

Report on Pension Plans Registered in British Columbia

AUGUST 2016



Financial
Institutions
Commission

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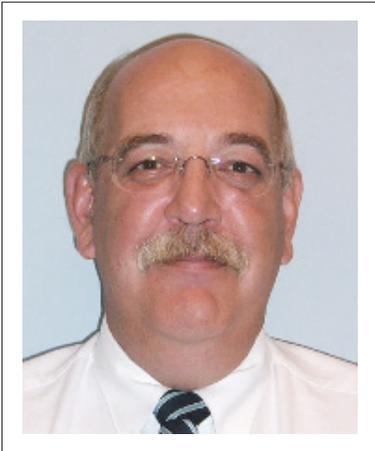
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Foreword from the Acting Superintendent of Pensions



I am pleased to provide the second report on the profile of pension plans registered in British Columbia.

Pensions have an important role in contributing to the economic well-being of retirees. The mandate of the Office of the Superintendent of

Pensions is to maximize benefit security for future retirees and to safeguard the assets of regulated pension plans. In order to fulfill our mandate, we continue to transition our supervisory practices from a compliance-based to a risk-based process.

While the focus of risk-based regulation has been on plans containing defined benefit provisions, we have had to incorporate plans that contain target benefit provisions into the model. As well, we will soon be expanding our model to incorporate risk-based analysis of plans that contain defined contribution provisions. The underlying theme of our risk-based approach is to reduce the risk of loss to plan members by conducting timely risk assessments of plans and notifying administrators of plans that show increased levels of risk.

In addition to our ongoing work on the risk-based regulatory regime this past year, we have dealt with several new challenges. A new *Pension Benefits Standards Act* came into force on September 30, 2015, and new regulations governing plans that contain a target benefit provision were introduced. The new legislation is an outcome of our working more closely with our Alberta colleagues (dating back to the appointment of the Joint Expert Panel on Pension Standards in 2007). I expect our cooperative efforts to continue in the coming years.

The new Act brought about many changes. Members are now immediately vested in their pension benefits, retirees receiving pensions from a plan will now receive annual statements, and employers have additional flexibility in funding through the introduction of the solvency reserve account.

The introduction of financial hardship unlocking allows those with locked-in pension funds to access financial resources, when certain conditions are met.

Plan administrators are looking at different ways to manage their pension funding risk given the unprecedented low interest rates, market volatility and improvements in longevity. The introduction of target benefit plan design in the new legislation has provided administrators with some flexibility in managing their pension funding risk.

A handwritten signature in black ink that reads "Michael J. Peters". The signature is written in a cursive style and is positioned above a horizontal line.

MICHAEL J. PETERS
ACTING SUPERINTENDENT OF PENSIONS

About This Report

This is the second report on pension plans prepared by British Columbia's Superintendent of Pensions. While last year's report focused on risk assessment of defined benefit plans, this year's report includes a profile of all pension designs, both defined benefit and defined contribution plans. The report presents:

- » A summary of market performance;
- » A profile of defined contribution pension plans;
- » A profile of defined benefit pension plans;
- » An estimate of the funding position of defined benefit plans;
- » A report on the risk assessment of defined benefit plans; and
- » A discussion of target benefit plans.

Capital and Equity Markets Performance

CANADIAN INTEREST RATES

During 2014 and 2015, longer-term interest rates, used to determine solvency liabilities, decreased significantly from those in 2013 (see Table 2.1). This resulted in an increase in solvency liabilities.

TABLE 2.1: GOVERNMENT OF CANADA BOND YIELDS AND SOLVENCY INTEREST RATES

	Rates in Dec. 2015	Rates in Dec. 2014	Rates in Dec. 2013
Government of Canada bonds ^A			
• Long-term (V122544)	2.16%	2.33%	3.20%
• 10-year (V122543)	1.40%	1.79%	2.72%
• 91-day T-bill (V122541)	0.50%	0.91%	0.89%
Solvency interest rates (non-indexed pensions) ^B			
• Commuted value	2.10%/3.70%	2.50%/3.80%	3.00%/4.60%
• Annuity purchase	3.13%	2.52%	3.43%

^A BANK OF CANADA STATISTICS:

[HTTP://WWW.BANKOFCANADA.CA/RATES/INTEREST-RATES/](http://www.bankofcanada.ca/rates/interest-rates/)

^B BASED ON CANADIAN INSTITUTE OF ACTUARIES' GUIDANCE. FOR COMMUTED VALUE, THE FIRST INTEREST RATE APPLIES TO THE FIRST 10 YEARS AFTER THE CALCULATION DATE AND THE SECOND INTEREST RATE APPLIES TO SUBSEQUENT YEARS. THE ANNUITY PURCHASE RATE SHOWN IS THAT FOR AN ILLUSTRATIVE BLOCK WITH MEDIUM DURATION.

ASSET CLASS RETURNS

During 2014, U.S. and Canadian equity markets posted strong gains. International equity markets slowed, particularly in Europe.

While U.S. and international equities posted gains in 2015, it was a tough year for the Canadian market. The worst performing sectors were energy and materials.

The Canadian dollar fell in both 2014 and 2015 relative to other currencies, which led to a further increase in net returns for unhedged pension funds holding U.S. and international stocks. The Canadian fixed-income market experienced gains in 2014 and 2015, mainly as a result of the decline in bond yields, particularly in 2014.

The rates of return on major asset classes are summarized in Table 2.2.

TABLE 2.2: ASSET CLASS RETURNS OF THE GENERAL MARKET, 2013–2015

	Returns in 2015	Returns in 2014	Returns in 2013
Stock returns			
• Canadian equities: S&P TSX Composite	-8.3%	10.6%	13.0%
• U.S. equities: S&P 500 (Canadian dollars)	21.0%	24.0%	41.5%
• Non-North American equities: MSCI – EAFE (Canadian dollars)	19.0%	3.7%	31.0%
Fixed-income returns			
• 90-day T-bills	0.6%	0.9%	1.0%
• DEX Universe Bond	3.5%	8.8%	-1.2%
• DEX Long Bonds	3.8%	17.5%	-6.2%

^A SOURCE: AUBIN CONSULTING ACTUARY INC. STATISTICS.

[HTTP://WWW.AUBINACTUAIRECONSEIL.CA](http://www.aubinactuaireconseil.ca)

Plan Membership

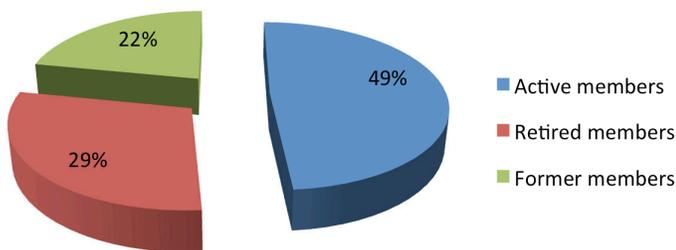
The demographic profile provided in this section is based on annual pension reports.

Defined benefit plans – As of December 31, 2014, BC had 196 registered defined benefit plans. In those were:

- » 442,000 active members;
- » 266,000 retired members (including surviving beneficiaries); and
- » 199,000 former members entitled to benefits.

The proportion of this total made up by active members (see Figure 3.1) has declined to 49% from 65% over the last 15 years.

FIGURE 3.1: PERCENTAGE OF DEFINED BENEFIT PLAN MEMBERS BY MEMBERSHIP STATUS



Defined contribution plans – As of December 31, 2014, there were 85,000 members enrolled in 538 registered defined contribution plans. This represents just over 8% of the total number of members in registered pension plans in BC.

The distribution of defined benefit and defined contribution plans by number of covered members is shown in Table 3.1 and Table 3.2, respectively.

TABLE 3.1: NUMBER OF COVERED MEMBERS IN DEFINED BENEFIT PENSION PLANS, AS AT DECEMBER 31, 2014

Number of Covered Members	Number of Plans	Total Number of Members
Fewer than 1,000	140	31,703
1,000–4,999	34	67,823
5,000–9,999	10	63,225
10,000 or more	12	744,186
Total	196	906,937

TABLE 3.2: NUMBER OF DEFINED CONTRIBUTION PENSION PLANS BY NUMBER OF COVERED MEMBERS, AS AT DECEMBER 31, 2014

Number of Covered Members	Number of Plans	Total Number of Members
Fewer than 100	399	31,703
100–499	107	22,960
500–999	17	12,376
1,000 or more	15	37,648
Total	538	84,696

As Table 3.2 shows, the majority of defined contribution plans have fewer than 100 members.

Fund Asset Mix and Performance of Defined Benefit Plans

The asset information provided in this section is based on annual pension reports for plan years ending in 2014.

Total assets held in all registered pension plans as at December 31, 2014, was \$128.3 billion. Table 4.1 lists the assets by plan type.

TABLE 4.1: TOTAL ASSETS OF REGISTERED PENSION PLANS AS AT DECEMBER 31, 2014

Plan Type	Market Value (\$ Millions)
Defined benefit	\$121,446
Defined contribution	\$4,729
Combination of defined benefit and defined contribution	\$2,102
Total Assets	\$128,277

As of December 31, 2014, defined benefit plans registered in BC held assets of \$121 billion invested in the following asset classes:

- » 48% in publicly traded equities;
- » 28% in fixed-income securities;
- » 13% in real estate investments; and
- » 11% in other vehicles, including hedge funds, private equities, financial derivatives and infrastructure

There was a net increase in defined benefit plan assets over the previous year of approximately \$12.4 billion, most of which was attributable to investment income.

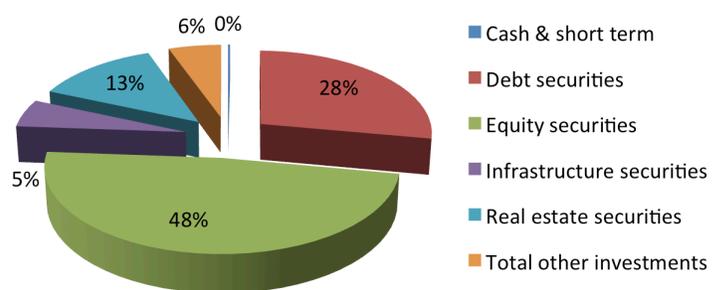
As of December 31, 2014, defined contribution and other combination plans held assets of \$6.8 billion, which was an increase of approximately \$500 million over the previous year.

In 2014, the proportion of assets allocated to fixed-income investments grew by almost 17%, while assets in equities grew by only 8%. Total assets reported as infrastructure assets over the previous year also grew 61% (from \$4.1 billion to \$6.6 billion). Table 4.2 and Figure 4.1 provide a breakdown of defined benefit assets by asset class.

TABLE 4.2: ASSET ALLOCATION OF ALL DEFINED BENEFIT PENSION PLANS, AS AT DECEMBER 31, 2014

Asset Class	Market Value (% of Total)
Cash & short term	0.2
Debt securities	27.2
Equity securities	48.2
Infrastructure securities	5.4
Real estate securities	13.0
Others	5.5
Total	100

FIGURE 4.1: PERCENTAGE DISTRIBUTION OF ASSET ALLOCATION ACROSS ALL DEFINED BENEFIT PENSION PLANS, AS AT DECEMBER 31, 2014



PERFORMANCE OF PENSION PLAN ASSETS

Most plans reported investment returns higher than the discount rate assumptions used in their valuation reports, and showed significant investment gains. The median discount rate assumed for 2014 valuation reports was 5.25% compared with the median return on assets of 10.9%. These higher returns were the result of a significant improvement in the performance of the Canadian and U.S. equity markets in 2014. Table 4.3 shows a comparison of the annualized rates of return on market value of assets with the going concern discount rates, as reported in the most recently filed actuarial valuation reports.

TABLE 4.3: COMPARISON OF ANNUALIZED RATE OF RETURN WITH GOING CONCERN DISCOUNT RATE 2012-2014

Year	Median Rate of Return (%)	Median Going Concern Discount Rate (%)
2014	10.9	5.25
2013	8.8	5.5
2012	6.7	5.7

As yields on long-term bonds have declined, plans have also reduced their investment return expectations, which in turn decreases the going concern discount rate assumption.

Contributions to Defined Benefit Plans

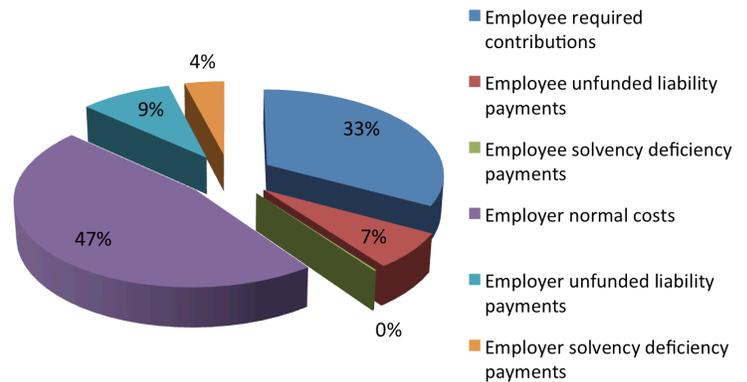
The total contributions made to meet the benefit obligations of all defined benefit plans were approximately \$4.1 billion in 2014 and \$4.4 billion in 2015. Table 5.1 shows a breakdown of the required contributions by contribution type.

Almost 80% (\$3.3 billion) of contributions made to the plans were applied to pay benefits earned in 2014 (Figure 5.1). The remaining 20% of contributions (\$836 million) were applied to pay existing shortfalls. Solvency deficiency amortization payments in 2014 and 2015 decreased significantly compared with those in 2013. Plans that filed valuations in 2013 showed significant improvement in their solvency position and, in some cases, eliminated their solvency deficiencies. The impact of the improvements from the 2013 valuations carried over to the contributions for 2015.

TABLE 5.1: CONTRIBUTIONS TO DEFINED BENEFIT PENSION PLANS BY TYPE OF CONTRIBUTION

Type of Contributions Made	Amount Contributed in 2014 (\$ Thousands)	Amount Contributed in 2015 (\$ Thousands)
Employee required contributions	\$1,347,046	\$1,421,266
Employee unfunded liability payments	\$290,613	\$346,263
Employee solvency deficiency payments	\$7,345	\$5,200
Employer normal cost	\$1,966,037	\$2,058,235
Employer unfunded liability payment	\$391,013	\$442,345
Employer solvency deficiency payment	\$146,560	\$106,394
Total employer and employee contributions	\$4,148,614	\$4,379,703

FIGURE 5.1: PERCENTAGE DISTRIBUTION OF REQUIRED CONTRIBUTIONS FOR ALL DEFINED BENEFIT PENSION PLANS, BY TYPE OF CONTRIBUTION, AS AT DECEMBER 31, 2014



The total amount of required employee and employer contributions for defined contribution plans in 2014 was \$389 million, of which \$119 million was paid by members and \$270 million by employers.

Funding Position of Defined Benefit Plans

The funding analysis of defined benefit pension plans provided in this section is based on the projected funding position¹ of all plans as at December 31, 2014, and December 31, 2015. The figures do not include public sector plans.

- » ***A going concern valuation*** of a plan provides an evaluation of the plan's funded status, assuming that the plan continues indefinitely and benefits continue to be paid.
- » ***The going concern funded ratio*** of a plan is the ratio of the plan's going concern assets to the plan's going concern liabilities.
- » ***The solvency valuation*** of a plan estimates the plan's ability to meet its obligations, assuming that the plan is terminated and must pay all of its obligations immediately.
- » ***The solvency ratio*** of a plan is the ratio of the plan's solvency assets to the plan's solvency liabilities.

OVERALL FUNDING

Table 6.1 shows the key funding figures for defined benefit plans at December 31, 2014, and December 31, 2015.

TABLE 6.1: KEY FUNDING FIGURES FOR GOING CONCERN AND SOLVENCY VALUATIONS AS AT DECEMBER 31, 2014, AND DECEMBER 31, 2015

2014	Going Concern (\$ Million)	Solvency (\$ Million)
Total assets	\$30,052	\$32,028
Total liabilities	\$26,184	\$33,669
Aggregate funding balance	\$3,868	-\$1,641
Total funding balance for plans in deficit	-\$247	-\$3,427
Total funding balance for plans in surplus	\$4,115	\$1,786
Aggregate funding ratio	115%	95%

¹ OR ACTUAL IF A VALUATION REPORT AT THE INDICATED DATES WAS FILED.

2015	Going Concern (\$ Million)	Solvency (\$ Million)
Total assets	\$31,517	\$33,235
Total liabilities	\$26,922	\$35,754
Aggregate funding balance	\$4,595	-\$2,519
Total funding balance for plans in deficit	-\$112	-\$4,064
Total funding balance for plans in surplus	\$4,707	\$1,545
Aggregate funding ratio	117%	93%

The aggregate going concern funding position improved from 104% at December 31, 2013, to 115% at December 31, 2014, and 117% at December 31, 2015. This was primarily the result of the performance of North American investment markets (as shown in Table 2.2). The total going concern deficit also declined significantly: it was projected to be \$112 million at December 31, 2015. On a long-term basis, pension plans in BC are reasonably well funded, with an aggregate excess over liabilities of \$4.6 billion.

The aggregate solvency position declined from 99% in 2013 to 93% at December 31, 2015. The number of plans reporting a solvency deficit increased. The projected total amount of solvency deficit that must be funded by plans is projected to be over \$4 billion at December 31, 2015. This was an increase of \$637 million over the December 31, 2014, results. Plans with solvency deficiencies must make additional special payments to amortize their deficiencies.

In short, the short-term funding position of defined benefit plans continues to deteriorate. One of the main reasons is the unprecedented low interest rates that directly affect solvency liabilities of defined benefit plans.

GOING CONCERN FUNDING

Going concern discount rate assumptions – One of the most significant assumptions in determining the going concern liabilities and normal actuarial costs for a plan is the going concern discount rate (or valuation interest rate). It represents the long-term expectation of investment return given the asset allocation policy of the plan.

The median going concern discount rate used by plans filing valuation reports in 2014 was 5.25%. This was a reduction from the median rate of 5.5% used for plans filing valuations in 2013. There has been a trend towards using lower discount rates since 2012. This is a reflection of the continued decline in long bond rates since that period and the lower investment return expectation.

The lowest going concern discount rate used for valuations prepared in 2014 was 3.1% and the highest was 6.5%. A comparison of the median discount rate used is shown in Table 6.2.

TABLE 6.2: NUMBER OF DEFINED BENEFIT PENSION PLANS BY GOING CONCERN DISCOUNT RATES

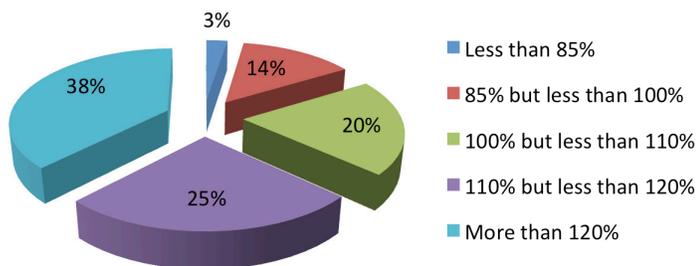
Going Concern Discount Rates	Number of Plans (2014)	Number of Plans (2013)
Less than 4.5%	7	9
4.5% but less than 5.6%	24	69
5.6% but less than 6.0%	6	55
6.0% or higher	4	5
Total	41	138

Table 6.3 and Figure 6.1 show the range of going concern funding ratios for defined benefit plans at December 31, 2014.

TABLE 6.3: NUMBER OF DEFINED BENEFIT PENSION PLANS BY GOING CONCERN FUNDING RATIO, 2015

Going Concern Funding Ratio	Number of Plans (2015)
Less than 85%	5
85% but less than 100%	27
100% but less than 110%	40
110% but less than 120%	50
120% or higher	74
Total	196

FIGURE 6.1: PERCENTAGE DISTRIBUTION OF GOING CONCERN FUNDING RATIOS FOR ALL DEFINED BENEFIT PENSION PLANS, AS AT DECEMBER 31, 2015



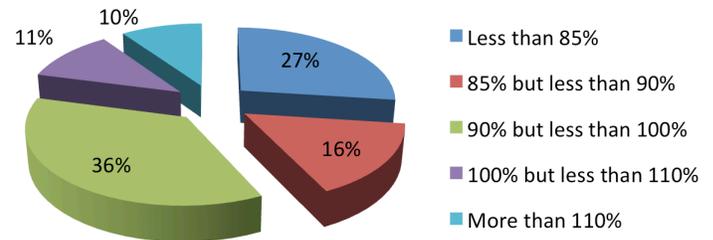
SOLVENCY FUNDING

Table 6.4 and Figure 6.2 show the distribution of solvency ratios of plans at December 31, 2015.

TABLE 6.4: NUMBER OF DEFINED BENEFIT PENSION PLANS BY SOLVENCY RATIO, 2015

Solvency Ratio	Number of Plans
Less than 85%	53
85% but less than 90%	31
90% but less than 100%	71
100% but less than 110%	22
110% or higher	19
Total	196

FIGURE 6.2: PERCENTAGE DISTRIBUTION OF SOLVENCY RATIOS FOR ALL DEFINED BENEFIT PENSION PLANS, AS AT DECEMBER 31, 2015

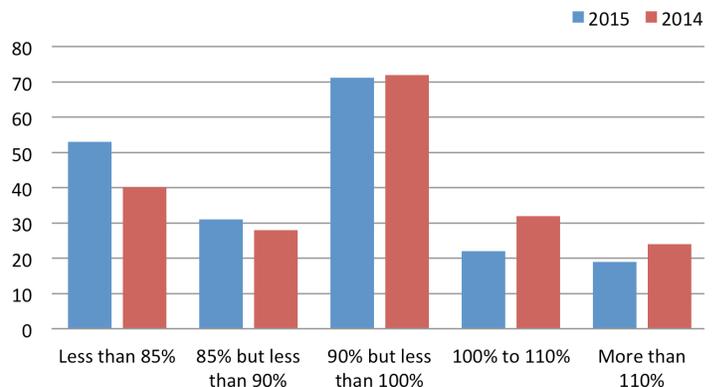


ESTIMATED SOLVENCY POSITION

As at December 31, 2015, solvency discount rates have dropped back to 2012 levels and significantly below 2013 levels (Table 2.1). As of December 2015, the discount rate used to calculate commuted values was 2.1% for the first 10 years compared with 3.0% in 2013 and 2.5% in 2014.

The solvency deficit required to be funded is estimated at \$4,064 million. The number of plans that are fully funded on a solvency basis declined from 56 in 2014 to 41 in 2015, and some plans that were in deficit would see an increase in their projected deficits. The median solvency ratio was 90% at December 31, 2015, compared to 93% at December 31, 2014 (Figure 6.3).

FIGURE 6.3: COMPARISON OF SOLVENCY POSITIONS IN 2014 AND 2015



Risk Assessment and Supervision

The funding risk analysis of defined benefit pension plans provided in this section is based on the projected funded position of all plans as at December 31, 2015. In May 2014, FICOM published a Risk-Based Regulatory Framework document for pension plans registered in BC. The framework, which describes FICOM's process for developing the risk profile of pension plans, uses early warning risk indicators to identify potential plan funding risk.

Early warning risk indicators are used as an initial screening tool to identify which pension plans may have problems meeting the minimum funding requirements or complying with the *Pension Benefits Standards Act*. The early warning indicators assess funding adequacy from three different perspectives: *point in time*, *prospective* and *retrospective*. The objective is to determine the relative risk of all defined benefit plans based on common indicators. From this initial screening, we determine which plans require further analysis.

In 2015, FICOM updated its risk prioritization framework by including a solvency estimation tool. This allowed the funding position of all defined benefit plans to be projected from the last filed valuation to the current assessment date. We also made modifications to the calculation of the benchmark discount rate used for determining the funding adequacy ratio (explained below), which is based on the asset mix characteristics of each segment.² In the rest of this section, we provide more detail of our risk assessment process and report on the results of our risk assessment as at December 31, 2015.

EARLY WARNING RISK INDICATORS AND THE COMPOSITE RISK RATING

We use the following three key indicators to establish a preliminary funding risk score for each plan:

- » **Funding adequacy risk score** – This compares the level of a plan's current contributions with expected level of contributions determined on a prudent funding basis. We develop this ratio using what we consider to be an appropriate benchmark discount rate for the plan segment.

² BASED ON THE UNIQUE CHARACTERISTICS OF DEFINED BENEFIT PLANS, WE HAVE DIVIDED THEM INTO THREE SEGMENTS: PRIVATE SECTOR PLANS, PUBLIC SECTOR PLANS, AND MULTI-EMPLOYER NEGOTIATED COST PLANS.

- » **Solvency risk score** – This is determined based on the percentile distribution of solvency ratios for the reporting period. This measure allows us to determine a relative measure of the solvency risk of all plans from one period to the next.
- » **Contribution variance risk score** – This compares the actual amount of contributions remitted to a plan with the amount of required contributions estimated in the last filed actuarial valuation report. This measure assesses the extent of compliance with prescribed funding requirements.

Using the early warning indicators above, we develop a numerical risk rating score from 1 to 5 for each plan. A rating of 1 indicates a lower risk level; a rating of 5 indicates the highest risk level. This risk rating score is used to prioritize pension plans that will be subject to an in-depth review and serves as a starting point for further risk assessment. The early warning risk indicators are presented as a composite risk rating (CRR).

A CRR (represented by a numerical score from 1 to 5) is developed for each plan. We apply different weights to the risk score of plans in different segments. The weights reflect our assessment of the importance of the risk indicators to the funding security of the plans in that segment. We review these weights regularly to ensure they are still appropriate for each segment.

Table 7.1 shows the current weights applied to each indicator by plan segment.

TABLE 7.1: RISK INDICATOR WEIGHTINGS FOR COMPOSITE RISK RATINGS, BY PLAN SEGMENT

Risk Indicator	Weighting (%) by Plan Segment		
	Private Sector	Multi-Employer Negotiated Cost (MENC) Plan	Public Sector
Funding adequacy ratio	40%	60%	60%
Solvency ratio	40%	20%	20% ^A
Contribution variance ratio	20%	20%	20%

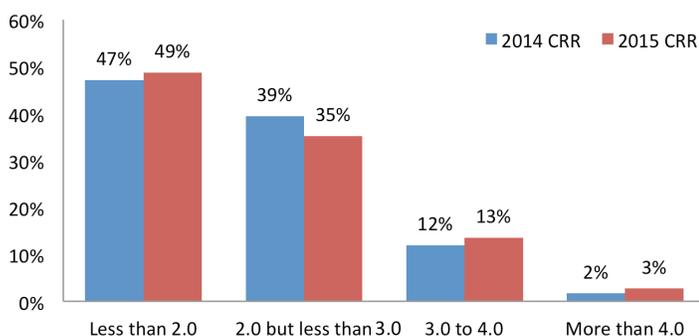
^ATHE SOLVENCY RATIO RISK INDICATOR IS NOT APPLIED TO THE FOUR PUBLIC SECTOR PLANS: PUBLIC SERVICE PENSION PLAN, MUNICIPAL PENSION PLAN, TEACHERS' PENSION PLAN, AND COLLEGE PENSION PLAN, BUT IS APPLIED TO OTHER QUASI-PUBLIC SECTOR PLANS.

The CRR provides an initial assessment of the plan and a basis for further risk assessment. Table 7.2 shows the CRR distribution for plans assessed at December 31, 2014, and December 31, 2015. For this assessment, we used a CRR score of 3.0 as our selection threshold — that is, any plan with a CRR score of 3.0 or above is selected for the Stage 1 Review. There was a slight increase in the number of plans with a CRR of more than our threshold score of 3.0 in 2015 compared with in 2014 (Figure 7.1). The CRR was influenced by the lower benchmark discount rates used in calculating the funding adequacy ratios as well as the solvency funding position.

TABLE 7.2: DISTRIBUTION OF COMPOSITE RISK RATINGS FOR DEFINED BENEFIT PENSION PLANS ASSESSED

Range of Composite Risk Ratings	Number of Plans (2014)	Number of Plans (2013)
Less than 2.0	91	94
2.0 but less than 3.0	76	68
3.0 but less than 4.0	23	26
4.0 or more	3	5
Total	193	193³

FIGURE 7.1: PERCENTAGE DISTRIBUTION OF COMPOSITE RISK RATINGS (CRR) FOR DEFINED BENEFIT PENSION PLANS



Of the 193 plans assessed, 31 plans were selected for in-depth review in 2015 compared with 26 in 2014 using the early warning risk indicators. This first stage of our in-depth review (referred to as the Stage 1 Review) focuses on assessing *funding* and *investment risk*.

Based on the results of the Stage 1 Review, a number of plans may be selected for further risk analysis in a Stage 2 Review. Stage 2 of the risk analysis involves an assessment of the robustness of the governance structure of the plan, as well as of the financial strength of the employer sponsoring the plan.

³ THIS NUMBER DOES NOT INCLUDE PLANS PENDING TERMINATION.

In this assessment, we look at how the continued funding of the pension plan could put significant stress on the financial resources of the employer.

LONG-TERM FUNDING RISK

The funding adequacy ratio measures a plan's long-term funding risk by comparing the adequacy of a plan's going concern funding with a prudent level of funding for the particular plan using the calculated benchmark discount rate for the particular plan segment.⁴

The discount rate assumption used in the going concern valuation of a plan is one of the most important factors affecting the level of contributions required to fund the plan's benefits. It reflects the expected return on the pension fund assets over the long term. To estimate the long-term funding risk assumed by a plan, we first estimate a plan's going concern liabilities based on the benchmark discount rate. We then adjust the statutory 15-year amortization period of any unfunded liabilities to reflect the maturity of the plan. The more mature a plan is, the shorter will be the amortization period.

The funding adequacy ratio is calculated by dividing the contribution level, as indicated in the plan's most recent actuarial valuation, by the required contribution level based on the benchmark discount rate. For example, a funding adequacy ratio of 0.80 means that the rate of contributions recommended in the actuarial valuation report is only 80% of what we estimate is required to fund the plan's benefits on a prudent basis.

For the 193 pension plans assessed, 47 plans had a funding adequacy ratio of less than 100% in 2015 compared with 41 in 2014 (Table 7.3 and Figure 7.2). This suggests a deterioration in the long-term funding position of plans from 2014 to 2015 — that is, 47 plans had a contribution level that is below what we consider prudent to funding their benefits over the long term.

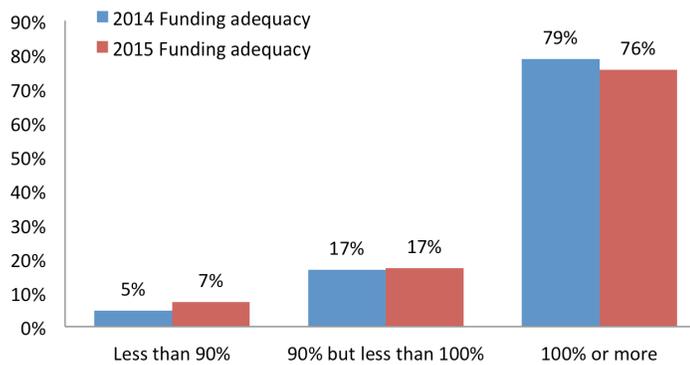
TABLE 7.3: FUNDING ADEQUACY RATIO, BY NUMBER OF PLANS AND PERCENTAGE OF TOTAL

Funding Adequacy Ratio	Number of Plans (2014)	Number of Plans (2013)
Less than 90%	9	14
90% but less than 100%	32	33
100% or more	152	146
Total	193	193

⁴ FOR RISK ASSESSMENT PURPOSES, THE BENCHMARK DISCOUNT RATE IS CALCULATED FOR EACH PLAN SEGMENT BASED ON THE AVERAGE ASSET MIX CHARACTERISTICS OF THAT SEGMENT.

It is worth noting that over 75% of plans are using going concern assumptions which we consider appropriate for determining their long-term funding requirements. Our goal is to work with administrators and trustees to raise this target to 85% over the next two to three years.

FIGURE 7.2: DISTRIBUTION OF FUNDING ADEQUACY RATIOS



SHORT-TERM FUNDING RISK

In assessing the short-term funding risk, we consider both the contribution variance and the solvency position of the plan. Our solvency risk scores are based on the solvency position of plans relative to that of their peers. We also consider the potential strain of the required funding of a plan relative to that of its peers. For example, a plan with a solvency risk score of 3.0 will present a higher potential financial strain on the plan sponsor in terms of required funding than will a plan with a risk score of 1.0.

Solvency risk score – The distribution of solvency risk scores for 2014 and 2015 is shown in Table 7.4. The solvency position deteriorated from 2014 to 2015. For example, the solvency ratio of plans at the 60th percentile was 96% in 2014 compared with 92% in 2015. This is consistent with the continued reduction in the solvency interest rates used to calculate solvency liabilities (see Table 2.1). The total funding balance for plans with a solvency deficit reached \$4.1 billion at December 31, 2015, compared with \$3.4 billion at December 31, 2014.

TABLE 7.4: SOLVENCY RISK SCORE AND THRESHOLD BY PERCENTILE

Solvency Ratio Percentile	Risk Score	Threshold Solvency Ratio	
		2014	2015
Less than 20th	5	85%	80%
20th <= SR < 40th	4	91%	87%
40th <= SR < 60th	3	96%	92%
60th <= SR < 80th	2	103%	99%
80th or higher	1	More than 103%	More than 99%

Contribution variance score – Identification of plans with a low contribution variance risk score provides us with an early opportunity to investigate the factors that might have contributed to the material differences between the actual and estimated contributions.

STAGE 1 RISK REVIEW

The Stage 1 Review of a plan involves a more in-depth analysis of the plan's ability to continue funding the promised benefits. The analysis is broken down into two types of review: funding risk review and investment risk review. Of the 193 plans assessed at December 31, 2014, a total of 31 were selected for Stage 1 Review based on their composite risk rating and other known risks.

Funding risk review involves an analysis of the following aspects affecting a plan's funding:

- » Funding position;
- » Funding compliance;
- » Going concern funding basis; and
- » Plan solvency.

Investment risk review involves an analysis of the following aspects affecting a plan's pension fund performance:

- » Investment compliance;
- » Fund performance;
- » Management fees;
- » Investment policy; and
- » Market risk, credit risk, and liquidity risk.

OVERALL FUNDING RISK

Overall risk score – This is determined separately for the plan's funding risk and investment risk, based on a weighting applied to each of the above risk components. Weightings are adjusted to reflect the importance of certain risks to different defined benefit segments based on the characteristics of the segment. For example, we consider a plan's solvency position to be more critical in terms of the security of member benefits for private sector plans than for multi-employer negotiated cost (MENC) plans. On the other hand, we consider investment policy to be more critical to the latter plans in terms of benefit level, since the contribution level is fixed and benefits will fluctuate based on fund performance.

Overall funding risk – The levels for this measure are broadly defined as follows:

- » **Low risk** – The plan is fully funded on a going concern basis and the actuarial assumptions used in the valuation are appropriate. There is a reasonable funding margin to lessen the impact of economic and demographic risks on the plan’s ability to meet the prescribed funding requirements.
- » **Moderate risk** – The plan meets the prescribed funding requirements, and the going concern assumptions appear to be reasonable. However, there is little or no funding margin to absorb any financial shocks in either the short or long term.
- » **Above average risk** – While the plan meets the prescribed funding requirements, the plan is significantly underfunded and the overall funding basis is weak. In particular, the discount rate assumption is significantly higher than the benchmark discount rate for the segment to which the plan belongs.
- » **High risk** – The plan is significantly underfunded and has had difficulty complying with the prescribed funding requirements. There has been a lack of plan response to funding the shortfall because of ineffective risk management. The plan may also have experienced a continuing decline in active membership, which has put a severe strain on the plan’s ability to meet the funding requirements.

Overall investment risk – The levels for this measure are broadly defined as follows:

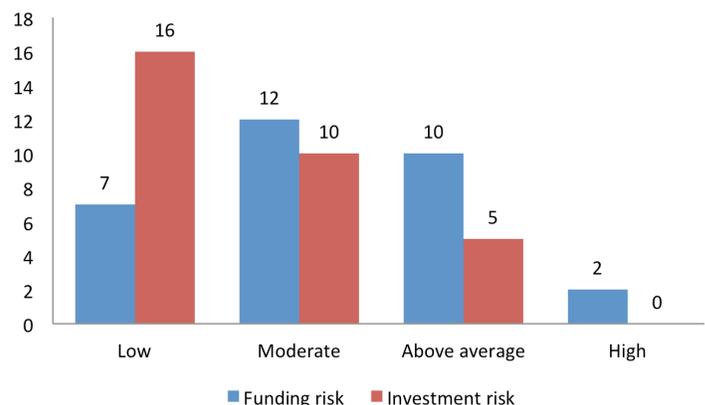
- » **Low risk** – The plan’s asset mix policy is consistent with the nature of the liabilities and the maturity of the plan. The plan has consistently achieved the return expectations as specified in the policy, and it incorporates a reasonable margin in setting the discount rate assumption.
- » **Moderate risk** – The plan’s asset mix policy allows for some exposure to return-seeking investments (e.g., equities), and the level of risk is acceptable because the plan is relatively immature and has a low number of retirees. The discount rate assumption is consistent with the benchmark discount rate.

- » **Above average risk** – The plan is relatively mature and the plan’s asset mix policy allows for substantial exposure to return-seeking investments, thereby leaving the plan open to a material assets/liabilities mismatch. There might also be excessive exposure to market, credit and liquidity risks in the investment portfolio.
- » **High risk** – The plan adopts an aggressive investment strategy, with very high exposure to return-seeking assets in order to manage the level of funding requirements. This poses a material risk to the stability and security of members’ benefits. We consider whether the future benefit set for the plan is reasonable in relation to the level of contributions committed to by the sponsor, given the level of risk that members can bear.

Of the 31 plans selected for Stage 1 Review:

- » 12 were assessed as having an overall funding risk level of above average or high. These plans were generally using very high discount rate assumptions, resulting in a weak funding basis. They also had significant funding shortfalls.
- » 5 were assessed as having an overall investment risk of above average. A number of these plans had very high exposures to market risk compared with their level of maturity. Their asset mix strategy was focused on return-seeking investments, and in some cases their fund performance had been subject to substantial fluctuations over the recent periods. In some instances, there was also lack of clarity in terms of their overall investment objectives, relative to their plan’s liability structure.

FIGURE 7.3: OVERALL RISK ASSESSMENT



Conclusion

The risk analysis process allows our office to determine the appropriate regulatory steps to take, based on each plan's risk assessment result. For further information about FICOM's regulatory responses, see our report, *FICOM's Risk-Based Regulatory Framework for Pension Plans in British Columbia*.

Next Steps: Target Benefit Plans

The *Pension Benefits Standards Act* that came into force in September 2015 introduced a new plan design: target benefit plans. These are plans under which contributions are fixed and benefits are variable depending on the plan's funding position. Currently, only multi-employer negotiated cost plans are allowed to convert accrued benefits as well as prospective benefits to target benefits. Non-negotiated multi-employer plans can establish target benefit plans or incorporate target benefit components into their existing plan design on a prospective basis only.

Target benefit plans present unique challenges to FICOM in terms of our risk-based regulatory framework. These challenges are in member communication, governance and intergenerational inequity. Meeting new prescribed funding requirements is also a challenge. Target benefit plans are not required to fund for solvency but are required to be funded on a "going concern plus (GC+) basis." Each plan must establish a benchmark discount rate and incorporate a provision for adverse deviation (PfAD) that reflects the investment risk assumed by the plan.

Over the next period, we will develop appropriate risk assessment tools specific to target benefit plans, which will reflect the level of benefit variability inherent in this type of plan design. We will also apply the results of stress testing, required as part of valuation reports prepared for target benefit plans.

FOR MORE INFORMATION, PLEASE VISIT US ONLINE:
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