0%
Real Estate	3,217	1.7%
Alternative Investments ¹⁵	10,424	5.6%
Total	186,725	100.0%

Chart 5.2: Asset Allocation of All Plans



On a broad basis, fixed income assets (consisting of cash and bonds) constitute 45% of total investments. Non-fixed income assets (consisting of equity, real estate and alternative investments) constitute 55% of total investments.

¹³ The plans that are not included in the investment data analysis subset are primarily plans with outstanding IIS filings.

¹⁴ Plan assets invested in pooled funds totaled \$86,910 million or 46.5% of total investments. Pooled funds are included in the asset mix of all plans based on their underlying asset classes.

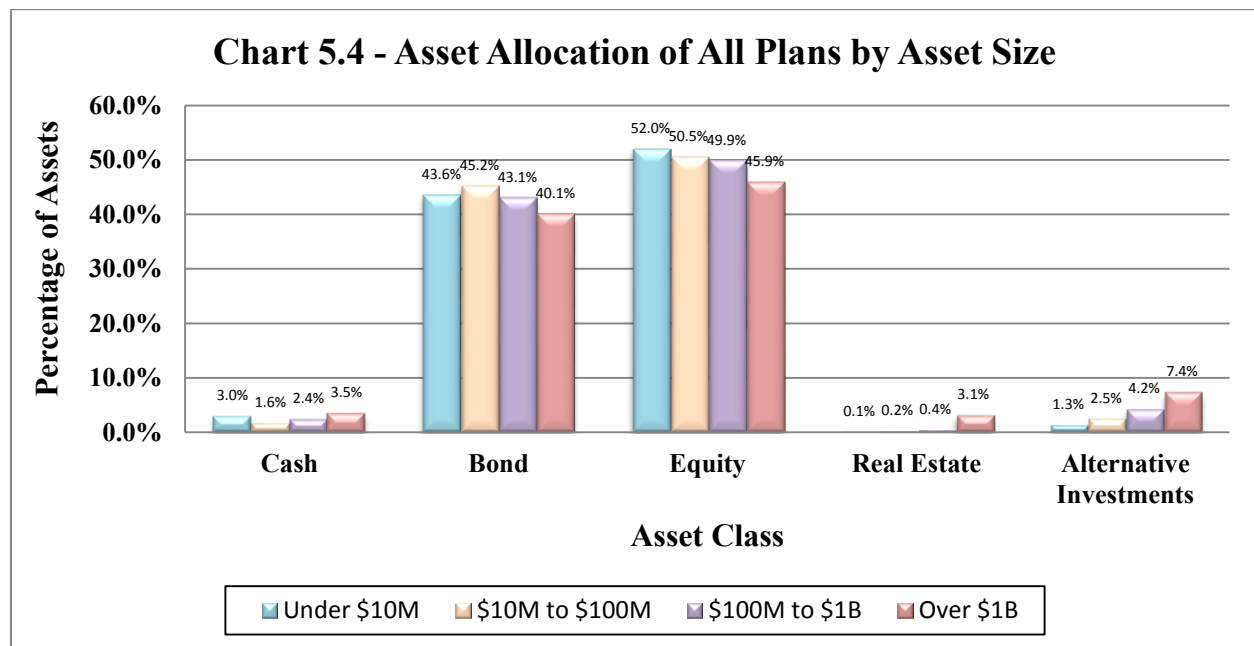
¹⁵ Alternative Investments include hedge funds, private equity, infrastructure, currency hedging, resource properties, commodities, etc.

Pension funds with different asset sizes differ in how much is allocated to each asset class. Larger pension funds allocate more assets in real estate and alternative investments and less assets in bond and equity, than small pension funds. Notably, pension funds that are over \$1 billion invest 10.5% of assets in real estate and alternative investments on average. The asset allocation of all plans by asset size is shown in Table 5.3 and depicted in Chart 5.4.

Table 5.3 - Asset Allocation of All Plans by Asset Size

Size of Plan Asset		Under \$10M	\$10M to \$100M	\$100M to \$1B	Over \$1B	All Plans
# of Plans		358	586	257	37	1,238
Asset Class	Cash	3.0%	1.6%	2.4%	3.5%	2.9%
	Bond	43.6%	45.2%	43.1%	40.1%	41.8%
	Equity	52.0%	50.5%	49.9%	45.9%	48.0%
	Real Estate	0.1%	0.2%	0.4%	3.1%	1.7%
	Alternative Investments	1.3%	2.5%	4.2%	7.4%	5.6%
Total		100.0%	100.0%	100.0%	100.0%	100.0%

Chart 5.4 - Asset Allocation of All Plans by Asset Size

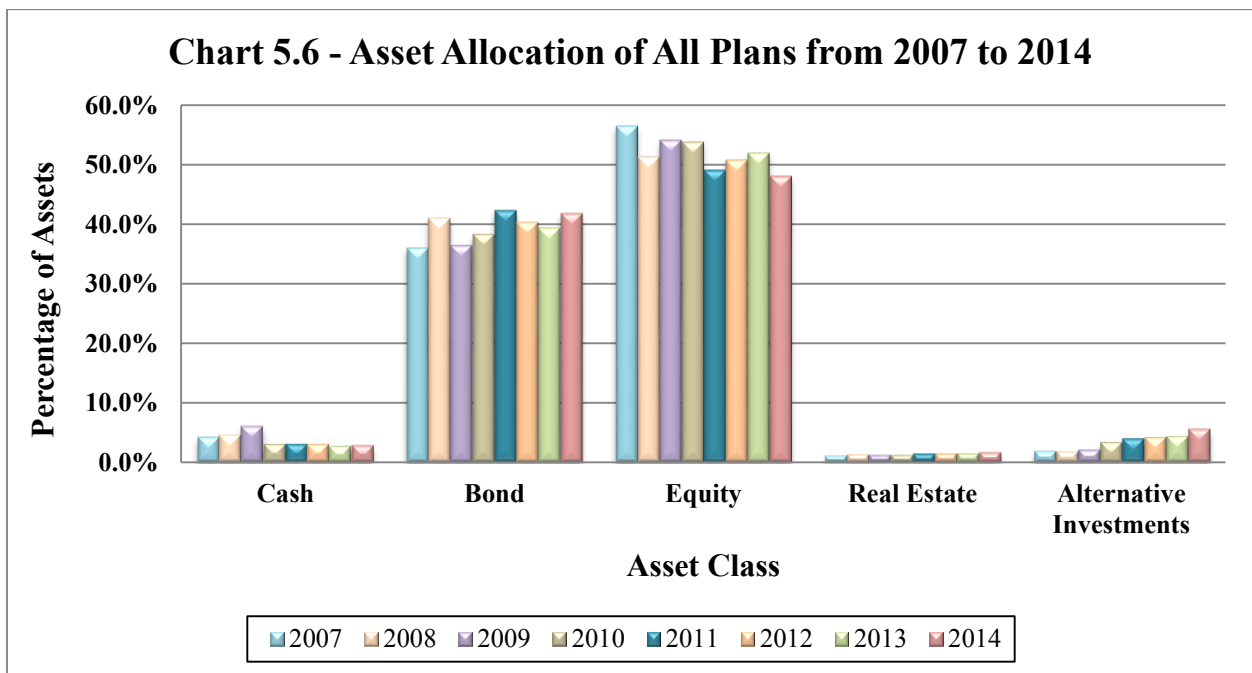


From 2007 to 2014, pension funds' asset allocation seem to have a general trend of increasing investments in bond and decreasing investments in equity. The allocation in alternative investments increases consistently over time. The asset allocation of all plans over this period is shown in Table 5.5 and depicted in Chart 5.6.

Table 5.5 - Asset Allocation of All Plans from 2007 to 2014

Asset Class	% of Total Investments							
	2007	2008	2009	2010	2011	2012	2013	2014
Cash	4.3%	4.6%	6.1%	3.1%	3.1%	3.1%	2.7%	2.9%
Bond	36.1%	41.0%	36.5%	38.4%	42.3%	40.4%	39.4%	41.8%
Equity	56.6%	51.3%	54.1%	53.9%	49.1%	50.8%	52.0%	48.0%
Real Estate	1.1%	1.3%	1.2%	1.2%	1.5%	1.5%	1.5%	1.7%
Alternative Investments	1.9%	1.8%	2.1%	3.4%	4.0%	4.2%	4.4%	5.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chart 5.6 - Asset Allocation of All Plans from 2007 to 2014



5.2 Summary of Fund Performance

This section provides statistics on asset mix and investment performance by various categories for the latest monitoring cycle.

The 1,238 plans included in the analysis are very diverse. To illustrate the investment results for pension plans that have different characteristics, the asset mix and performance data are presented by different plan type, benefit type, plan size, solvency ratio and percentage invested in pooled funds.

In the Asset Mix section, the weight of each asset class is shown for all plans in each subgroup and for all plans as a whole.

In the Performance section, all performance numbers are determined at the individual plan level. “Average Return” means the average rate of return, net of all investment expenses. “Average investment fees” mean the average expenses paid from the pension plan that are related to managing the pension plan’s investments, expressed as a percentage of average assets during the reporting year.

By Plan Type

The investment profile of SEPPs and MEPPs is given below. The asset mix and average performance returns are shown in Table 5.7a, while the percentile performance returns appear in Table 5.7b.

Table 5.7a – Investment Results by Plan Type

Plan Type		SEPP	MEPP	All Plans
# of Plans		1,169	69	1,238
Asset Mix	Fixed Income	46.4%	34.8%	44.7%
	Non-Fixed Income	53.6%	65.2%	55.3%
<hr/>				
Performance	Average Return ¹⁶	11.90%	10.14%	11.80%
	Average Investment Fees	0.48%	0.47%	0.48%

¹⁶ The average return in this table and those in Tables 5.8-5.11 are the arithmetic (equally-weighted) average of investment returns of the pension funds in each subgroup. The average of investment returns weighted by size of pension funds is 13.26%, compared to 11.80% on an equally-weighted basis shown in this table.

Table 5.7b – Performance Result Percentiles by Plan Type

Plan Type	SEPP	MEPP	All Plans
Investment Returns			
90 th Percentile	15.80%	12.10%	15.70%
75 th Percentile	13.62%	11.24%	13.44%
Median	11.37%	9.96%	11.28%
25 th Percentile	9.72%	8.92%	9.67%
10 th Percentile	8.36%	7.91%	8.27%
Investment Fees			
90 th Percentile	0.89%	0.59%	0.88%
75 th Percentile	0.62%	0.48%	0.60%
Median	0.41%	0.42%	0.42%
25 th Percentile	0.27%	0.36%	0.27%
10 th Percentile	0.10%	0.28%	0.11%

By Benefit Type

The investment profile of pension plans with various benefit types is provided in Table 5.8.

Table 5.8 – Investment Results by Benefit Type¹⁷

Benefit Type		FAE	CAE	FB	Hybrid	All Plans
# of Plans		349	117	220	552	1,238
Asset Mix	Fixed Income	39.5%	42.6%	43.5%	49.8%	44.7%
	Non-Fixed Income	60.5%	57.4%	56.5%	50.2%	55.3%
Performance	Average Return	12.02%	10.87%	11.24%	12.08%	11.80%
	Average Investment Fees	0.46%	0.49%	0.50%	0.47%	0.48%

By Plan Size

The investment profile of pension funds of various sizes is provided in Table 5.9.

Table 5.9 - Investment Results by Asset Size

Size of Plan Assets		Under \$10M	\$10M to \$100M	\$100M to \$1B	Over \$1B	All Plans
# of Plans		358	586	257	37	1,238
Asset Mix	Fixed Income	46.6%	46.8%	45.5%	43.6%	44.7%
	Non-Fixed Income	53.4%	53.2%	54.5%	56.4%	55.3%
Performance	Average Return	10.59%	12.17%	12.64%	11.92%	11.80%
	Average Investment Fees	0.68%	0.43%	0.33%	0.37%	0.48%

¹⁷ MEPPs are included in the various benefit type categories to which they belong.

By Solvency Ratio

The investment profile of pension plans with various solvency ratios is provided in Table 5.10.

Table 5.10 – Investment Results by Solvency Ratio (SR)

Solvency Ratio (SR)		SR < 0.85	0.85 ≤ SR < 1.0	SR ≥ 1.0	All Plans
# of Plans		224	703	311	1,238
Asset Mix	Fixed Income	40.6%	48.4%	42.1%	44.7%
	Non-Fixed Income	59.4%	51.6%	57.9%	55.3%
Performance					
	Average Return	11.02%	11.89%	12.17%	11.80%
	Average Investment Fees	0.51%	0.48%	0.44%	0.48%

By Percentages Invested in Pooled Funds

The results for plans with various percentages invested in pooled funds are provided in Table 5.11.

Table 5.11 – Investment Results by Percentage Invested in Pooled Funds

Percentage Invested in Pooled Funds		< 20%	20% to 80%	> 80%	All Plans
# of Plans		148	195	895	1,238
Asset Mix	Fixed Income	52.8%	38.5%	45.4%	44.7%
	Non-Fixed Income	47.2%	61.5%	54.6%	55.3%
Performance					
	Average Return	11.97%	11.74%	11.79%	11.80%
	Average Investment Fees	0.41%	0.38%	0.51%	0.48%

5.3 Investment Observations

This section presents some key observations about the analyses set out in sections 5.1 and 5.2. It focuses on findings that are relatively common or show a trend over time. These observations are as follows:

- Larger plans have higher average returns and lower investment fees than smaller plans.
- Pension funds of MEPPs generally invested more in non-fixed income assets but this did not result in better performance than SEPPs.
- While the typical asset allocation of pension funds between fixed income and non-fixed income did not change significantly, the allocation in alternative investments increased consistently during the past seven-year period.
- There do not seem to be significant differences in asset mix, average return and average investment fees between different benefit types.

6.0 2015 PROJECTIONS

6.1 Estimated DB Funding Contributions in 2015

Table 6.1 presents the estimated funding contributions — comprising normal costs and special payments — that are expected to be made in respect of the DB plans in 2015, including those related to defined benefit provisions under hybrid plans. The estimates are based on information from the most recently filed reports with valuation dates between July 1, 2012 and June 30, 2015.¹⁸

Table 6.1 - Estimated DB Funding in 2015

	Plans with Solvency Excess	Plans with Solvency Deficit	All Plans
Number of Plans	325	958	1,283
	(\$ Millions)	(\$ Millions)	(\$ Millions)
Employer Normal Cost Contributions	747	2,747	3,494
Member Required Contributions	179	557	736
Sub-total	926	3,304	4,230
Special Payments	175	3,455	3,630
Total	1,101	6,759	7,860

The total DB funding contributions in 2015 are estimated to be \$7.9 billion, which is 6% lower than the estimated contributions of \$8.4 billion for 2014, as set out in the 2014 Report. The decrease of \$585 million consists of the following changes:

- a decrease of \$484 million in the required special payments; and
- a decrease of \$101 million in the required employer normal cost and member contributions.

The special payments of \$3.6 billion represents 46% of the total estimated 2015 funding contributions of \$7.9 billion.

The table also provides a breakdown of the estimated funding contributions between plans that had a solvency excess and plans that had a solvency deficit. The total special payments of \$175 million for plans with a solvency excess represent 16% of the total contributions of \$1.1 billion for these plans. This compares with the total special payments of \$3.5 billion for plans with a solvency deficit, representing about 51% of the total contributions of \$6.8 billion for these plans.

The estimated 2015 funding contributions are determined without considering the existence of a prior year credit balance or funding excess, which can be used to reduce required contributions during the valuation period. A total of \$1.9 billion of prior year credit balances were reported for 215 plans that had a non-zero prior year credit balance.

¹⁸ For plans where the AIS reported contributions did not extend to the end of 2015, the 2015 estimated contributions were determined assuming contributions would continue at the same rate as that reported for the valuation period.

6.2 Projected Solvency Position as at December 31, 2015

This section presents a projection of the solvency funding position of DB plans to the end of 2015. The projection reflects the impact of investment returns, changes in the solvency interest rates and the special payments expected to be made during 2015. The methodology and assumptions used are described below.

Methodology and Assumptions

The results reported in the last filed valuation reports (i.e., assets and liabilities) were projected to December 31, 2015 to reflect investment returns and the changes in the solvency valuation bases. These projections were based on the following assumptions:

- Sponsors would use all available funding excess and prior year credit balance, subject to any statutory restrictions, for contribution holidays.
- Sponsors would make the normal cost contributions and special payments, if required, at the statutory minimum level.
- Amounts of cash outflow would equal the pension amounts payable to retired members as reported in the last filed valuation report. Plan administration costs were not reflected.

The median investment returns of pension funds (Table 6.2) were used to project the market value of assets. The actual investment performance of individual plans was not reflected.

Table 6.2 – Median Pension Fund Returns

Year	Annual Rate of Return¹⁹
2011	0.5%
2012	9.4%
2013	14.2%
2014	11.9%
2015	3.8%

¹⁹ For years 2011 to 2014, the rates are the median investment returns of pension funds provided in the Canadian Institute of Actuaries' *A Report on Canadian Economic Statistics 1924-2014*, dated June 2015. The rate for 2015 is derived from a representative weighted average of the 2015 return on the S&P/TSX index (30%), the MSCI World index (25%), and the FTSE TMX Universe Bond index (45%).

Table 6.3 – Actuarial Basis for Projected Solvency Liabilities

Valuation Date	Commuted Value Basis ²⁰	Annuity Purchase Basis ²¹
December 31, 2014	Interest: 2.50% for 10 years, 3.80% thereafter Mortality: 1994 UP generational	Interest: 2.52% Mortality: 1994 UP generational
December 31, 2015	Interest: 2.10% for 10 years, 3.70% thereafter Mortality: CPM2014 generational	Interest: 3.13% Mortality: CPM2014 generational

Projection Results

Table 6.4 presents the distribution of solvency ratios that were reported in the last filed valuation reports and the distribution of projected solvency ratios (PSRs) derived from the projected assets and liabilities.

Table 6.4 - Distribution of Solvency Ratios

Distribution of Solvency Ratio	As at Last Filed Valuation	PSR as at December 31, 2014	PSR as at December 31, 2015
10 th percentile	78%	76%	72%
25 th percentile	87%	83%	78%
50th percentile	93%	88%	83%
75 th percentile	100%	95%	89%
90 th percentile	107%	104%	96%

As shown in Table 6.4, the median PSR is projected to decrease from 88% to 83% between December 31, 2014 and December 31, 2015. In general, the change, if any, in the median PSR is the net effect of the following factors:

- assumed pension fund returns in 2015 being higher than the solvency valuation discount rates used at December 31, 2014;
- the extent by which expected contributions made during 2015 were different than the increase in solvency liabilities due to benefit accruals in 2015;
- the change in the solvency valuation interest rates used to calculate the solvency liabilities as at December 31, 2015. Both the commuted value interest rates and the annuity purchase interest rate as at December 31, 2015 are lower compared to their respective rates as at December 31, 2014; and
- the change in the mortality table used to calculate commuted values as at December 31, 2015.

²⁰ The commuted value basis used for the December 31, 2014 and December 31, 2015 solvency projections in this report is based on the Canadian Institute of Actuaries' Standards of Practice – Practice-Specific Standards for Pension Plans, Section 3500 on Pension Commuted Values, dated June 2010.

²¹ The interest rates for annuity purchases as at December 31, 2014 and December 31, 2015 are based on the recommendations set out in the Canadian Institute of Actuaries' Educational Notes (EN) providing guidance for Assumptions for Hypothetical Wind UP and Solvency Valuations.

7.0 GLOSSARY

The following terms are explained for the purpose of this report:

Defined Benefit Pension Plan: In a defined benefit pension plan, the amount of the pension benefit is determined by a defined formula, usually based on years of service. There are several types of defined benefit plans, including:

- **Final Average** – the benefit is based on the member’s average earnings over the member’s last several years (typically three or five) of employment and years of service.
- **Career Average** – the benefit is based on the member’s earnings over the member’s entire period of service.
- **Flat Benefit** – the benefit is based on a fixed dollar amount for each year of service.

Defined Contribution Pension Plan: In a defined contribution plan, the pension benefit is based solely on the amount of pension that can be provided by the amount contributed to the member’s individual account together with any expenses and investment returns allocated to that account.

Frozen Hybrid: Pension plans in which members have a frozen defined benefit entitlement, but are accruing future defined contribution benefits.

Funded Ratio: The funded ratio of a plan is the ratio of the plan’s assets to the plan’s liabilities.

Funding Valuation: This is a valuation of a defined benefit pension plan prepared for funding purposes. Two types of valuations are required by the PBA: a *going concern* valuation (which assumes the pension plan will continue indefinitely); and a *solvency* valuation (which assumes the plan would be fully wound up as at the effective date of the valuation). Under Ontario’s legislation, a solvency valuation may exclude the value of specified benefits (e.g., indexation, prospective benefit increases, or plant closure/layoff benefits).

Hybrid Pension Plan: A hybrid pension plan contains both defined benefit and defined contribution provisions. A member’s pension benefit may be a combination of the defined benefit plus the defined contribution entitlement or a pension benefit which is the greater of the defined benefit entitlement or the defined contribution entitlement.

Investment Return: The rate of return on the pension fund for the reporting year, net of all investment expenses.

Liability and Asset Valuation Methods: These are the actuarial methods used by actuaries to value the liabilities and assets of a pension plan.

Multi-Employer Pension Plan (MEPP): A multi-employer pension plan covers the employees of two or more unrelated employers and is specifically defined in the PBA. These plans may provide defined benefits but the required contributions are negotiated and fixed through collective bargaining.

Solvency Concerns: A valuation report indicates solvency concerns if any of the following circumstances exist, except for certain plans exempted by the Regulation:

- The employer has elected under subsection 5(18) of the Regulation to exclude plant closure benefits or permanent layoff benefits from the determination of solvency liabilities.
- The solvency ratio is less than 80% if the valuation date is before December 31, 2012, or less than 85% if the valuation date is on or after December 31, 2012.
- The solvency liabilities exceeds the solvency assets by more than \$5 million for a valuation date before December 31, 2012, and:
 - The solvency ratio is less than 90% if the valuation date is before December 31, 2010, or
 - The solvency ratio is less than 85% if the valuation date is on or after December 31, 2010.

Smoothed Market Value: The smoothed market value is determined by using an averaging method that stabilizes short-term fluctuations in the market value of plan assets, normally calculated over a period of not more than five years.

Solvency Ratio or Solvency Funded Ratio: The ratio of the solvency assets to the solvency liabilities of the pension plan.

8.0 APPENDIX – ADDITIONAL INFORMATION FOR PLANS IN FUNDING DATA ANALYSIS

This appendix provides additional details of the profile of the plans that have been included in the funding data analysis. The data consists of DB pension plans that have filed valuation reports with valuation dates between July 1, 2012 and June 30, 2015. Please refer to **Section 2.0 – Funding Data Analysis** of this report for details of how the data was compiled.

Table 8.1 shows a reconciliation of the 1,311 plans analyzed in the 2014 Report to the 1,283 plans analyzed in the 2015 Report.

Table 8.1 – Reconciliation of Plans from the 2014 Report to the 2015 Report

Plan Type:	Final Average	Career Average	Flat Benefit	Hybrid	Frozen Hybrid	MEPP	TOTAL
2014 Report	384	112	188	386	168	73	1,311
New plans / Spin-offs	1	1		2	1		5
Previously registered outside of Ontario							0
Change to Non-designated Status							0
Filed outstanding report *							0
Previously excluded							0
<u>Change in Benefit Type</u>							
• FAE	(12)			11	1		0
• CAE		(3)		3			0
• FB			(7)	6	1		0
• Hybrid				(6)	6		0
Frozen DB (excluded from analysis)	(4)	(1)	(2)		(2)		(9)
Wind up (excluded from analysis)	(3)	(5)	(5)	(5)	(2)		(20)
Change to Designated Status							0
Plan merger							0
Registration changed to outside of Ontario	(1)						(1)
DC conversion							0
Outstanding report					(2)	(2)	(4)
Data Correction(s)	1						1
2015 Report	366	104	174	397	171	71	1,283

** These are plans that were not included in last year's analysis because they did not file a funding valuation report with a valuation date between July 1, 2011 and June 30, 2014. They have since filed a funding valuation report with a valuation date between July 1, 2012 and June 30, 2015.*

Table 8.2 compares the number of plans analyzed in the current report with the plans analyzed in previous reports.

Table 8.2 – Plans Included in Current and Previous Reports by Plan/Benefit Type

Year	Final Average	Career Average	Flat Benefit	Hybrid	Frozen Hybrid	MEPP	Total	Total Membership
2015	366	104	174	397	170	72	1,283	1,835,156
2014	384	112	188	386	168	73	1,311	1,833,773
2013	425	132	202	391	135	76	1,361	1,860,156
2012	455	140	216	387	113	76	1,387	1,832,800
2011	491	152	234	381	110	70	1,438	1,828,604
2010	548	172	262	371	83	70	1,506	1,866,444
2009	640	197	322	310	n/a	70	1,539	1,899,155
2008	619	220	338	315	n/a	72	1,564	1,867,653
2007	663	236	362	292	n/a	79	1,632	1,880,563
2006	730	271	394	224	n/a	79	1,698	1,863,433
2005	805	293	424	127	n/a	73	1,722	1,801,895
2004	839	292	422	86	n/a	79	1,718	1,765,255

Table 8.3 shows a breakdown of the number of plans by size of plan membership.

Table 8.3 – Number of Plans by Size of Membership in Plan

Number of Members in Plan	Non-MEPP	MEPP	Total
0-49	211	0	211
50-99	181	2	183
100-249	285	3	288
250-499	198	3	201
500-999	139	12	151
1000-4999	161	27	188
5000-9999	25	9	34
10000 +	11	16	27
Total	1,211	72	1,283

Table 8.4 shows a breakdown of the total members covered by size of plan membership.

Table 8.4 – Total Membership by Size of Membership in Plan

Number of Members in Plan	Non-MEPP	MEPP	Total
0-49	5,661	0	5,661
50-99	13,597	158	13,755
100-249	46,275	462	46,737
250-499	70,201	1,151	71,352
500-999	96,507	8,490	104,997
1000-4999	328,106	68,792	396,898
5000-9999	174,770	68,221	242,991
10000 +	200,382	752,383	952,765
Total	935,499	899,657	1,835,156

Acronyms

AIS	Actuarial Information Summary
CAE	Career Average Earnings
DB	Defined Benefit
DC	Defined Contribution
FAE	Final Average Earnings
FB	Flat Benefit
FSCO	Financial Services Commission of Ontario
FR	Funded Ratio
IIS	Investment Information Summary (Form 8)
MEPP	Multi-Employer Pension Plan
PBA	Pension Benefits Act (Ontario)
PSR	Projected Solvency Ratio
SEPP	Single Employer Pension Plan
SR	Solvency Ratio
SOMEPP	Specified Ontario Multi-Employer Pension Plan