

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

*Overview and Selected Findings  
2001-2005*

**Financial Services Commission of Ontario**

**June 2006**

## TABLE OF CONTENTS

	<u>Page</u>
1.0 Introduction	3
2.0 Statistical Analysis	4
2.1 Summary of Funding Data	6
2.2 Summary of Actuarial Data	8
2.3 Estimated Funding Contributions in 2005	11
3.0 Trends Analysis	12
3.1 Solvency Funded Status	12
3.2 Actuarial Assumptions	16
3.3 Projected Solvency Position as at December 31, 2005	17
4.0 Glossary	19

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

## ***Overview and Selected Findings 2001-2005***

### **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 plans<sup>1</sup>. A required filing called the Actuarial Information Summary (AIS) and a computerized database were developed to support this initiative.

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. The form enables FSCO to efficiently collect key actuarial and financial information presented in the report. FSCO uses this data, for example, to analyze the funded status of pension plans and determine trends. This is FSCO's second report presenting some of these findings.

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<sup>1</sup> "Risk-based Supervision of the Funding of Ongoing Defined Benefit Pension Plans" (May 2000), an overview of the risk-based approach, is available on FSCO's website at: [www.fSCO.gov.on.ca](http://www.fSCO.gov.on.ca).

## 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, 2002 and June 30, 2005. The data were compiled from AIS and funding valuation reports filed between July 1, 2002 and January 31, 2006.

Generally, funding valuation reports must be filed once every three years on both a going concern and solvency basis. However, if solvency concerns are indicated<sup>2</sup>, annual filing is required until these concerns are eliminated. Early filings may also be required when events such as plan mergers, partial wind ups, or sales of businesses occur. To avoid double counting when compiling the information in this section, only the data from a plan's most recently filed report were included.

However, for the purposes of our analysis, designated plans<sup>3</sup>, plans where members are no longer accruing future benefits, and plans with outstanding valuation reports have been excluded. In addition, seven large public sector plans<sup>4</sup> have been excluded in order not to skew the analysis of the defined benefit plans.

Between July 1, 2002 and January 31, 2006, AIS data for over 5,900 funding valuation reports for defined benefit plans were entered into a database and screened through a selective review system. Forty-four percent of these reports were selected for further review, and almost 26% of these had material compliance concerns that required further follow up. With very few exceptions, the compliance concerns identified during the review were subsequently addressed by the plans' actuaries and administrators.

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<sup>2</sup> 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.

<sup>3</sup> Designated Plans are defined in section 8515 of the federal Income Tax Regulations. Generally, these are plans for connected persons and/or highly-paid executives.

<sup>4</sup> Based on the most recently filed reports, these seven public sector plans had a total membership exceeding one million (612,000 actives, 304,000 retirees and 149,000 other beneficiaries) and total assets of \$148 billion at market value. The average age of their membership was 44.3 for active members and 68.9 for retired members.

**Table 1 – Summary of Plans Included**

<b>Plan/ Benefit Type</b>	<b># of Plans</b>	<b>Active Members</b>	<b>Retired Members</b>	<b>Other Beneficiaries</b>	<b>Total</b>	<b>Market Value of Assets (\$Million)</b>
Final Average	805	319,454	191,761	84,835	596,050	\$64,199
Career Average	293	80,997	44,739	21,715	147,451	\$9,138
Flat Benefit	424	152,802	119,495	49,593	321,890	\$24,035
Hybrid	127	62,353	38,627	22,320	123,300	\$8,210
Multi-Employer	73	316,980	81,798	223,426	622,204	\$14,488
<b>Total</b>	<b>1,722</b>	<b>932,586</b>	<b>476,420</b>	<b>401,889</b>	<b>1,810,895</b>	<b>\$120,070</b>

The average age of the membership was 41.9 for active members and 71.1 for retired members.

## 2.1 Summary of Funding Data

The key findings regarding the funded status of the pension plans are as follows:

- For all plans analyzed, the median funded ratios were 96% on a going concern basis and 87% on a solvency basis.
- Of the 805 final average plans, 329 (41%) were fully funded on a going concern basis and 321 (40%) were fully funded on a solvency basis.
- Career average plans were better funded on a going concern basis than on a solvency basis. Of the 293 career average plans, 109 (37%) were fully funded on a going concern basis and 39 (13%) were fully funded on a solvency basis.
- Of the 424 flat benefit plans, 155 (37%) were fully funded on a going concern basis. On a solvency basis, flat benefit plans were the least well funded<sup>5</sup>; 397 (94%) of these plans were less than fully funded, and 213 (50%) had a solvency ratio of less than 80%.
- Of the 127 hybrid plans, 45 (35%) were fully funded on a going concern basis and 39 (31%) on a solvency basis.
- Of the 73 multi-employer pension plans (MEPPs), 47 (64%) were fully funded on a going concern basis and 20 (27%) on a solvency basis. Twelve plans (16%) had a solvency ratio of less than 80%. These 12 plans accounted for approximately 400,000 members and former members, 65% of the total MEPP membership.

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

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<sup>5</sup> The funded status of flat benefit plans may be partly attributable to the fact that many of these plans provide for periodic benefit improvements that are rarely pre-funded. Instead, once a benefit improvement becomes effective, the cost is amortized over a period of either five (solvency) or 15 (going concern) years, as the case may be.

**Table 2 – Going Concern Funded Ratios**

<b>Funded Ratio (FR)</b>	<b>Final Average</b>	<b>Career Average</b>	<b>Flat Benefit</b>	<b>Hybrid</b>	<b>MEPP</b>	<b>All Plans</b>
FR < 0.60	18	5	6	6	1	36
0.60 ≤ FR < 0.80	89	19	39	11	2	160
0.80 ≤ FR < 0.90	163	60	103	28	11	365
0.90 ≤ FR < 1.00	206	100	121	37	12	476
1.00 ≤ FR < 1.20	226	87	109	30	41	493
FR ≥ 1.20	103	22	46	15	6	192
<b>Total</b>	<b>805</b>	<b>293</b>	<b>424</b>	<b>127</b>	<b>73</b>	<b>1,722</b>
<b>Median Ratio</b>	<b>0.96</b>	<b>0.96</b>	<b>0.96</b>	<b>0.94</b>	<b>1.03</b>	<b>0.96</b>

**Table 3 – Solvency Funded Ratios**

<b>Solvency Ratio (SR)</b>	<b>Final Average</b>	<b>Career Average</b>	<b>Flat Benefit</b>	<b>Hybrid</b>	<b>MEPP</b>	<b>All Plans</b>
SR < 0.60	17	8	17	7	4	53
0.60 ≤ SR < 0.80	100	88	196	26	8	418
0.80 ≤ SR < 0.90	217	103	148	38	15	521
0.90 ≤ SR < 1.00	150	55	36	17	26	284
1.00 ≤ SR < 1.20	192	26	17	23	17	275
SR ≥ 1.20	129	13	10	16	3	171
<b>Total</b>	<b>805</b>	<b>293</b>	<b>424</b>	<b>127</b>	<b>73</b>	<b>1,722</b>
<b>Median Ratio</b>	<b>0.94</b>	<b>0.83</b>	<b>0.80</b>	<b>0.88</b>	<b>0.94</b>	<b>0.87</b>

## 2.2 Summary of Actuarial Data

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 value approach, with 98% of the plans using either a market or smoothed market value.
- For going concern valuations, approximately 29% of the plans used a mortality assumption based on the 1983 Group Annuity Mortality (GAM) table developed by the Society of Actuaries, while 70% used a more up-to-date 1994 table (GAM, Group Annuity Reserving (GAR), Uninsured Pensioner (UP))<sup>6</sup>.

**Table 4 – Liability Valuation Method**

<b>Liability Valuation Method</b>	<b># of Plans</b>	<b>% of Plans</b>
Unit Credit	1682	97.7%
Entry Age Normal	22	1.3%
Aggregate	8	0.4%
Other	10	0.6%
<b>Total</b>	<b>1722</b>	<b>100.0%</b>

**Table 5 – Asset Valuation Method**

<b>Asset Valuation Method</b>	<b># of Plans</b>	<b>% of Plans</b>
Market	1,046	60.7%
Smoothed Market	644	37.4%
Book	14	0.8%
Book & Market Combined	17	1.0%
Other	1	0.1%
<b>Total</b>	<b>1,722</b>	<b>100.0%</b>

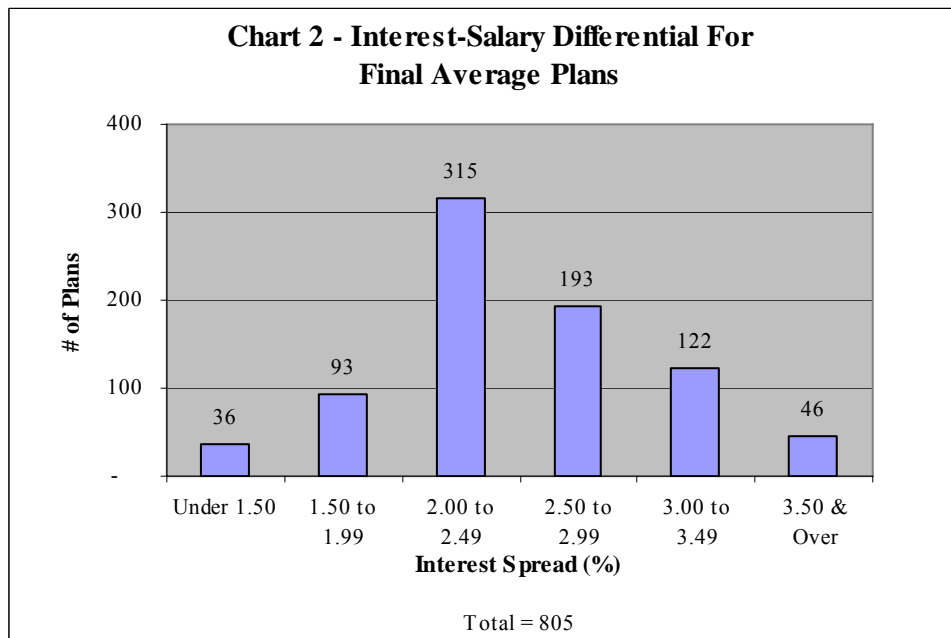
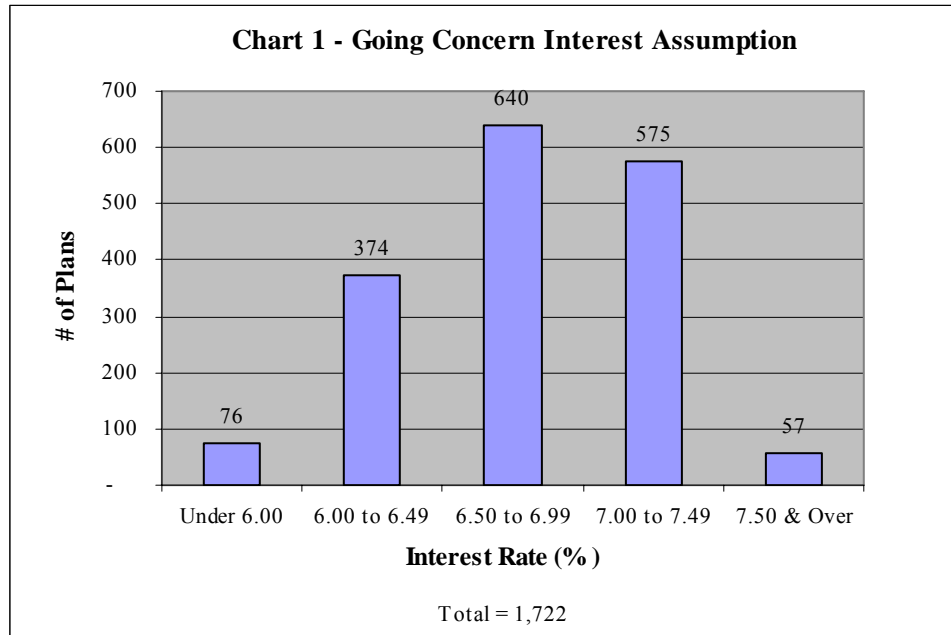
**Table 6 – Mortality Assumption**

<b>Mortality Assumption</b>	<b># of Plans</b>	<b>% of Plans</b>
1983 GAM	493	28.6%
1994 GAM Static	354	20.6%
1994 GAR	26	1.5%
1994 UP	829	48.1%
Other	20	1.2%
<b>Total</b>	<b>1,722</b>	<b>100.0%</b>

<sup>6</sup> Also see commentary on mortality assumptions that accompanies Table 11 in this report.



- Interest rate assumptions used to value the going concern liabilities fell within a relatively tight range, with over 90% of the plans using a rate between 6.0% and 7.0%<sup>7</sup>.
- For final average 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 almost 90% of all final average plans)<sup>8</sup>.



<sup>7</sup> Of the 575 plans that used a going concern interest rate assumption in the range of 7.00% to 7.49%, 568 plans actually used an interest rate of 7.00%.

<sup>8</sup> Of the 122 final average plans with interest-salary differential in the range of 3.00% to 3.49%, 100 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 beneficiaries)<sup>9</sup>. It then expresses the expense allowance in 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 to occur for plans with 5,000 or more members; however, because there are only a small number of these plans, greater caution should be exercised when interpreting the results for plans of this size.

**Table 7 – Provision for Wind Up Expenses**

<b>Plan Membership</b>	<b># of Plans</b>	<b>Total Membership</b>	<b>Total Wind Up Expenses</b>	<b>Average Wind Up Expenses</b>	
				<b>Per Plan</b>	<b>Per Member</b>
<100	565	26,206	\$21,675,696	\$38,364	\$827
100-499	612	147,378	\$54,975,350	\$89,829	\$373
500-999	202	137,430	\$35,056,664	\$173,548	\$255
1,000-4,999	227	473,530	\$85,100,135	\$374,890	\$180
5,000-9,999	31	207,323	\$47,162,000	\$1,521,355	\$227
10,000-49,999	26	446,913	\$119,623,000	\$4,600,885	\$268
<b>Total</b>	<b>1,665</b>	<b>1,792,462</b>	<b>\$378,592,845</b>	<b>\$227,383</b>	<b>\$211</b>

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<sup>9</sup> Two plans, each with more than 50,000 members and other beneficiaries, were excluded from this analysis, as were those plans for which no wind up expense assumption was made.

## 2.3 Estimated Funding Contributions in 2005

Table 8 presents the estimated funding contributions and special payments in respect of defined benefits (including those contained in hybrid plans) in 2005. This information is based on the most recently filed funding valuation reports with a valuation date between July 1, 2002 and June 30, 2005.

**Table 8 – Estimated Funding (\$Million) of Defined Benefits in 2005**

	<b>Plans with Solvency Excess</b>	<b>Plans with Solvency Deficit</b>	<b>All Plans</b>
Number of Plans	446	1,276	1,722
Employer Normal Cost Contributions	\$1,153	\$1,812	\$2,965
Member Required Contributions	\$291	\$231	\$522
<b>Sub-total</b>	<b>\$1,444</b>	<b>\$2,043</b>	<b>\$3,487</b>
Special Payments	\$112	\$3,053	\$3,165
<b>Total</b>	<b>\$1,556</b>	<b>\$5,096</b>	<b>\$6,652</b>

The table also shows the estimated funding in 2005 for plans with a solvency funding excess and plans with a solvency funding deficit. The aggregate special payments for plans with a solvency excess (\$112 million) represent 8% of the aggregate normal costs (\$1.4 billion), compared with the aggregate special payments for plans with a solvency deficit (\$3 billion), which represent 150% of the aggregate normal costs (\$2 billion). The total estimated funding for 2005 amounts to \$6.6 billion<sup>10</sup>.

<sup>10</sup> For the 7 public sector plans excluded from the above table, the estimated funding contributions to be made in 2005 amount to \$4.9 billion. This consists of \$2.5 billion of employer contributions, \$2.4 billion of member required contributions and \$1 million of special payments.

### 3.0 Trends Analysis

The following trends analysis incorporates data from all filed reports with a valuation date between July 1, 2001 and June 30, 2005<sup>11</sup>.

#### 3.1 Solvency Funded Status

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

- 2001 valuation year: July 1, 2001 to June 30, 2002
- 2002 valuation year: July 1, 2002 to June 30, 2003
- 2003 valuation year: July 1, 2003 to June 30, 2004
- 2004 valuation year: July 1, 2004 to June 30, 2005

The majority of plans have a valuation date of either December 31 or January 1. Plans with solvency concerns filed valuations annually and, therefore, appear in the database for more than one valuation year.

**Table 9 - Solvency Ratios By Valuation Year**

Solvency Ratio (SR)	2001		2002		2003		2004	
	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans
SR < 0.60	23	3.3%	67	7.5%	44	4.4%	28	3.3%
0.60 ≤ SR < 0.80	141	20.1%	384	43.0%	385	38.8%	299	35.0%
Sub-Total < 0.8	164	23.4%	451	50.6%	429	43.3%	327	38.2%
0.80 ≤ SR < 0.90	125	17.8%	145	16.2%	252	25.4%	258	30.2%
0.90 ≤ SR < 1.00	119	17.0%	82	9.2%	138	13.9%	126	14.7%
Sub-Total < 1.00	408	58.2%	678	76.0%	819	82.6%	711	83.1%
1.00 ≤ SR < 1.20	166	23.6%	118	13.2%	113	11.4%	98	11.5%
SR ≥ 1.20	128	18.2%	96	10.8%	59	6.0%	46	5.4%
Total	702	100.0%	892	100.0%	991	100.0%	855	100.0%
Median Ratio	0.95		0.80		0.82		0.83	

As a result of steep stock market losses and lower bond yields, there was a significant deterioration in pension plan funded positions between 2001 and 2002.

The table above shows the median solvency ratio of pension plans declined substantially from 95% for the 2001 valuation year to 80% the following year. Slight improvements were experienced over the next two years, resulting in a median solvency ratio of 83% for the 2004 valuation year. Underfunded plans accounted for 83% of the plans that filed a 2004 valuation,

<sup>11</sup> Plans that had outstanding funding valuation reports were excluded from the analysis in the previous report (September 2005), but have since filed these reports with FSCO. Therefore, the number of plans in the 2001, 2002 and 2003 valuation years is somewhat higher than was the case in the previous report.

compared with 82% in the 2003 valuation year. The number of reports that showed a solvency ratio of less than 80% decreased from 429 (43%) to 327 (38%) during that period.

It seems likely that the change in the solvency funded position in the 2004 valuation year was primarily the net result of three factors:

- strong pension fund returns, with a median return of 10.1%;
- decrease in solvency interest rates, from 6.00% to 5.50%; and
- deficit reduction payments made or contribution holidays taken, which had positive and negative effects, respectively.

Chart 3 shows the distribution of solvency ratios at different percentiles. The solvency ratios at the 75<sup>th</sup> and 95<sup>th</sup> percentiles continued to experience a small decrease in 2004, mainly because contribution holidays taken by employers in plans with surplus more than offset the effect of strong fund returns. On the other hand, the solvency ratios at the 5<sup>th</sup>, 25<sup>th</sup> and 50<sup>th</sup> percentiles increased slightly, due primarily to the combined effect of strong fund returns and deficit reduction payments.

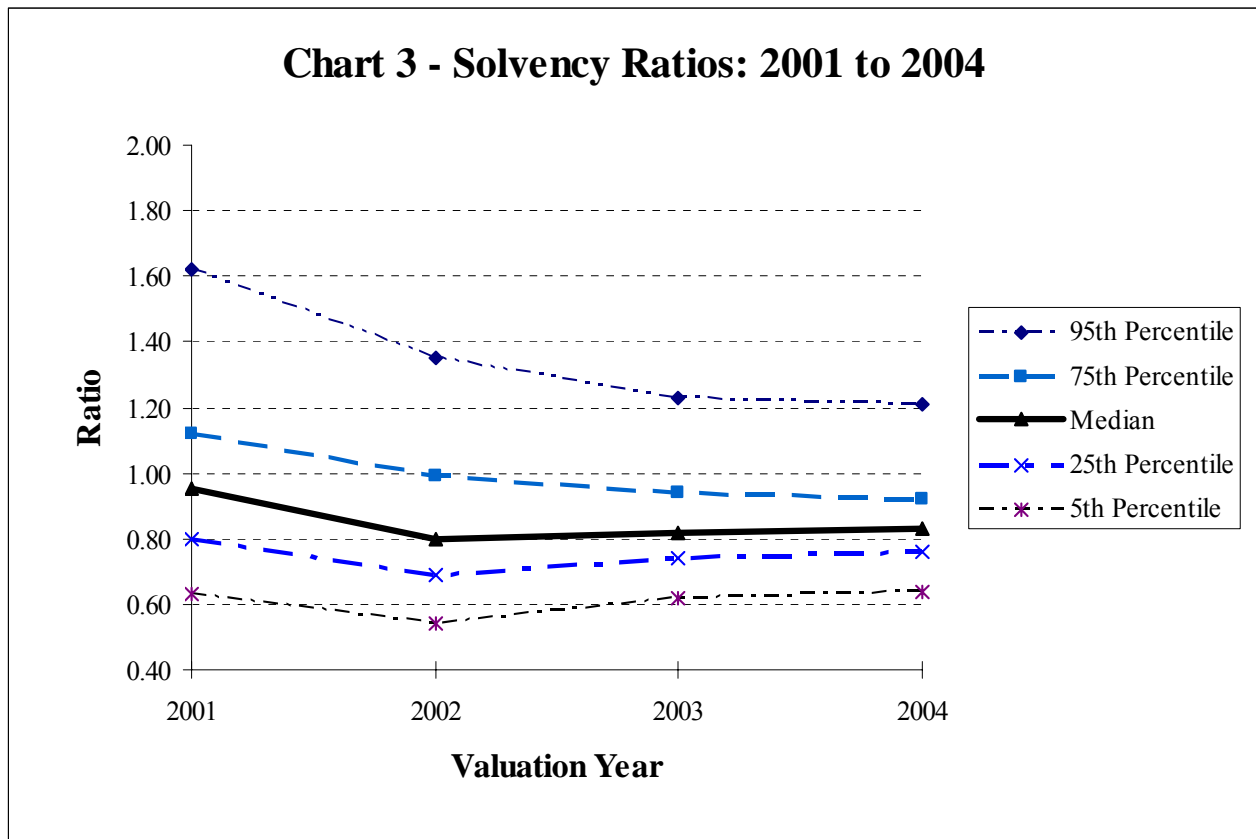


Chart 4 compares plans with a solvency funding excess to those with a solvency funding deficit for each of the four valuation years from 2001 to 2004, as well as the three-year valuation period from 2002 to 2004. Chart 4A compares the number of plans and Chart 4B compares the amount of solvency excess (deficit)<sup>12</sup>.

On a dollar amount basis, plans that filed a report for the three valuation years, 2002 to 2004, reported a *net* solvency deficit of \$10.9 billion. This represents the aggregate level of underfunding for the defined benefit plans registered in Ontario, *exclusive of the seven public sector plans<sup>13</sup> and the other excluded plans previously described.*

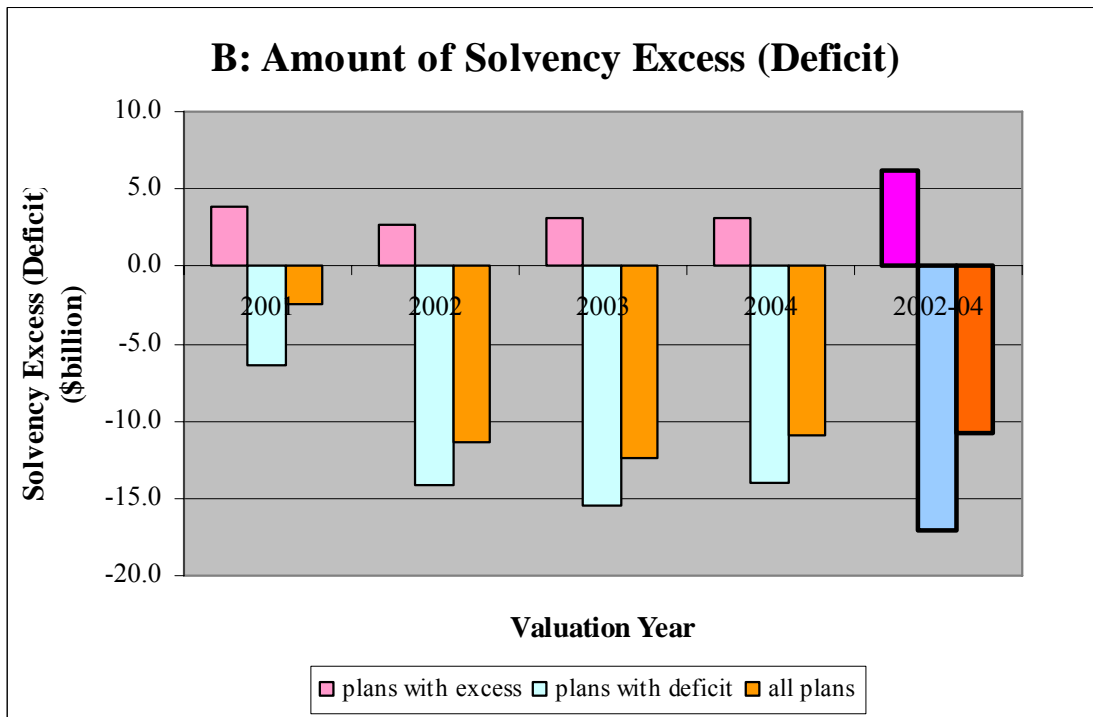
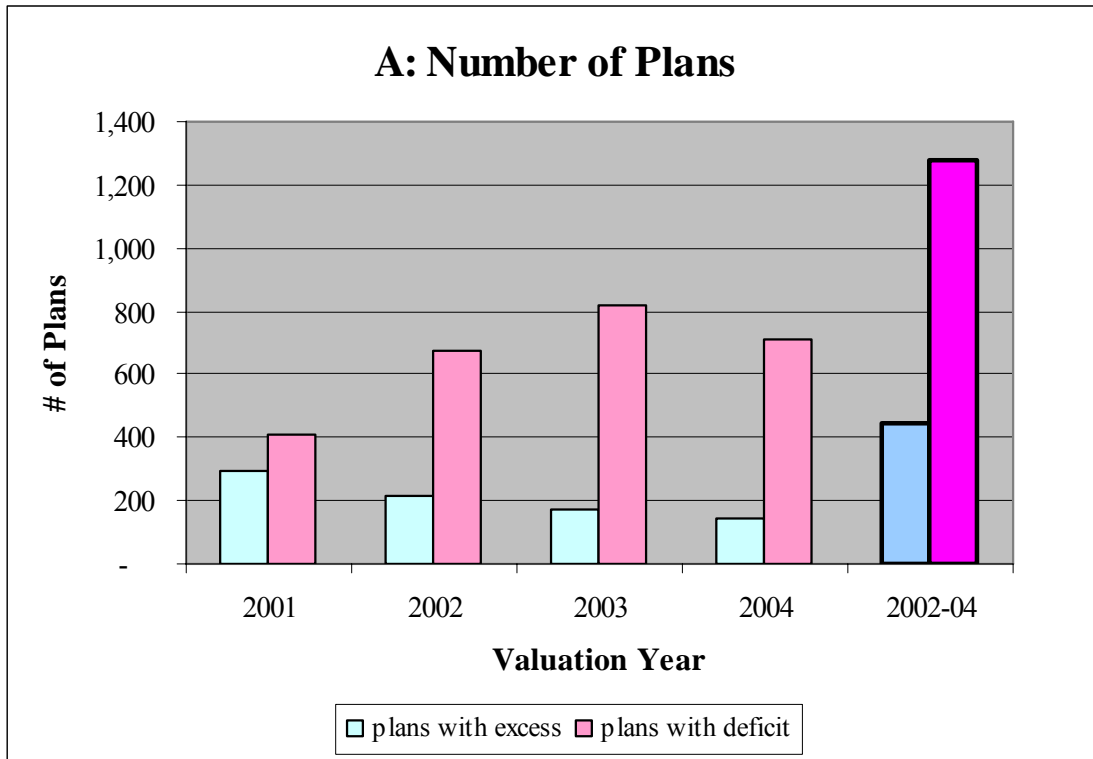
Ontario's legislation allows certain benefits (e.g., post-retirement indexation, consent benefits, plant closure and permanent layoff benefits, etc.) to be excluded in the calculation of solvency liabilities. A total number of 188 plans excluded one or more of these benefits, resulting in a reduction of liabilities in the amount of \$7.8 billion. Thus, the aggregate *wind up* funding deficit in respect of those plans that filed a report for the three valuation years, 2002 to 2004, would have exceeded their *net* solvency deficit by the same amount, for a total of \$18.7 billion (\$10.9 plus \$7.8).

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<sup>12</sup> Note that the period 2002 to 2004 includes only the last funding valuation report filed for a plan with a valuation date falling in the period July 1, 2002 to June 30, 2005. On the other hand, the 2002 valuation year includes those plans that filed a report with a valuation date between July 1, 2002 and June 30, 2003. Thus, the sum of the number of plans included in each of the 2002, 2003, and 2004 valuation years is higher than the number of plans included in the combined period 2002 to 2004.

<sup>13</sup> Of the seven public sector plans, five had a solvency ratio of above 1.0 and a total solvency excess of \$7.5 billion. The two other plans were underfunded and had a total deficit of \$5.0 billion. In aggregate, these seven plans had a *net* solvency excess of \$2.5 billion. Note that five of these seven plans chose to exclude indexing benefits in their calculation of solvency liabilities. The total excluded liabilities amounted to \$20.2 billion.

**Chart 4 - Solvency Funded Positions of Ontario DB Plans (Solvency Excess vs Solvency Deficit)**



### 3.2 Actuarial Assumptions

Table 10 shows the interest rate assumptions used in the going concern valuations. There is a clear trend of using lower interest assumptions. The average of the assumed interest rates declined from 6.84% to 6.51% over the four valuation years, 2001 to 2004. As a comparison, the proxy interest rates for computing minimum transfer values recommended by the Canadian Institute of Actuaries were: 6% (2001), 6.25% (2002), 6% (2003), and 5.5% (2004).

**Table 10 - Interest Rate Assumption by Valuation Year**

Rate (%)	2001		2002		2003		2004	
	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans
Rate < 5.50	2	0.3%	2	0.2%	5	0.5%	9	1.1%
5.50 ≤ Rate < 6.00	6	0.9%	7	0.8%	20	2.0%	42	4.9%
6.00 ≤ Rate < 6.50	98	14.0%	106	11.9%	186	18.8%	220	25.7%
6.50 ≤ Rate < 7.00	168	23.9%	275	30.8%	361	36.4%	330	38.6%
7.00 ≤ Rate < 7.50	307	43.7%	427	47.9%	388	39.2%	236	27.6%
Rate ≥ 7.50	121	17.2%	75	8.4%	31	3.1%	18	2.1%
Total	702	100.0%	892	100.0%	991	100.0%	855	100.0%
Average (%)	6.84%		6.78%		6.65%		6.51%	

Table 11 shows the relative frequency of mortality tables used in the going concern valuations. An increasing number of plans are using more up-to-date mortality tables; i.e., the 1994 tables (GAM, GAR, UP). In the 2001 valuation year, only 32% of the plans used the 1994 tables. This percentage increased to 83% in the 2004 valuation year.

The trend towards using more up-to-date mortality tables is particularly evident with the 1994 UP table. The proportion of plans using the 1994 UP mortality table increased each valuation year, from 11.8% in 2001 to 63.9% in 2004.

**Table 11 - Mortality Assumption by Valuation Year**

Mortality Assumption	2001		2002		2003		2004	
	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans	# of Plans	% of Plans
1983 GAM	467	66.5%	463	51.9%	347	35.0%	135	15.8%
1994 GAM static	129	18.4%	184	20.6%	210	21.2%	158	18.5%
1994 GAR	11	1.6%	20	2.2%	19	1.9%	6	0.7%
1994 UP	83	11.8%	214	24.0%	401	40.5%	546	63.9%
Other	12	1.7%	11	1.2%	14	1.4%	10	1.2%
Total	702	100.0%	892	100.0%	991	100.0%	855	100.0%



### 3.3 Projected Solvency Position as at December 31, 2005

Under Ontario's legislation, defined benefit pension plans must file funding valuation reports with FSCO every three years, or every year if solvency concerns exist, within nine months of the valuation date of the report. Therefore, given the time period between filings, the financial information contained in the last filed report can be nearly four years out of date. In the interim, economic conditions might have changed significantly, causing a material change in the funding position of pension plans.

In order to obtain an up-to-date picture of the financial health of pension plans, the results of the last filed funding valuation (i.e., assets and liabilities) were adjusted, where appropriate, to reflect the financial conditions as at December 31, 2004. The results were then projected to the end of December 31, 2005.

The *median* investment returns of pension funds, as indicated below, were used to project the market value of assets. Actual investment performance of individual plans was not reflected.

**Table 12 – Median Investment Returns**

<u>Year</u>	<u>Annual Rate of Return</u> <sup>14</sup>
2001	0.6%
2002	-3.9%
2003	13.5%
2004	10.1%
2005	11.8%

The projected liabilities as at December 31, 2004 and December 31, 2005 were determined by extrapolating the solvency liabilities from the last valuation, and then adjusted to reflect any changes in the solvency valuation basis:

**Table 13 – Solvency Liability Projection Basis**

<u>Valuation Date</u>	<u>Commuted Value Basis</u>	<u>Annuity Purchase Basis</u>
December 31, 2004	Interest: 5.5% for 15 years, 6% thereafter Mortality: GAM 83 Table	Interest: 5.25% Mortality: 1994 UP projected to 2015
December 31, 2005	Interest: 4.5% for 10 years, 5% thereafter Mortality: 1994 UP projected to 2015	Interest: 4.5% Mortality: 1994 UP projected to 2015

<sup>14</sup> For years 2001 to 2005, the rates are the median investment returns of pension funds provided in the *CIA Report on Canadian Economic Statistics 1924-2005*, dated March 2006.

Other assumptions used in the projection are:

- Sponsors would use all available funding surplus, subject to any statutory restrictions, for contribution holidays;
- Sponsors would make the normal cost contributions and, if required, deficit reduction special payments at the statutory minimum level; and
- Cash outflow estimates were based on the amounts of pensions payable to retired members as provided in the data summary of the last filed funding valuation reports.

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

**Table 14 – Distribution of Solvency Ratios**

<b>Distribution of Solvency Ratio</b>	<b>As at Last Filed Valuation</b>	<b>PSR as at December 31, 2004</b>	<b>PSR as at December 31, 2005</b>
10 <sup>th</sup> Percentile	72%	74%	70%
25 <sup>th</sup> Percentile	80%	81%	74%
50 <sup>th</sup> Percentile	87%	89%	80%
75 <sup>th</sup> Percentile	100%	99%	88%
90 <sup>th</sup> Percentile	120%	115%	102%

The table shows that the median PSR decreased by nine percentage points between December 31, 2004 and December 31, 2005. This nine-percentage point drop results from the combination of three main factors:

- Favourable investment returns and deficit reduction special payments increased the PSR by approximately seven percentage points.
- Lower bond yields reduced the PSR by approximately six percentage points.
- A change in the actuarial standard of calculating the commuted value of pension benefits for transfer purposes reduced the PSR by approximately ten percentage points.

These projection results indicate that the solvency position of pension plans is expected to deteriorate over 2005, despite the strong returns of pension funds.

## 4.0 Glossary

The following terms are explained for the purpose of this report, “Funding Defined Benefit Pension Plans: Risk-Based Supervision in Ontario” (June 2006).

**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 expense and investment return allocated to the 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 will 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 and prospective benefit increases.

**Hybrid Pension Plan:** A hybrid pension plan includes components of both defined benefit and defined contribution plans.

**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 legislation. These plans typically provide defined benefits.

**Smoothed Market Value:** The smoothed market value, a method of asset valuation, 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.