
**Funding Defined Benefit Pension Plans:
Risk-Based Supervision in Ontario**

*Overview and Selected Findings
2003-2007*

Financial Services Commission of Ontario

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TABLE OF CONTENTS

	<u>Page</u>
1.0 Introduction	3
2.0 Statistical Analysis	5
2.1 Summary of Funded Status	6
2.2 Summary of Actuarial Assumptions and Methods	8
2.3 Estimated Funding Contributions in 2007	11
3.0 Trends Analysis	12
3.1 Solvency Funded Status	12
3.2 Actuarial Assumptions	15
3.3 Projected Solvency Position as at December 31, 2007	17
4.0 Glossary	19

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Overview and Selected Findings 2003-2007

1.0 Introduction

The Financial Services Commission of Ontario (FSCO) is an arm's length agency of the Ministry of Finance that regulates Ontario registered pension plans in accordance with the *Pension Benefits Act* (PBA) and regulations.

In July 2000, FSCO implemented a risk-based approach to monitor the funding of defined benefit pension plans¹. This approach involves the collection of key actuarial and financial data from funding valuation reports filed with FSCO, using a standard form called the Actuarial Information Summary (AIS)². The collected data are entered into a database, and a selective risk-based review system identifies individual reports for detailed compliance reviews.

Between July 1, 2004 and January 31, 2008, AIS data for approximately 7,000 funding valuation reports were entered into our database and screened through the selective review system. Thirty-six percent of these reports were selected for further review, and over 22% of the selected reports were identified as having material compliance concerns that required further follow up. With very few exceptions, FSCO has been able to resolve the identified concerns with the plans' actuaries and administrators.

The AIS database provides FSCO with the information it needs to compile the relevant pension data and to identify pension plan funding trends in Ontario, both of which are periodically reported back to pension stakeholders. This is FSCO's fourth report.

¹ "Risk-based Supervision of the Funding of Ongoing Defined Benefit Pension Plans" (May 2000), an overview of the risk-based approach, is available at: <http://www.fSCO.gov.on.ca/english/pensions/riskbasedsupervision.pdf>

² The AIS is a standardized form, developed jointly by FSCO, the Canada Revenue Agency and the federal Office of the Superintendent of Financial Institutions. It is prepared by an actuary and filed with FSCO in conjunction with a funding valuation report.

Key Findings

Some of the key findings are:

- Overall, the funding positions of pension plans have improved since the last report. In particular, the median funded ratio on a going concern basis has improved from 98% to 103%, whereas the median funded ratio on a solvency basis has improved from 86% to 90%.
- Most plans were less than fully funded on a solvency basis at their last valuation date, while fewer plans were less than fully funded on a going concern basis. Specifically:
 - Seventy-six percent of the plans were less than fully funded on a solvency basis.
 - Forty-two percent of the plans were less than fully funded on a going concern basis.
- Assumptions and methods for the going concern valuations tend to be more conservative and more uniform than in prior valuations. For example:
 - Ninety-eight percent of the plans use the unit credit cost method.
 - Ninety-nine percent of the plans use either a market or smoothed market value of assets.
 - The average interest rate assumption used for going concern valuations decreased from 6.65% to 6.24% over the 2003 to 2006 valuation period.
 - Over 96% of the 2006 valuations used an up-to-date 1994 mortality table, compared to 64% of the 2003 valuations.
- The minimum required contributions for 2007, including employer normal cost, member required contributions and special payments, were estimated to be \$6.5 billion, a 14% decrease from the amount estimated for 2006 (\$7.5 billion). A large part of this decrease was due to the reduction in special payments required as a result of lower funding deficits reported in the 2006 valuations.
- The funding position of pension plans is expected to remain relatively stable during 2007. For under-funded plans, continued special payments should offset the lower investment returns experienced during the year. The median solvency ratio for pension plans is projected to increase slightly from 92% to 93% between the 2006 and 2007 year-ends.

2.0 Statistical Analysis

This section summarizes some of the funding and actuarial data for defined benefit pension plans with valuation dates between July 1, 2004 and June 30, 2007. The data was compiled from the AIS and funding valuation reports received by FSCO on or before January 31, 2008.

Generally, funding valuation reports must be filed once every three years on both a going concern and solvency basis. However, if solvency concerns are indicated³, annual filing is required until these concerns are eliminated. Early filings may also be required when events such as plan mergers, partial windups, or sales of businesses occur. To avoid double counting, only the data from a plan's most recently filed report was included.

For the purpose of this report, designated plans⁴, plans where members are no longer accruing future benefits, and plans with outstanding valuation reports have been excluded. In addition, seven (7) large public sector plans⁵ have been excluded in order not to skew the results of our analysis.

In total, 1,632 plans were included in the statistical analysis. Table 1 presents a description of these pension plans.

Table 1 – Summary of Plans Included

Plan/ Benefit Type	# of Plans	Active Members	Retired Members	Other Beneficiaries	Total	Market Value of Assets (\$Million)
Final Average	663	217,623	126,790	55,875	400,288	\$56,328
Career Average	236	37,770	17,035	10,182	64,987	\$3,959
Flat Benefit	362	130,116	109,146	36,293	275,555	\$27,947
Hybrid	292	155,415	123,907	64,446	343,768	\$33,049
Multi-Employer	79	368,769	94,960	332,236	795,965	\$18,666
Total	1,632	909,693	471,838	499,032	1,880,563	\$139,948

The average age of the membership for all included plans was 42.2 for active members and 71.4 for retired members.

³ A report is said to indicate solvency concerns if (i) the solvency ratio is less than 80%, or (ii) the solvency ratio is between 80% and 90% and the solvency liabilities exceed the market value of assets by more than \$5 million. A plan's solvency ratio is the ratio of the market value of the plan's assets to the plan's solvency liabilities.

⁴ Designated Plans are defined in section 8515 of the federal Income Tax Regulations. Generally, these are plans for connected persons and highly-paid executives.

⁵ Based on the most recently filed reports, these seven public sector plans had a total membership exceeding one million (639,000 actives, 331,000 retirees and 152,000 other beneficiaries) and total assets of \$182 billion at market value. The average age of their membership was 43.6 for active members and 69.1 for retired members.

Compared with the findings in FSCO's previous reports (June 2006 and March 2007⁶) there continues to be a decrease in the number of final average, career average and flat benefit plans, and an increase in the number of hybrid plans. Approximately 4% of the defined benefit plans have become hybrid plans since their previous valuation date; a further 4% have either been wound up or have frozen future accruals of defined benefits.

2.1 Summary of Funded Status

The main findings regarding the funded status of defined benefit pension plans are as follows:

- For all plans analyzed, the median funded ratios were 103% on a going concern basis and 90% on a solvency basis. Seventy-six percent of the plans were less than fully funded on a solvency basis, while 42% were less than fully funded on a going concern basis.
- Of the 663 final average earnings plans, 317 (48%) were less than fully funded on a going concern basis and 436 (66%) were less than fully funded on a solvency basis.
- Of the 236 career average earnings plans, 93 (39%) were less than fully funded on a going concern basis and 203 (86%) were less than fully funded on a solvency basis.
- Of the 362 flat benefit plans, 130 (36%) were less than fully funded on a going concern basis. On a solvency basis, flat benefit plans were the least well funded; 338 (93%) of these plans were less than fully funded and 128 (35%) had a solvency ratio of less than 80%.
- Of the 292 hybrid plans, 122 (42%) were less than fully funded on a going concern basis and 208 (71%) were less than fully funded on a solvency basis.
- Of the 79 multi-employer pension plans (MEPPs), 26 (33%) were less than fully funded on a going concern basis and 51 (65%) on a solvency basis. Seventeen plans (22%) had a solvency ratio of less than 80%. These 17 plans have approximately 545,000 members and former members, that is, 68% of the total MEPP membership.

⁶ These reports are available at: http://www.fSCO.gov.on.ca/english/pensions/DB_Funding_Report_2006.pdf and http://www.fSCO.gov.on.ca/english/pensions/DB_Funding_2007.pdf

Tables 2 and 3 below provide a more detailed breakdown of the going concern and solvency funded ratios in respect of different types of defined benefit pension plans.

Table 2 – Going Concern Funded Ratios

Funded Ratio (FR)	Final Average	Career Average	Flat Benefit	Hybrid	MEPP	All Plans
FR < 0.60	11	2	6	2	1	22
0.60 ≤ FR < 0.80	32	11	10	6	2	61
0.80 ≤ FR < 0.90	99	25	41	32	5	202
0.90 ≤ FR < 1.00	175	55	73	82	18	403
1.00 ≤ FR < 1.20	263	108	152	118	41	682
FR ≥ 1.20	83	35	80	52	12	262
Total	663	236	362	292	79	1,632
Median Ratio	1.01	1.04	1.07	1.03	1.06	1.03

Table 3 – Solvency Funded Ratios

Solvency Ratio (SR)	Final Average	Career Average	Flat Benefit	Hybrid	MEPP	All Plans
SR < 0.60	13	3	15	4	3	38
0.60 ≤ SR < 0.80	42	64	113	28	14	261
0.80 ≤ SR < 0.90	188	76	153	94	10	521
0.90 ≤ SR < 1.00	193	60	57	82	24	416
1.00 ≤ SR < 1.20	152	23	21	62	20	278
SR ≥ 1.20	75	10	3	22	8	118
Total	663	236	362	292	79	1,632
Median Ratio	0.93	0.86	0.83	0.92	0.94	0.90

2.2 Summary of Actuarial Assumptions and Methods

The key actuarial assumptions and methods used in the funding valuation reports are as follows:

- Ninety-eight percent of the plans used the unit credit cost method (with salary projection for final average plans) to calculate the going concern liabilities.
- Assets were most frequently valued using a market or market-related approach, with 99% of the plans using either a market or smoothed market value.
- For going concern valuations, approximately 5% of the plans used a mortality assumption based on the 1983 Group Annuity Mortality (GAM) table developed by the Society of Actuaries, while 93% used a more up-to-date 1994 table (GAM, Group Annuity Reserving (GAR), Uninsured Pensioner (UP)). The 1994 UP (with or without projection of mortality improvement) mortality assumption is now used by approximately 83% of the plans⁷.

Table 4 – Liability Valuation Method

Liability Valuation Method	# of Plans	% of Plans
Unit Credit	1604	98.3%
Entry Age Normal	21	1.3%
Aggregate	2	0.1%
Other	5	0.3%
Total	1,632	100.0%

Table 5 – Asset Valuation Method

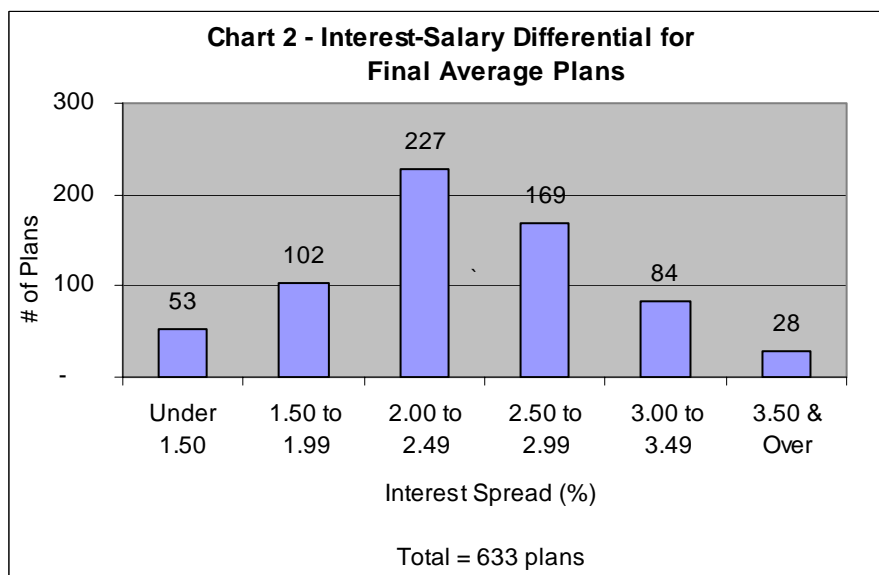
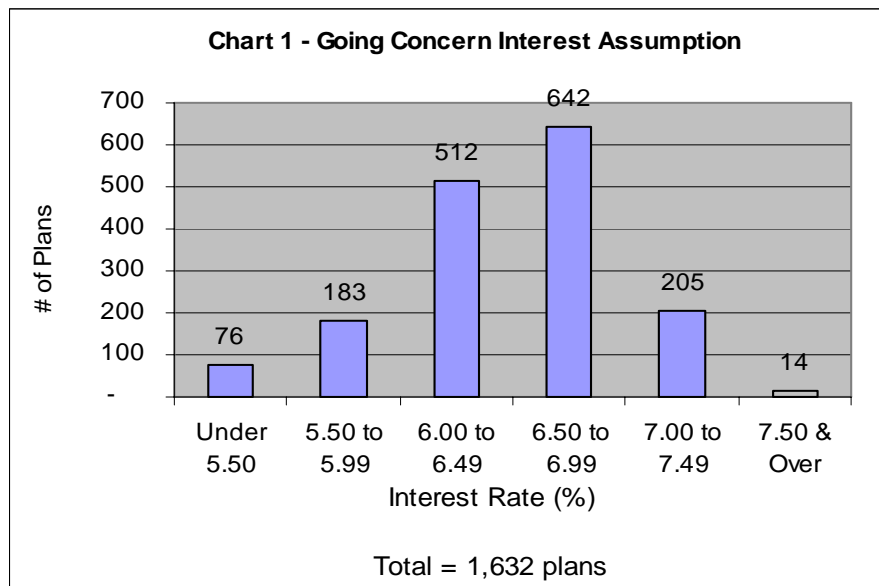
Asset Valuation Method	# of Plans	% of Plans
Market	1,070	65.6%
Smoothed Market	542	33.2%
Book	10	0.6%
Book & Market Combined	8	0.5%
Other	2	0.1%
Total	1,632	100.0%

Table 6 – Mortality Assumption

Mortality Assumption	# of Plans	% of Plans
1983 GAM	86	5.3%
1994 GAM Static	142	8.7%
1994 GAR	24	1.4 %
1994 UP	1359	83.3%
Other	21	1.3%
Total	1,632	100.0%

⁷ Also see commentary on mortality assumptions that accompanies Table 11 in this report.

- Interest rate assumptions used to value the going concern liabilities were lower than in prior years, with approximately 87% of the plans using a rate below 7.0%. Rates continued to fall within a relatively tight range, with almost two-thirds (64%) of the plans using a rate between 6.0% and 6.5%⁸.
- 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% (accounting for more than 85% of all final average plans)⁹.



⁸ Of the 642 plans that used a going concern interest rate assumption in the range of 6.50% to 6.99%, 539 plans actually used an interest rate of 6.50%.

⁹ Of the 84 final average plans with interest-salary differential in the range of 3.00% to 3.49%, 67 plans had an interest-salary differential of 3.00%.

- Table 7 shows the total wind up expense allowance made in solvency valuations by plan membership size, including members, former members and other beneficiaries¹⁰. The expense allowance is also expressed in average dollar amounts per plan and per plan member. The allowance for wind up expenses is generally higher than the amounts previously reported. 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. Because 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.

Table 7 – Provision for Wind Up Expenses

Plan Membership	# of Plans	Total Membership	Total Wind Up Expenses	Average Wind Up Expenses	
				Per Plan	Per Member
<100	523	24,677	\$21,657,272	\$41,410	\$878
100-499	590	144,434	\$58,528,000	\$99,200	\$405
500-999	196	134,240	\$38,950,000	\$198,724	\$290
1,000-4,999	218	443,081	\$95,235,400	\$436,860	\$215
5,000-9,999	31	207,798	\$41,581,000	\$1,341,323	\$200
10,000-49,999	25	444,278	\$133,678,000	\$5,347,120	\$301
Total	1,583	1,398,508	\$389,629,672	\$246,134	\$279

¹⁰ For confidentiality reasons, the one plan with more than 50,000 members and other beneficiaries was excluded from this analysis.

2.3 Estimated Funding Contributions in 2007

Table 8 presents the estimated funding contributions, comprising normal costs and special payments, that are expected to be made in respect of defined benefits in 2007, including those related to defined benefit provisions under hybrid plans. The estimates are based on information from the most recently filed funding valuation reports with valuation dates between July 1, 2004 and June 30, 2007.

Table 8 – Estimated Funding (\$Million) of Defined Benefits in 2007

	Plans with Solvency Excess	Plans with Solvency Deficit	All Plans
Number of Plans	411	1,221	1,632
Employer Normal Cost Contributions	\$1,327	\$1,961	\$3,288
Member Required Contributions	\$332	\$182	\$514
Sub-total	\$1,659	\$2,143	\$3,802
Special Payments	\$111	\$2,551	\$2,662
Total	\$1,770	\$4,694	\$6,464

The total estimated funding contributions for 2007 are estimated to be \$6.5 billion. This estimate for 2007 represents a 14% decrease from the 2006 estimate of \$7.5 billion. A large part of this decrease is due to the lower special payments required to be made in respect of decreasing funding deficits for those plans which filed a funding valuation report with a valuation date falling between July 1, 2006 and June 30, 2007.

In FSCO's previous report, special payments represented more than half (51% or \$3.8 billion) of the total 2006 funding contributions of \$7.5 billion. In contrast, special payments represent less than half (41% or \$2.7 billion) of the total 2007 funding contributions of \$6.5 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 aggregate special payments for plans with a solvency excess (\$111 million) represent 7% of the aggregate normal costs (\$1.7 billion) for these plans. This compares with the aggregate special payments for plans with a solvency deficit (\$2.6 billion), which represent 119% of the aggregate normal costs (\$2.1 billion).

3.0 Trends Analysis

The following trends analysis incorporates data from all filed reports with valuation dates between July 1, 2003 and June 30, 2007¹¹.

3.1 Solvency Funded Status

Table 9 shows a breakdown of plans by solvency ratios for the following valuation years:

- 2003 valuation year: July 1, 2003 to June 30, 2004
- 2004 valuation year: July 1, 2004 to June 30, 2005
- 2005 valuation year: July 1, 2005 to June 30, 2006
- 2006 valuation year: July 1, 2006 to June 30, 2007

The majority of plans have a valuation date of either December 31 or January 1. Plans having solvency concerns are required to file valuation reports annually and, therefore, would appear in our database for more than one valuation year.

Table 9 - Solvency Ratios by Valuation Year

Solvency Ratio (SR)	2003		2004		2005		2006	
	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans
SR < 0.60	47	4.7%	34	3.6%	37	4.5%	20	2.3%
0.60 ≤ SR < 0.80	386	38.3%	314	33.1%	336	40.7%	148	17.4%
Sub-Total < 0.8	433	43.0%	348	36.7%	373	45.2%	168	19.7%
0.80 ≤ SR < 0.90	258	25.6%	288	30.3%	200	24.2%	285	33.5%
0.90 ≤ SR < 1.00	140	13.9%	149	15.7%	119	14.4%	235	27.6%
Sub-Total < 1.00	831	82.4%	785	82.7%	692	83.8%	688	80.8%
1.00 ≤ SR < 1.20	115	11.4%	113	11.9%	91	11.0%	125	14.7%
SR ≥ 1.20	62	6.2%	51	5.4%	43	5.2%	38	4.5%
Total	1,008	100.0%	949	100.0%	826	100.0%	851	100.0%
Median Ratio	0.82		0.83		0.81		0.89	

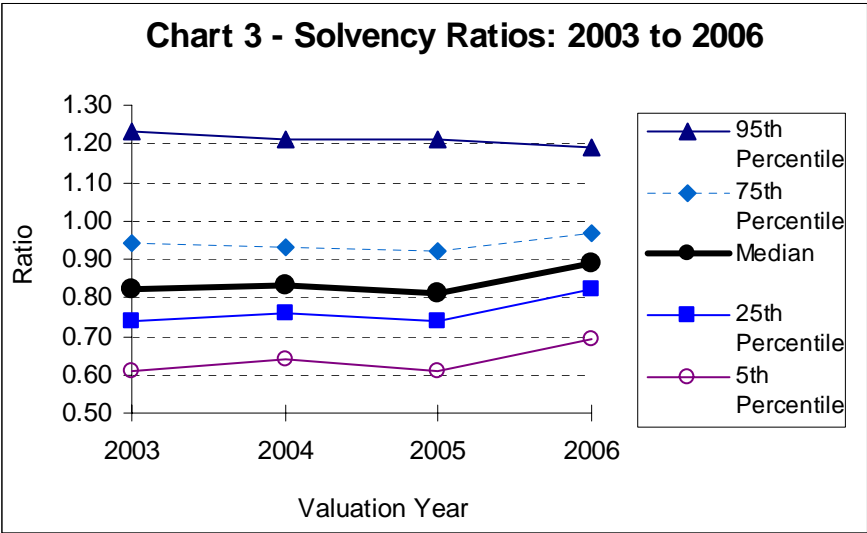
Table 9 shows an increase in the median solvency ratio from 0.81 in 2005 to 0.89 in 2006. Underfunded plans accounted for 80.8% of the plans that filed a 2006 valuation, compared with 83.8% of those plans that filed a 2005 valuation. The proportion of reports showing a solvency ratio of less than 80% dropped from 45.2% in 2005 to 19.7% in 2006.

¹¹ Plans that had outstanding funding valuation reports were excluded from the analysis in FSCO's previous report (March 2007). Some of those outstanding reports have since been filed. Therefore, the number of plans in each of the 2003, 2004 and 2005 valuation years is somewhat higher than in the previous report.

In general, the solvency funding position of pension plans improved in 2006, primarily as a result of strong investment performance and additional contributions, while solvency valuation assumptions remained relatively stable. In particular, the solvency funding position of pension plans in 2006 was affected by:

- Strong pension fund returns with a median return of 12.3%¹².
- Deficit reduction special payments made or contribution holidays taken, which had positive and negative effects, respectively.
- Solvency valuation assumptions that remained relatively stable:
 - The interest rate assumption for calculating transfer values changed from 4.5% for the first 10 years and 5.0% thereafter (effective at the end of 2005) to 4.75% for all years (effective at the end of 2006).
 - The interest rate assumption used to value immediate pensions increased slightly from 4.51% (effective at the end of 2005) to 4.60% (effective at the end of 2006).
 - The mortality assumption remained unchanged as 1994 UP with projection for mortality improvement to year 2015.

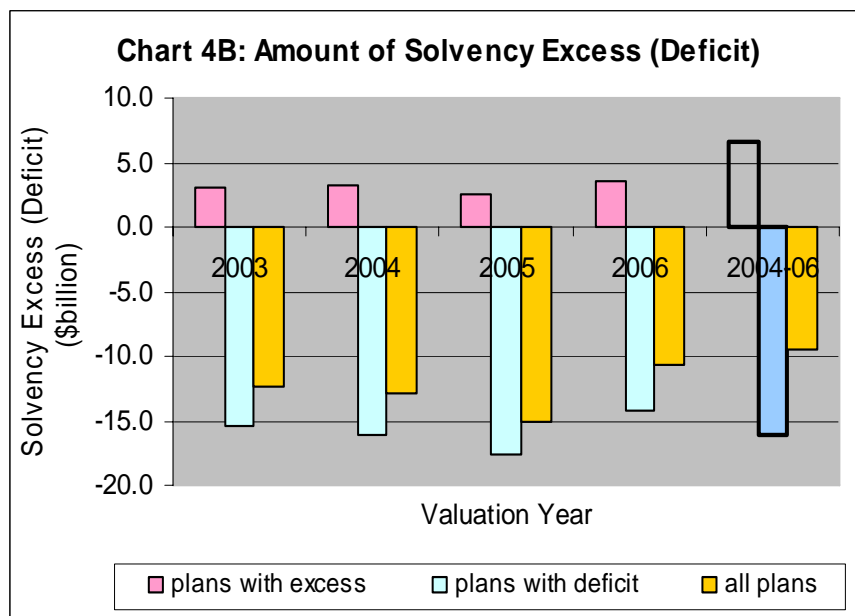
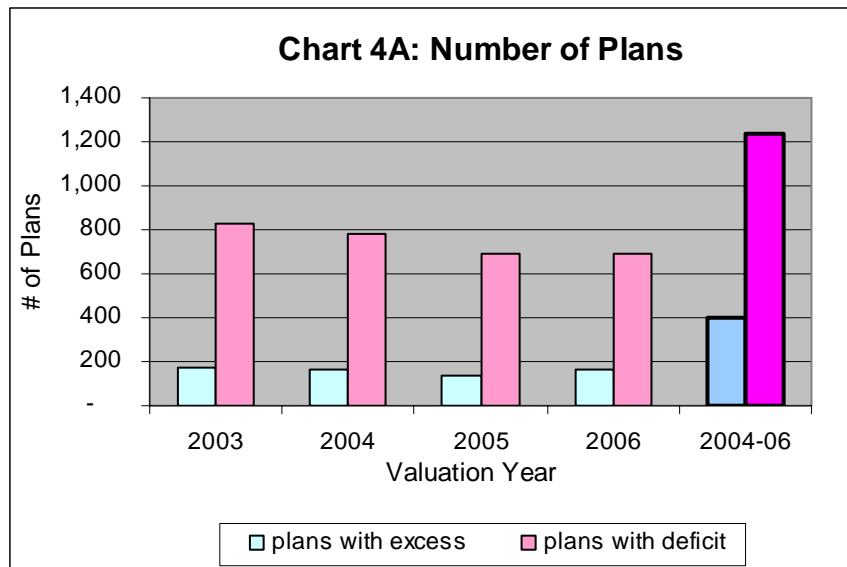
Chart 3 shows the distribution of solvency ratios at different percentiles. The solvency ratios at all percentiles experienced an increase from the 2005 valuation year to the 2006 valuation year, with the exception of the 95th percentile which has been relatively stable in recent years.



¹² Canadian Institute of Actuaries, “Report on Canadian Economic Statistics 1924-2006”, April 2007.

Chart 4 compares plans with a solvency excess to those with a solvency deficit for each of the four valuation years from 2003 to 2006, as well as for the three-year valuation period of 2004 to 2006. Chart 4A compares the number of plans and Chart 4B compares the amount of solvency excess (deficit)¹³.

Chart 4 - Solvency Funding Positions of Ontario Defined Benefit Plans



¹³ Note that the individual valuation years include those plans that filed a report with a valuation date that fell during that individual year. However, the 2004 to 2006 period includes only the last funding valuation report filed for a plan with a valuation date falling in the period July 1, 2004 to June 30, 2007. Thus, the sum of the number of plans included in each of the 2004, 2005 and 2006 valuation years is higher than the number of plans included in the combined period 2004 to 2006.

On a dollar amount basis, plans that filed a report within the three valuation years, 2004 to 2006, reported a *net* solvency deficit of \$9.5 billion (after allowance for expenses) on solvency liabilities of \$149.0 billion. This represents the aggregate level of under-funding for the defined benefit plans registered in Ontario, exclusive of the seven public sector plans and the other excluded plans previously described.

Ontario's legislation allows certain benefits (e.g., post-retirement indexation, consent benefits, plant closure and permanent layoff benefits) to be excluded in the calculation of solvency liabilities. There were 193 plans that excluded one or more of these benefits, resulting in a reduction of liabilities in the amount of \$8.8 billion. Thus, the aggregate *wind up* funding shortfall for those plans that filed a report within the three valuation years, 2004 to 2006, would have exceeded their *net* solvency deficit by the same amount. This translates into a wind up funding deficit of \$18.3 billion (\$9.5 plus \$8.8), after allowance for expenses, on wind up liabilities of \$157.8 billion.

3.2 Actuarial Assumptions

Table 10 shows the interest rate assumptions used in the going concern valuations. There is a clear trend of using a lower interest rate assumption since 2003. This downward trend has been reported since we started publishing trend statistics for valuation years after 2000. The average of the assumed interest rates declined from 6.65% to 6.24% over the four valuation years, 2003 to 2006. As a comparison, the Canadian Institute of Actuaries recommended the following select-period interest rates for computing minimum transfer values: 6% (2003), 5.5% (2004), 4.5% (2005) and 4.75% (2006).

Table 10 - Interest Rate Assumption by Valuation Year

Rate (%)	2003		2004		2005		2006	
	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans
Rate < 5.50	5	0.5%	8	0.8%	30	3.6%	47	5.5%
5.50 ≤ Rate < 6.00	21	2.1%	53	5.6%	85	10.3%	112	13.2%
6.00 ≤ Rate < 6.50	191	18.9%	238	25.1%	236	28.6%	268	31.5%
6.50 ≤ Rate < 7.00	366	36.3%	373	39.3%	356	43.1%	343	40.3%
7.00 ≤ Rate < 7.50	393	39.0%	257	27.1%	110	13.3%	81	9.5%
Rate ≥ 7.50	32	3.2%	20	2.1%	9	1.1%	0	0.0%
Total	1,008	100.0%	949	100.0%	826	100.0%	851	100.0%
Average (%)	6.65%		6.51%		6.34%		6.24%	

Table 11 shows the relative frequency of the mortality tables used in going concern valuations. Most plans are using more up-to-date mortality tables, i.e., the 1994 tables (GAM, GAR, UP). In the 2003 valuation year, 64% of the plans used a 1994 table; this percentage has been above 96% for the two most recent (2005 and 2006) valuation years.

The trend towards using more up-to-date mortality tables is particularly evident with the 1994 UP table. The proportion of plans using that table (with or without projection for mortality improvement) has increased each year since 2003, from 40.7% in 2003 to 88.8% in 2006.

Table 11 - Mortality Assumption by Valuation Year

Mortality Assumption	2003		2004		2005		2006	
	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans
1983 GAM	353	35.0%	137	14.4%	24	2.9%	13	1.5%
1994 GAM static	213	21.1%	173	18.2%	80	9.7%	49	5.8%
1994 GAR	19	1.9%	7	0.7%	9	1.1%	14	1.7%
1994 UP	410	40.7%	622	65.6%	705	85.3%	756	88.8%
Other	13	1.3%	10	1.1%	8	1.0%	19	2.2%
Total	1,008	100.0%	949	100.0%	826	100.0%	851	100.0%

3.3 Projected Solvency Position as at December 31, 2007

This section presents a projection of the solvency funding position of defined benefit plans to the end of 2007 by capturing the impact of investment returns, changes in solvency interest rates and the special payments expected to be made during 2007. The methodology and assumptions used are described below.

Methodology and Assumptions

The results reported in the last filed funding valuation (i.e., assets and liabilities) were first adjusted, where appropriate, to reflect the financial conditions as at December 31, 2006. The adjusted results were then projected to the end of 2007, using the following assumptions:

- Sponsors would use all available funding surplus, 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; and
- Amounts of cash outflow would be the same as the pension amounts payable to retired members as reported in the last filed funding valuation.

The median investment returns of pension funds (shown in Table 12 below) were used to project the market value of assets. The actual investment performance of individual plans was not reflected.

Table 12 – Median Pension Fund Returns

<u>Year</u>	<u>Annual Rate of Return</u> ¹⁴
2003	13.5%
2004	10.1%
2005	11.8%
2006	12.3%
2007	1.6%

¹⁴ For years 2003 to 2006, the rates are the median investment returns of pension funds provided in the Canadian Institute of Actuaries' *A Report on Canadian Economic Statistics 1924-2006*, dated April 2007. The rate for 2007 is the Canadian pooled balanced pension fund median return in accordance with the Mercer Investment Consulting's Pooled Fund Survey for the period ending December 31, 2007.

The projected liabilities as at December 31, 2006 and December 31, 2007 were determined by extrapolating the solvency liabilities from the last valuation, and then adjusting them to reflect any changes in the solvency valuation basis as provided in Table 13.

Table 13 – Solvency Liability Projection Basis

Valuation Date	Commuted Value Basis	Annuity Purchase Basis
December 31, 2006	Interest: 4.75% for 10 years, 4.75% thereafter Mortality: 1994 UP projected to 2015	Interest: 4.5% Mortality: 1994 UP projected to 2015
December 31, 2007	Interest: 4.75% for 10 years, 5.0% thereafter Mortality: 1994 UP projected to 2015	Interest: 4.5% Mortality: 1994 UP projected to 2015

Projection Results

Table 14 presents the distribution of solvency ratios that were reported in the filed funding valuations and the distribution of projected solvency ratios (PSRs) derived from the projected assets and liabilities.

Table 14 – Distribution of Solvency Ratios

Distribution of Solvency Ratio	As at Last Filed Valuation	PSR as at December 31, 2006	PSR as at December 31, 2007
10 th Percentile	76%	78%	82%
25 th Percentile	82%	85%	87%
50 th Percentile	90%	92%	93%
75 th Percentile	100%	101%	100%
90 th Percentile	113%	113%	111%

The median PSR is expected to increase slightly from 92% to 93% between December 31, 2006 and December 31, 2007. Losses from lower than expected returns of pension funds would be offset by the funding improvements due to special payments expected to be made during 2007. This also explains why plans with solvency ratios less than median (and often with higher proportional special payments) are expected to improve in 2007, while plans with solvency ratios above median (and often with lower proportional or zero special payments) are projected to decline slightly during the period.

The solvency valuation basis in effect on December 31, 2007 was about the same as that in effect on December 31, 2006. Accordingly, it is not expected to have an appreciable impact on the funding position of pension plans.

4.0 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 normally 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 normally based on the member’s earnings over the member’s entire period of service; and
- **Flat Benefit** – the benefit is normally based on a fixed dollar amount for each year of service.

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

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, for example, indexation, prospective benefit increases, or plant closure/layoff benefits.

Hybrid Pension Plan: A hybrid pension plan contains both defined benefit and defined contribution provisions.

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: A multi-employer pension plan covers the employees of two or more employers and is specifically defined in the PBA. Typically, these plans provide defined benefits but the required contributions are negotiated through collective bargaining.

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.