



**ASSET LIABILITY STUDY
BASED ON FINANCIAL RESULTS
AS AT DECEMBER 31, 2014**

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Executive summary

This document outlines the results of our asset liability study based on the financial results as at December 31, 2014 of the Saskatchewan Workers' Compensation Board (WCB).

In summary:

1. The WCB's financial position as at December 31, 2014 indicated that assets were more than sufficient to cover its liabilities, with a funded position of \$733,733,000.
2. The two major components of the WCB's financial position are the investment portfolio on the asset side and the benefit liabilities on the liability side, which are both subject to significant risks.
3. Key principles guiding the funding of the WCB include fairness (premiums paid by the current generations of employers are well aligned to the costs generated by them), collective liability, predictability of premiums, financial security and ease of administration, ease of understanding and transparency.
4. Main parameters and comments on the WCB current funding policy:
 - Full funding basis: consistent with all Canadian boards.
 - Disaster reserves, parts 1 and 2, and Second injury and re-employment reserve, each at 1% of benefit liabilities are established.
 - Injury Fund increased or decreased by the operating surpluses and deficits of the WCB, and appropriation of funds to or from reserves and change in other comprehensive income.
 - Targeted funding range for the Injury Fund at 105% to 120% of previous year's benefit liabilities, and unrealized gains and losses on investments not considered.
 - At WCB's discretion, if Injury Fund falls below 103%, or rises above 122%, the WCB may respectively increase the premium rates to replenish the Injury Fund, or give back refunds to employers, both over a period not to exceed 5 years: some Canadian boards provide for automatic actions when the funding ratio falls outside the target range.
5. The benefit liabilities and funding percentages since 2009:

Table 1.1 - WCB's funded position (funding percentage) from 2009 to 2014

Capital management	2009	2010	2011	2012	2013	2014
Benefit liabilities (\$ millions)	995.7	1,021.3	1,013.9	1,005.4	1,085.5	1,151.9
Funding percentage	111.2%	111.5%	119.0%	117.1%	119.3%	132.2%

As observed, the funding percentage has, for the first time since 2009, fallen outside the 105% to 120% range at the end of 2014.

6. Premiums paid by employers should cover the estimated current and future costs of current year injuries and all expenses. However, experience gains and losses are inevitable as actual costs will be different from those estimated and the board's funded position will present an accumulated surplus or deficit. Sources of gains and losses include investment returns, inflation or other assumptions such as disability recovery or health care utilization; in addition, gains and losses can also result from accounting or actuarial changes or benefit modifications.

7. The Saskatchewan average premium rate at \$1.46 per \$100 of assessable payroll in 2015 is among the lowest in Canada.
8. The different components of the 2015 average premium rate are as follows:

Table 1.2 - Average 2015 premium rate at the WCB

Components	2015 rate
Full funded cost of claims	\$1.08
Administration and other expenses	\$0.38
Premium adjustments	\$0.00
Total	\$1.46

The \$1.08 rate used for the full funded cost of claims compares with an average experience rate of \$1.150 over the 15-year 1999-2013 period, and averages of \$1.025 and \$0.935 over the most recent 10-year and 5-year periods respectively.

9. In view of the emerging claim cost experience and its current level of funding, we recommend that the WCB reviews its rate setting model for the determination of the premium requirements.

10. The most important risk factors for the WCB include:
 - Funding percentage or FMV asset/liability ratio: The possibility for the funding percentage to fall below a certain level (e.g. 103%) constitutes a very important risk factor for the WCB. Similarly, as the funded position is determined on a market value basis, the possibility for the FMV asset/liability ratio (total assets over total liabilities) to fall below a certain level (e.g. 100%) constitutes also a very significant risk factor for the WCB.
 - Level and volatility of the average premium rate: To be fair, premiums paid by the current generations of employers should be aligned to the costs generated by these generations of employers (required premium rate); a legitimate objective is also to ensure stability in the average premium rate. The possibility of having to implement major rate increases constitutes an important risk factor.
 - Real and nominal rates of return of the Fund: The nominal and real return assumptions underlying the actuarial valuation of the benefit liabilities are respectively 5.5% and 3% per annum. The possibility for the nominal and real rates of return to fall below the actuarial nominal and real discount rates is also an important risk factor for the WCB.
11. A stochastic model has been used to illustrate the complex financial risks inherent at the WCB and their financial impact on the long term funding of the WCB and on the premiums that will be paid by Saskatchewan employers. Projections over the 2015-2024 period have been prepared to visualize the financial evolution of the Injury Fund and of pertinent financial parameters over the next several years. A number of assumptions have been used, essentially consistent with those used for the actuarial valuation of the benefit liabilities.
12. For projection of the estimated costs in future years, we have used WCB's recent experience for the full funded cost of claims as well as for the estimated administration and other expenses.
13. Our projections have been prepared using the actual asset mix allocation of the WCB portfolio as at December 31, 2014 as the starting point, transitioning to the revised long term asset mix policy, including allocations to global high yield bonds, Canadian and global low volatility equities, as well as global small capitalization equities, along with an increase in real estate investments.

14. At the median level of our projections, the nominal and real rates of return over a 10-year horizon are respectively 5.5% and 3.4%, with a significant volatility. The 5.5% nominal rate is the same as the rate currently used for the actuarial valuation, while the 3.4% real rate of return is higher than the investment policy objective of 3% (also the real discount rate assumed for actuarial valuation purposes).
15. The first set of projections of all the components of the assets, liabilities, revenues and expenses of the WCB from 2015 to 2024 has been prepared assuming a surplus distribution for 2015 at \$78.9M; in the future, we have assumed that 50% of the excess over 120% would be distributed in the following year when the funding percentage is above 122% and that a special replenishment of the Injury Fund would be done through premium increases over 5 years when the funding percentage falls below 103%. We also have studied the impact of different surplus distribution bases, where 20%, 75% and 100% of the excess over 120% would be distributed in the following year.

Statistics on surplus distributions and special levies, and the projected statistical distribution of the WCB's funded position as measured by the funding percentage during the projection period indicate that:

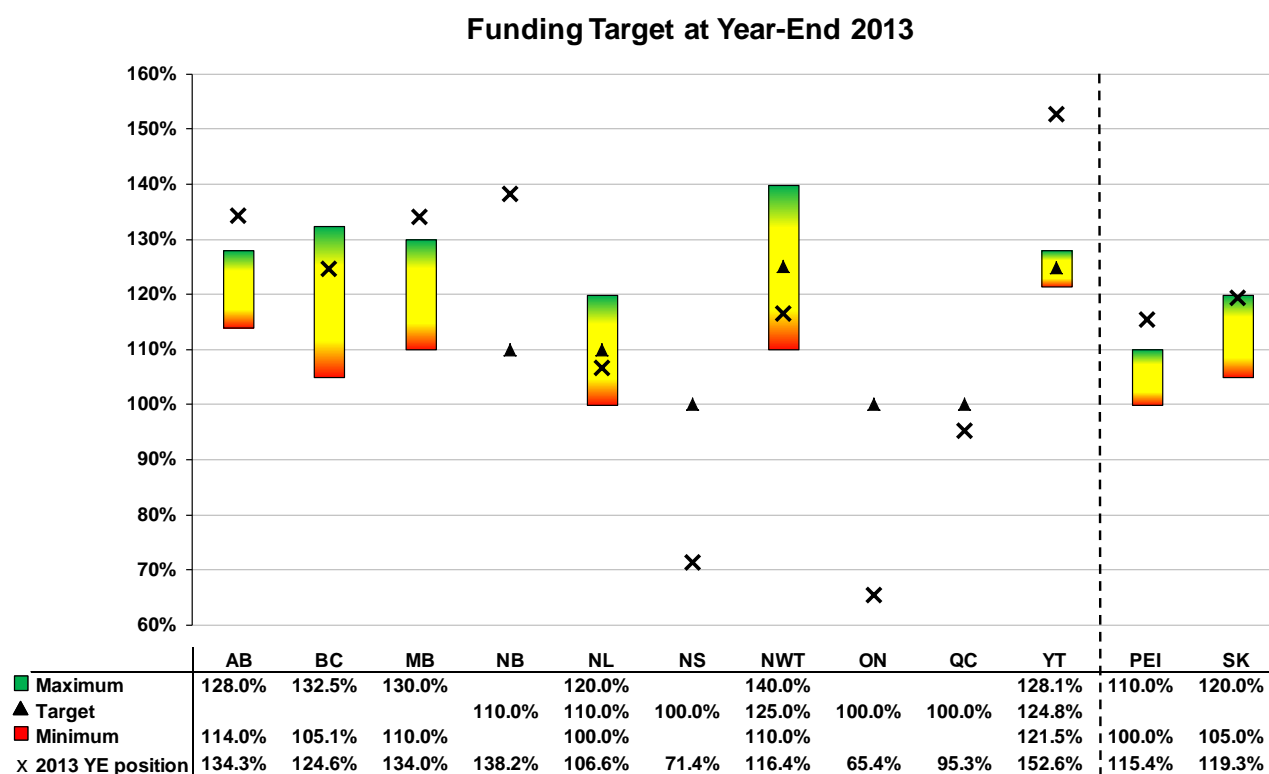
- The funding percentage is currently relatively high as are the unrealized gains on investments. Consequently, the probability to have a surplus distribution remains high during the projection period and the probability of a special levy (or premium rate increase) is very low.
- Within the next 10 years, there is a 61.6% chance that a surplus distribution will be made every year and a 1.3% chance that the funding percentage will fall below the 103% level at least once and that a special levy will have to be made.
- The average surplus distribution, when one occurs, is relatively stable during the projection period, at about \$0.32 per \$100 of assessable payroll. The average special levy, when one occurs, is increasing slightly during the projection period, but is at a lower level (at \$0.06 per \$100 of assessable payroll in 2025) than the average surplus distribution.
- The funding percentage is slightly decreasing at the median level, but would remain above 120% throughout the projection period even under the unfavourable scenarios. Under favourable scenarios (one chance out of 4), the funding percentage would reach 135%, and even 146% under very favourable scenarios (one chance out of 20) in 2024.
- Because of the volatility of investment returns and inflation, the funding percentage could decrease below the 122% level, which would stop surplus distributions, and would even fall to the 111% level under very unfavourable scenarios (one chance out of 20) in 2024.
- At the median level, the WCB's funding percentage is decreasing progressively over time as the surplus distributions at 50% of the excess over 120% exceed gains from different sources, such as those resulting from investment income on the Injury Fund, from the inflation assumption (the inflation rate generated by the model is lower than the 2.5% valuation assumption), and from the average premium rate being higher than the rate required to pay for current year injuries and operating costs in our model.
- The funding percentage is much less volatile than the ratio of the total assets, based on the fair market value (FMV) of the investments, over the total liabilities (referred to as the FMV asset/liability ratio in this report).
- The FMV asset/liability ratio is quite volatile, in particular because of the volatility of assets: assets are recognized at market value and are directly affected by the volatility of market rates of return.

16. Recent changes to the long term asset mix policy will have the intended objective of reducing volatility of the portfolio returns while maintaining an expected rate of return equivalent to the previous asset mix. The revised asset allocation was utilized in the projections and does not appear to impact the WCB's ability to fund its obligations.

- 17. There are financial risks and the funded position should be regularly monitored by the WCB.
- 18. The benefit liabilities are the main component of the liabilities in Canadian boards. Benefit liabilities are calculated on a long term going concern basis using best estimate assumptions; usually, the assumptions do not include significant margins for adverse deviations.

In comparing the financial position of Canadian boards at year-end 2013, two parameters are important to consider: the real discount rate and the inclusion of an allowance for long latency occupational diseases in the benefit liabilities. As the WCB uses a real discount rate (at 3.25% at year-end 2013 and 3.00% at year-end 2014) lower than the Canadian average (at 3.41% at year-end 2013) and considered the liability for long latency occupational diseases (through a reserve of essentially the same amount at year-end 2013), while two other Canadian boards did not include such provision, the WCB appears to have a prudent approach in determining the benefit liabilities.

- 19. The funding target of Canadian boards based on 2013 results is illustrated below:



- 20. The results are shown separately for the Prince Edward Island (PEI) and Saskatchewan (SK) boards as their funding policy is based respectively on a smoothed value of assets and on assets excluding unrealized gains and losses on investments. Using assets on a market value basis, the FMV asset/liability ratio of these boards at year-end 2013 was 135.3% for the PEI board and 148.8% for the Saskatchewan board.
- 21. Most boards provides for a funding range in their funding policy. Excluding the three boards that were underfunded at 2013 year-end and the New Brunswick (NB) board that had no range, the average funding range varies between a minimum of 108.2% and a maximum of 126.1%. The funding ranges of the PEI and Saskatchewan boards are at a lower level as their funding percentages are less subject to fluctuations than the FMV asset/liability ratios based on a market value basis.

22. We have studied the impact of different surplus distribution bases starting in 2015 and in future years:

Table 1.3 - Surplus distribution bases

Scenario	Amount in 2015	Amount in 2016 and after
A	\$28.2M	20% of excess over 120%
B	\$78.9M	50% of excess over 120%
C	\$105.7M	75% of excess over 120%
D	\$140.9M	100% of excess over 120%

23. In our opinion, considering the current financial situation of the WCB and the amount of unrealized investment gains, the surplus distributions in the future should be made over a shorter period than 5 years (or higher than 20% of surplus being distributed).

24. With surplus distributions at a higher percentage:

- The average amount of surplus distributed increases, but, over time, the amount expected to be distributed will be similar, and even lower with a higher percentage of surplus distribution.
- The risk of having to implement a premium increase to replenish the Injury Fund is higher, as is the risk for the WCB to be underfunded.

25. The WCB should determine the percentage of surplus distributions in considering its risk tolerance level. As the level of risk could be modified as a result of a review of its rate setting model, one possibility would be to set initially the surplus distribution at \$78.9M in 2015 and at 50% of the excess over the funding target of 120% thereafter, and to finalize this level once the study of the rate setting model has been completed.

26. We have studied the impact of two alternate financing strategies:

- At 2015 year-end, reduction by 0.25% of the assumption for nominal rate of return used in the valuation of benefit liabilities, to 5.25% per annum.

The liabilities would increase, the funding percentage and the average amount of surplus distribution would initially be lower, but the differences would become essentially non-existent after 2019. In summary, the financial risks of the WCB would not be materially affected.

- At 2015 year-end, elimination of reserves and change to the funding policy range to 107% to 122%, a 2% increase from the 105% to 120% range.

The funding percentage would initially increase by 3%, reducing at 2% by 2017, the average amount of surplus distribution would initially be higher, but the difference would become essentially non-existent after 2019. In summary, the financial risks of the WCB would not be materially affected.

27. As the amount of benefit liabilities includes the future costs for claims that will be subject to cost relief, the Disaster and Second injury and re-employment reserves should be eliminated, and the circumstances that give rise to cost relief for employers should be maintained and determined through a cost relief policy. To maintain a similar level of protection against risks and uncertainties for the WCB, the funding range should be increased by 2% to 107% to 122%.

28. The potential implementation of an accounting change to IFRS 4 on insurance contracts could significantly influence the measurement of the benefit liabilities, where the rate used to discount claim benefit cash flows would reflect market rates and cash flows could include a risk adjustment. The final standard has not yet been released; effective date could possibly be 2020.

29. Based on our understanding of the revised Exposure Draft published in June 2013, the discount rate used to determine the benefit liabilities would be determined using the market risk free rate plus a liquidity premium, estimated at 0.50%, and would vary at each future year-end, instead of a fixed long term assumption as it is currently done. A risk adjustment dealing with the risks inherent in the future cash flows could also be added to the benefit cash flows. The methodology to be used for determining the risk adjustment is very unclear at this point; for our projections, we have assumed a 0.50% reduction to the discount rate for measuring its impact.
30. The impact of the risk adjustment is an increase to the liabilities. We strongly emphasize that this is only a representative value of the risk adjustment as the actual modelling has not yet been developed and the appropriate level for the risk adjustment will need to be determined.
31. Projections of financial results assuming implementation of the use of a market discount rate in 2020 instead of a fixed long term assumption would have the following impact:
- The liabilities would increase on implementation of the revised standard, as the real discount rate would reduce from the current 3.0% assumption to about 2% (equivalent to the risk free rate). At the median level, the liability increase will be \$186 million in 2020, decreasing to \$142 million in 2024 with the projected increase to the discount rate.
 - This change would result in an approximate 16% drop in the funding percentage and the FMV asset/liability ratio, which is based on the market value of assets, at the median level in 2020. This reduction decreases over time, and at the end of the projection period, the funding percentage and the FMV asset/liability ratio are only about 2% lower than under the current accounting basis at the median level.
 - As the funding percentage is not based on the market value of assets, moving to a market-related discount rate would increase significantly the volatility of the funding percentage.
 - With the volatility of liabilities adding to the volatility of assets, the FMV asset/liability ratio would also be more volatile, but not significantly, because of some synchronization of movements between assets and liabilities.
 - The risk that the FMV asset/liability ratio decreases below 100% would increase with a market discount rate.
 - The impact on the average required premium rate is estimated initially at about \$0.07 per \$100 of assessable payroll, decreasing to \$0.04 at the end of the projection period.
32. The implementation of an accounting change to IFRS 4 on insurance contracts in 2020 could influence negatively the funded position of the WCB and the WCB should monitor closely this potential change.
33. We recommend that the WCB review its funding policy and consider the treatment of unrealized gains and losses on investments as well as the impact of a market related rate of return on the benefit liabilities and claim cost expense.

Conclusion

We have prepared the current asset liability study to illustrate the financial risks inherent at the WCB and their impact on the long term funding of the board and on the premiums that could be paid by Saskatchewan employers.

Numerous graphs, probabilities and statistics have been presented throughout this report in order to quantify the financial risks of the WCB and to allow the various stakeholders to visualize the possible evolution of financial parameters which may be affected by various financial strategies (e.g. long term asset mix and funding policy) and the dynamics of the interaction among these strategies.

The risks that could impact the financial position of the WCB and that have been considered include the risks of the financial markets, as well as the risks on the claim costs and WCB liabilities, such as unanticipated price inflation and potential accounting changes.

The following probabilities illustrate the risks at the WCB assuming an average premium rate maintained at \$1.46 per \$100 of assessable payroll throughout the projection period and a surplus distribution at \$78.9M in 2015 and at 50% of the excess over the funding target of 120% thereafter:

- The risk to the WCB of being unfunded according to WCB's funding policy (the funding percentage falling below 105%) at least once over the next five years is 0.0%, and 1.8% over the next 10 years. Based on the FMV asset/liability ratio, i.e. that the liabilities exceed the assets valued at market, the risk for WCB to be unfunded at least once over the next five years is 1.8%, and 6.5% over the next 10 years.
- Even with no reduction in the average premium rate, there is a 1.3% chance that the funding percentage will fall below the 103% level at least once over the next 10 years and that a premium rate increase will be made.
- Within the next 10 years, there is a 61.6% chance that the funding percentage will remain above the 122% level and that a surplus distribution will be made every year.

With a surplus distribution at \$140.9M in 2015 and at 100% of the excess over the funding target of 120% thereafter, these probabilities are as follows:

- The risk to the WCB of being unfunded according to WCB's funding policy (the funding percentage falling below 105%) at least once over the next five years is 0.1%, and 3.1% over the next 10 years. Based on the FMV asset/liability ratio, the risk for WCB to be unfunded at least once over the next five years is 2.5%, and 8.2% over the next 10 years.
- There is a 2.1% chance that the funding percentage will fall below the 103% level at least once over the next 10 years and that a premium rate increase will be made.
- Within the next 10 years, there is a 21.1% chance that the funding percentage will remain above the 122% level and that a surplus distribution will be made every year.

The financial strategies of the WCB, including the assumptions used to value the benefit liabilities, the basis for the determination of the average premium rate and the parameters of the funding policy, reflect a prudent approach, in line with its risk tolerance.

Recent changes to the long term asset mix policy will have the intended objective of reducing volatility of the portfolio returns while maintaining an expected rate of return equivalent to the previous asset mix. The revised asset allocation was utilized in the projections and does not appear to impact the WCB's ability to fund its obligations.

Based on our findings, we recommend that:

1. The WCB review its rate setting model for the determination of the premium requirements.
2. The WCB determine the percentage of surplus distributions in considering its risk tolerance level, one possibility being to set initially the surplus distribution at \$78.9M in 2015 and at 50% of the excess over the funding target of 120% thereafter, and to finalize this level once the study of the rate setting model has been completed.
3. The Disaster and Second injury and re-employment reserves be eliminated, and the circumstances that give rise to cost relief for employers be maintained and determined through a cost relief policy, and the funding range be increased by 2% to 107% to 122%.
4. The WCB review its funding policy and consider the treatment of unrealized gains and losses on investments as well as the impact of a market related rate of return on the benefit liabilities and claim cost expense.

In 2013 and 2014, several elements had a significant impact on the liabilities of the WCB:

- Legislative changes to the Workers' Compensation Act effective January 1, 2014, which included annual increases to the future Maximum Insurable Wage Rate for existing claims;
- Provision of a liability for latent occupational diseases;
- Reduction of the discount rate used for the actuarial valuation of the benefit liabilities to reflect lower expectations in long term investment returns.

As the WCB was able to absorb these additional costs without increasing premiums and to remain fully funded, it is likely that the average premium rate will decrease in the near future to reflect the reduction in the number of claims and in claim costs in recent years.

Finally, the WCB should continue monitoring closely its funded position and prepare regularly an asset liability study with proper consideration of the overall risk configuration to be managed in a workers' compensation environment to ascertain that the financial strategies are consistent with the WCB's views.

We will be pleased to discuss this report with you at your convenience.

Respectfully submitted,



Richard Larouche, FSA, FCIA

June 15, 2015