

# **Ohio Bureau of Workers' Compensation Board**

## **Executive Summary: Comprehensive Study Group 2 Tasks**

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# Agenda

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Introduction

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Comprehensive Study Assessment Matrix

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# **Introduction**

# Introduction

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Pursuant to House Bill 100, the BWC engaged Deloitte Consulting LLP (Deloitte) to perform a Comprehensive Study to:

Measure the performance of Ohio's workers' compensation system;

and

Compare Ohio's workers' compensation system to other state and private compensation systems.

# Introduction

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The Comprehensive Study includes 36 tasks described in the Actuarial Consulting Services RFP. Deloitte divided these tasks into the following categories:

- Pricing & Programs
- Loss Reserves
- Net Assets & Reinsurance
- Self-Insured Regulations
- Claims
- Underwriting
- Actuarial Department Functions & Resources

**The categories  
organize the tasks  
detailed in the RFP  
into related work  
streams**

# Introduction

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The tasks in the Comprehensive Study were prioritized and placed into 4 groups with the following scheduled completion dates:

Ranking	Areas Included	Completion Date
Group 1	Rating program review; rate setting; experience rating; group rating; MIRA/MIRA II case reserving; subrogation; self-insurance; SIEGF assessments; salary continuation; and \$15,000 medical only program.	June 2008
Group 2	Benefit comparisons; administrative cost calculation; net asset levels; excess insurance/reinsurance needs; actuarial audit reserves and expected payments.	August 2008
Group 3	PES rate setting; retrospective rating; Safety Grant program; safety & hygiene programs; MCO effectiveness, medical payment structure comparison and other cost controls.	October 2008
Group 4	NCCI classification system; minimum premium; Coal-Workers Pneumoconiosis Fund; Marine Industry Fund; Disabled Workers' Relief Fund; appeals process; out-of-state employers; handicap reimbursement; rehabilitation program; employer ownership versus tax ID; and Actuarial Department functions and resources.	December 2008

# Comprehensive Study Assessment Matrix

# Comprehensive Study Assessment Matrix

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We are assessing the performance of the workers' compensation system for four overarching themes:

## Effectiveness & Efficiency

How well does the Ohio workers' compensation system utilize its resources and administer benefits?

## Financial Strength & Stability

Is the Ohio workers' compensation system fiscally sound? Does the system promote pricing stability?

## Transparency

Can the public understand the workings of the Ohio workers' compensation system?

## Ohio Economic Impact

Does the workers' compensation environment encourage business growth and development in Ohio?

# Comprehensive Study Assessment Matrix

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We have also mapped the various tasks in the RFP into several broad study elements:

- Ohio Benefit Structure
- Pricing Process
- Cost Controls
- Financial Provisions
- Actuarial Department Functions & Resources

The four themes can be overlaid onto Comprehensive Study Elements to create a matrix that displays their relationship.

Our performance assessment is made on each element in the context of its contribution to supporting the overarching themes.

# Comprehensive Study Assessment Matrix

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
Ohio Benefit Structure	<h1>Conclusions</h1>			
Pricing Process				
Cost Controls				
Financial Provisions				
Actuarial Dep't. Functions & Resources				

**Note:** Not all areas may involve specific conclusions/recommendations for each theme

# Comprehensive Study Assessment Matrix

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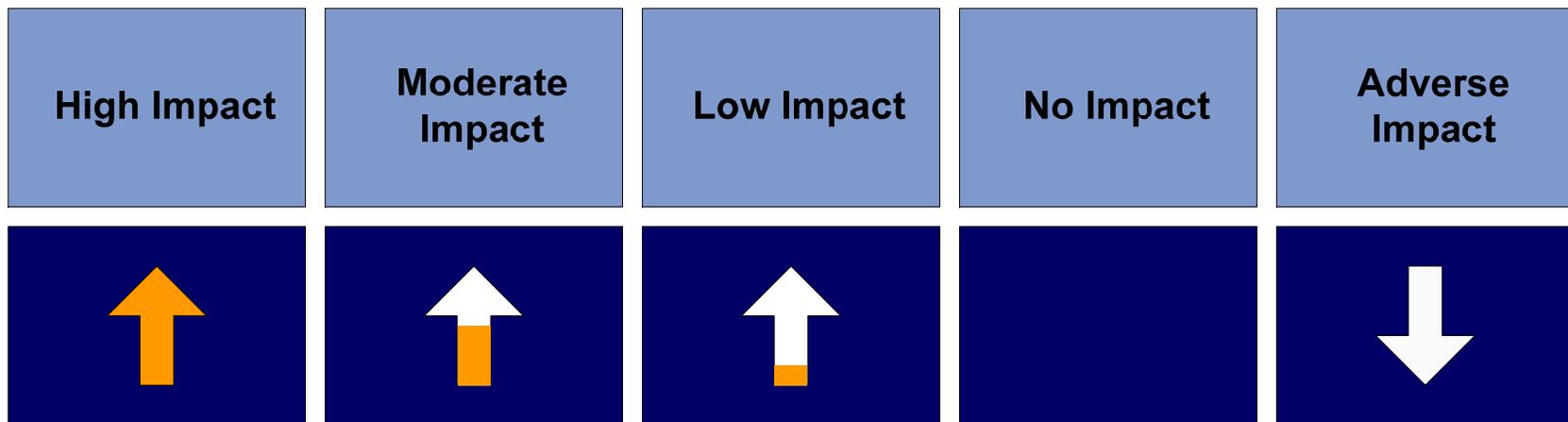
In the context of the matrix, we provide the following high level summary conclusions, performance assessments, and comparison notes.

For performance assessments, the following scoring method applies:

	Strongly supports system performance
	Supports system performance
	Some support for system performance
	Some opportunity for system performance change/enhancement
	Significant opportunity for system performance change/enhancement

# Recommendation Impact

Our recommendations are provided for each area in priority order. The impact of each recommendation as it relates to each of the four overarching themes is also provided, using the following scoring method:



These indicators show how much impact each recommendation has relative to each theme area.

# **Executive Summary Conclusions**

# Executive Summary Conclusions

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- Group 2 includes the following study elements:

Financial Provisions	Ohio Benefit Structure	Pricing Process
<ul style="list-style-type: none"><li>▪ Net Asset Level</li><li>▪ Excess Insurance/Reinsurance Needs</li><li>▪ Actuarial Audit Reserves</li><li>▪ Expected Payments</li></ul>	<ul style="list-style-type: none"><li>▪ Benefit Comparisons</li></ul>	<ul style="list-style-type: none"><li>▪ Administrative Cost Calculation</li></ul>

- For each sub-heading, we will present:
  - The background situation;
  - Review and analysis;
  - A performance assessment for each applicable theme as compared to peers and industry standards; and
  - Our conclusions.

# Benefit Comparisons

## The Situation:

- Ohio is largely consistent with other states with respect to benefit and compensation levels.
- Ohio's number of benefit types is more extensive than found in most other jurisdictions.
- Medical benefits provided in Ohio are generally consistent with other states.
  - No out-of-pocket by injured workers.
  - Medical charges controlled through cost containment programs (e.g., medical bill and utilization review).
- Temporary Total Disability and Permanent Total Disability benefits are slightly higher than in most other states (maximum wage replacement rates and percentage-of-wage benefit calculations).
- Permanent Partial Disability, fatality survivor benefits, and scheduled loss of use benefits align well with other jurisdictions.

# Benefit Comparisons

## Review & Analysis:

- Ohio is one of 30 states that authorize the use of Managed Care Organizations (MCOs) .
- Maximum temporary total disability (TTD) wage replacement rates in Ohio (\$730) are slightly higher than the average for all states (\$709).
- The percentage applied to wages to determine TTD wage replacement rates is higher in Ohio (72%) than in most other states, with only seven exceeding 70%.
- Ohio is one of 19 states with a dedicated fund for rehabilitation expenses.
- PPD income benefits for scheduled injuries in Ohio are consistent with most other states.
- For fatality survivor benefits, Ohio is in the middle (both mean & median) in eight peer state comparisons.
- Ohio is one of only a few states with PTD Cost of Living Adjustments.

# Benefit Comparisons

## Performance Assessment



### Peers and Industry Standards Considered

All States for Major Benefit Types  
Peer States of IL, IN, KY, MI, NY, PA, WA, WV for Benefit Sub-types

# Benefit Comparisons

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## Deloitte Conclusions:

This task does not call for specific recommendations and Deloitte does not endorse a specific benefit plan reform agenda other than those addressed in the Group 1 Tasks.

# Administrative Cost Calculation

## The Situation:

- BWC includes an administrative loading to cover the internal BWC and Industrial Commission (IC) costs of administration, salaries, rent, and other operating costs.
- For private employers, the current administrative loading is 13.67% for BWC costs, and an additional 1.98% for the costs associated with the IC.
- The revenue and expenses associated with administrative costs are recorded in the Administrative Cost Fund (ACF).
- The ACF operates on a pay-as-you-go basis, and shows a significant deficit in the BWC financial statements.
- This deficit is due to the liabilities for loss adjustment expenses (LAE) for all unpaid claims, in addition to LAE paid on claims during the year.

# Administrative Cost Calculation

## Review & Analysis:

- Administrative costs are split between LAE and general operating expenses.
- MCO costs (HPP) are reported separately in the SIF.
- Currently, 82% of the administrative expenses are allocated to LAE and the remaining 18% are allocated to general operating expenses.
- In the past five years the proportion of administrative expenses allocated to LAE has averaged 76%, but has varied each year between 66% and 82%.

# Administrative Cost Calculation

## Review & Analysis:

- The primary liabilities recorded in the ACF are the estimated LAE reserves.
- The ACF is not permitted to record an asset for future assessments from private employers and public entity taxing districts to cover the unpaid LAE costs.
- Consequently, there is substantial deficit shown for the ACF (\$0.8 billion as of June 30, 2007).

# Administrative Cost Calculation

## Performance Assessment



**Peers and Industry Standards Considered**

Other State Funds, Industry Averages

# Administrative Cost Calculation

## Deloitte Conclusions:

- BWC's overall administrative cost loading appears to be lower for similar functions performed within the industry and other state funds in relation to premium.
- The current proportion of operating expenses associated with LAE (82%) appears to be significantly higher than the industry average of approximately 75% in recent years.
- This suggests a potential need to re-evaluate the BWC's expenses, in particular the allocation between LAE and other operating expenses.

# Administrative Cost Calculation

## Recommendation Impact



# Net Asset Level

## The Situation:

- BWC lacks a policy to provide guidance on the level of net assets or other measure to ensure financial security at a prudent level.
- The ability to make peer comparisons to BWC is limited due to differences in organizational form, applicable accounting standards, applicable laws/regulations, reserve margins, and other explicit margins.
- Notwithstanding these limitations, BWC's net assets currently do not indicate financial strength relative to peers.
- BWC maintains seven separate funds; some funds are funded and some funds are pay-as-you-go. Assets from one fund cannot be used to pay the obligations of another fund.
- Some assets do not produce investment income; there are significant assets for unbilled future premiums to fund pay-as-you-go liabilities.

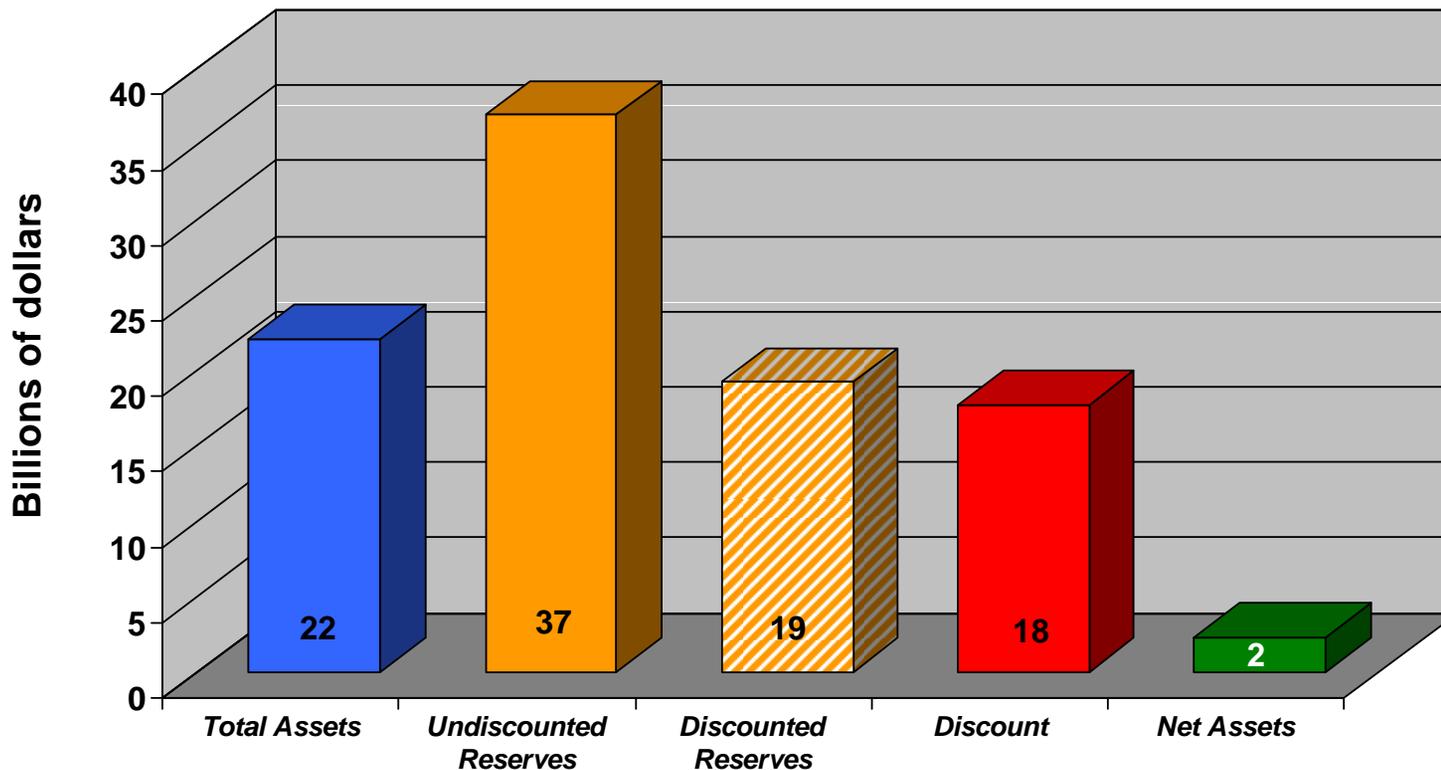
# Net Asset Level

## Review & Analysis:

### Total Assets, Undiscounted Reserves, Discounted Reserves, Discount, Net Assets

Indicates the ability and strength to withstand unexpected adverse development in reserves, a drop in asset values, or lower investment returns.

**Observation: Net Assets are insufficient to absorb relatively small fluctuations in the value of Total Assets, Reserves or Discount.**



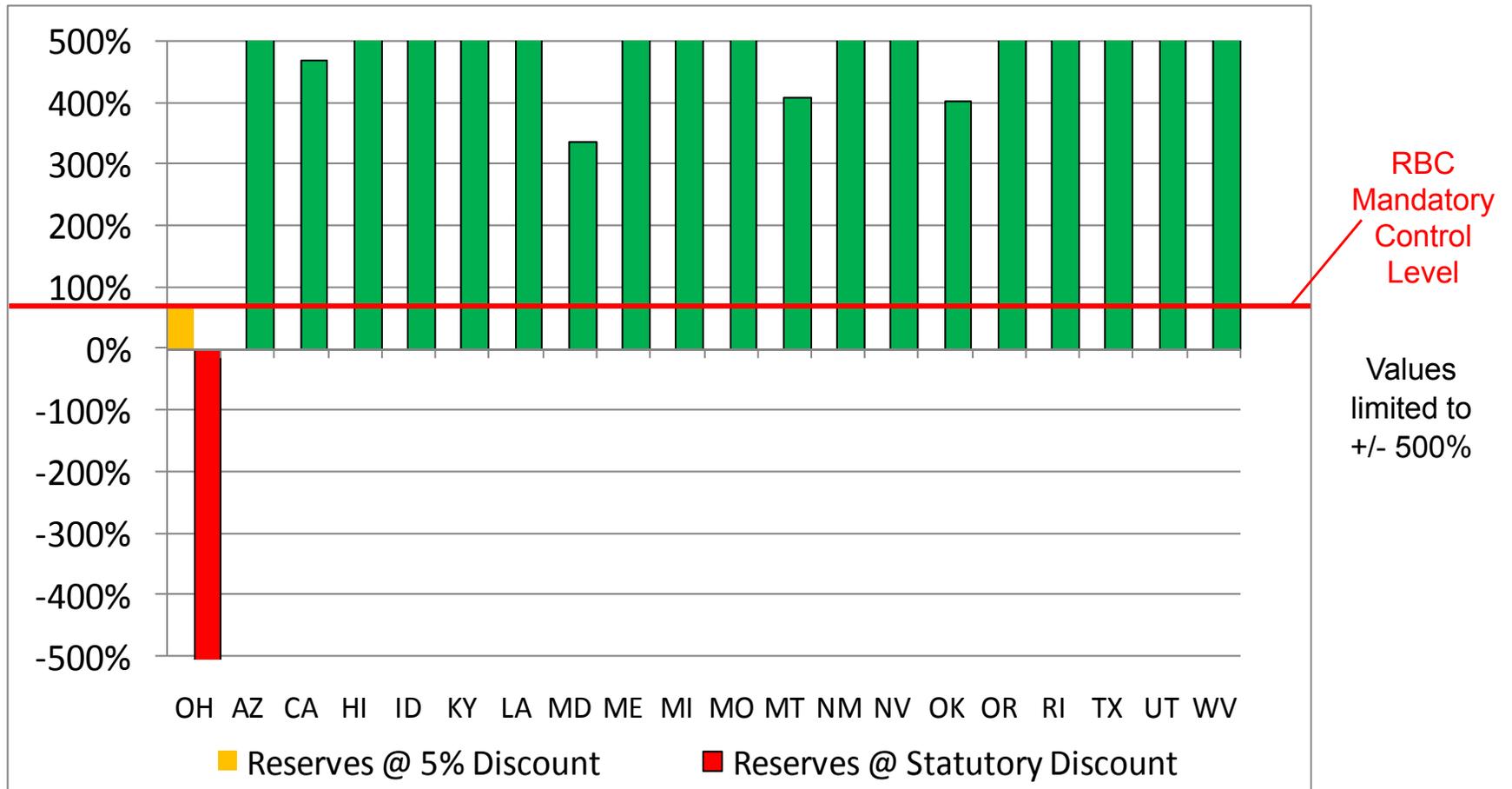
- An adverse variance of 5% in the reserves would lower net assets by approx. 45%.
- A long term investment return of 1% less than the discount rate would lower net assets by approx. 90%.

# Net Asset Level

## Review & Analysis:

**Risk Based Capital (RBC) Ratio** – RBC reflects reserve risk, underwriting risk, asset risk, etc. Used by insurance regulators to determine if intervention is needed due to solvency issues.

**Observation:** Based on the NAIC RBC requirements, BWC would be technically insolvent and would require mandatory control by regulators.

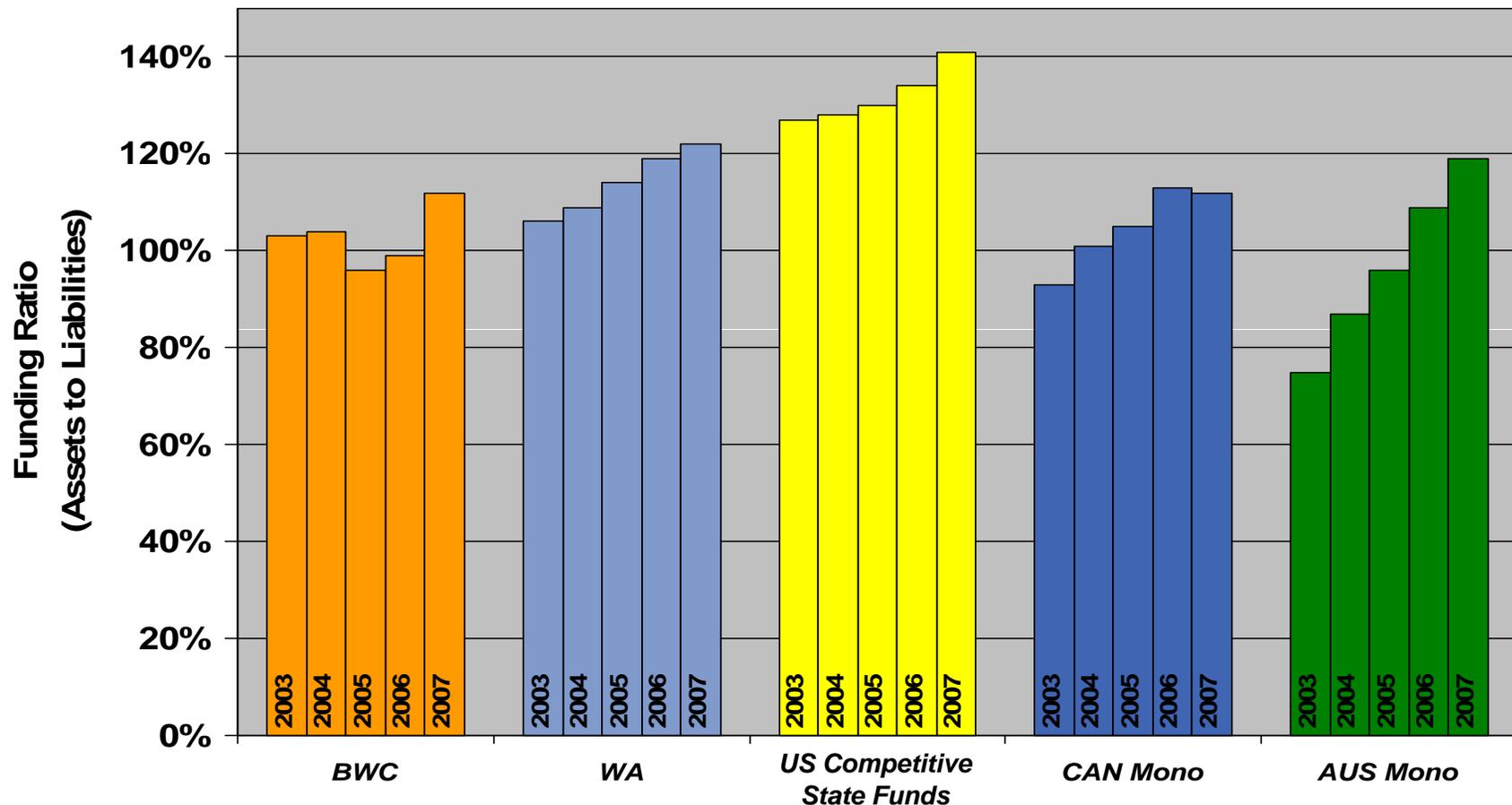


# Net Asset Level

## Review & Analysis:

**Overall Financial Strength:** Funding Ratio – Measures the ability and strength to withstand unexpected risks in the insurance and investment operations.

**Observations:** BWC's peers have strengthened their positions over the past 5 years. BWC's financial strength is weaker than its peers.

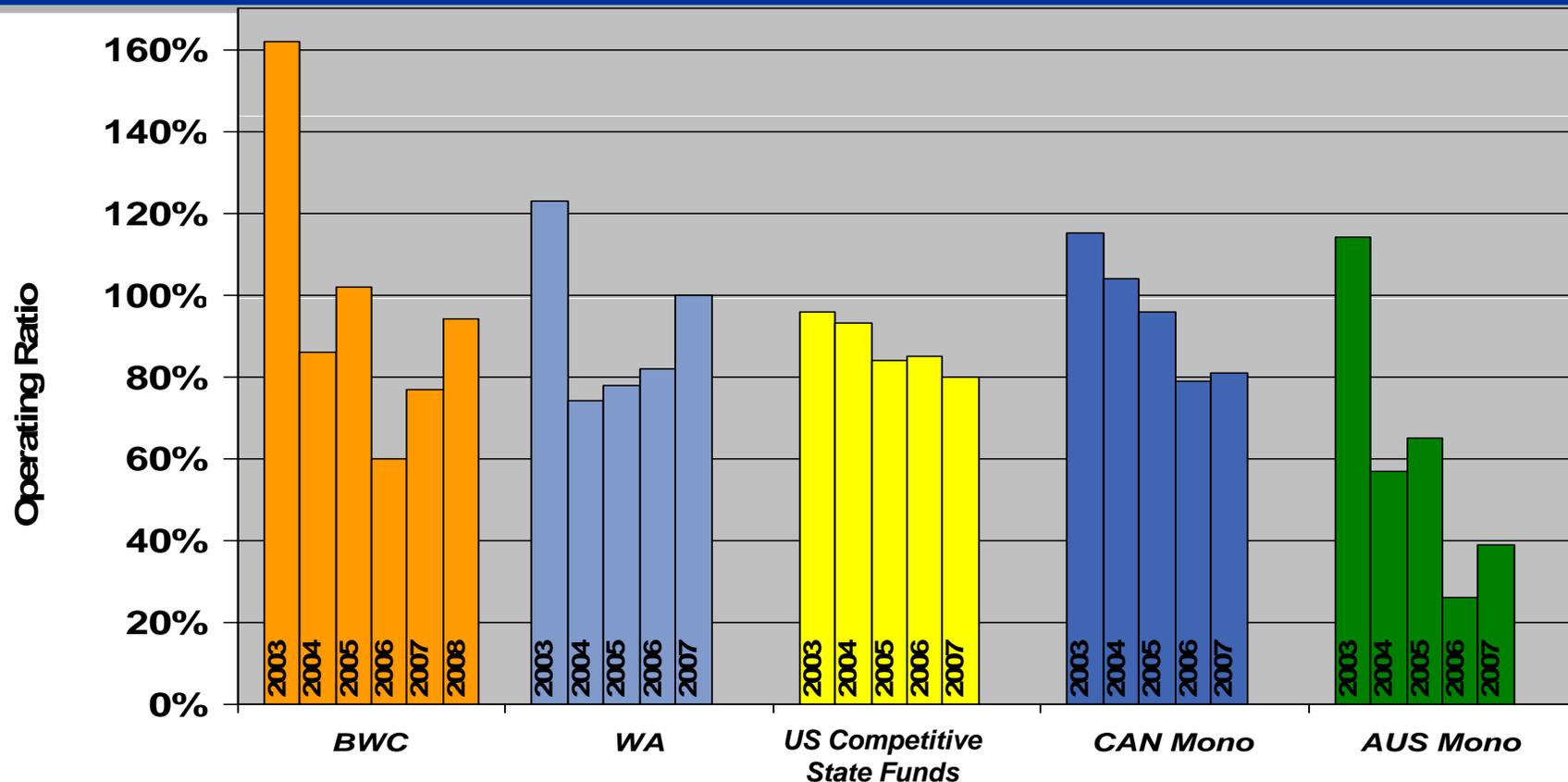


# Net Asset Level

## Review & Analysis:

**Operating Ratio after Investment Income** – Measures the success in maintaining stable operational results over the long term to support the workers' compensation system.

**Observation:** BWC has been less successful than its peers in maintaining stability in its operational results. BWC appears to be exposed to significant risk from variability in operational results.

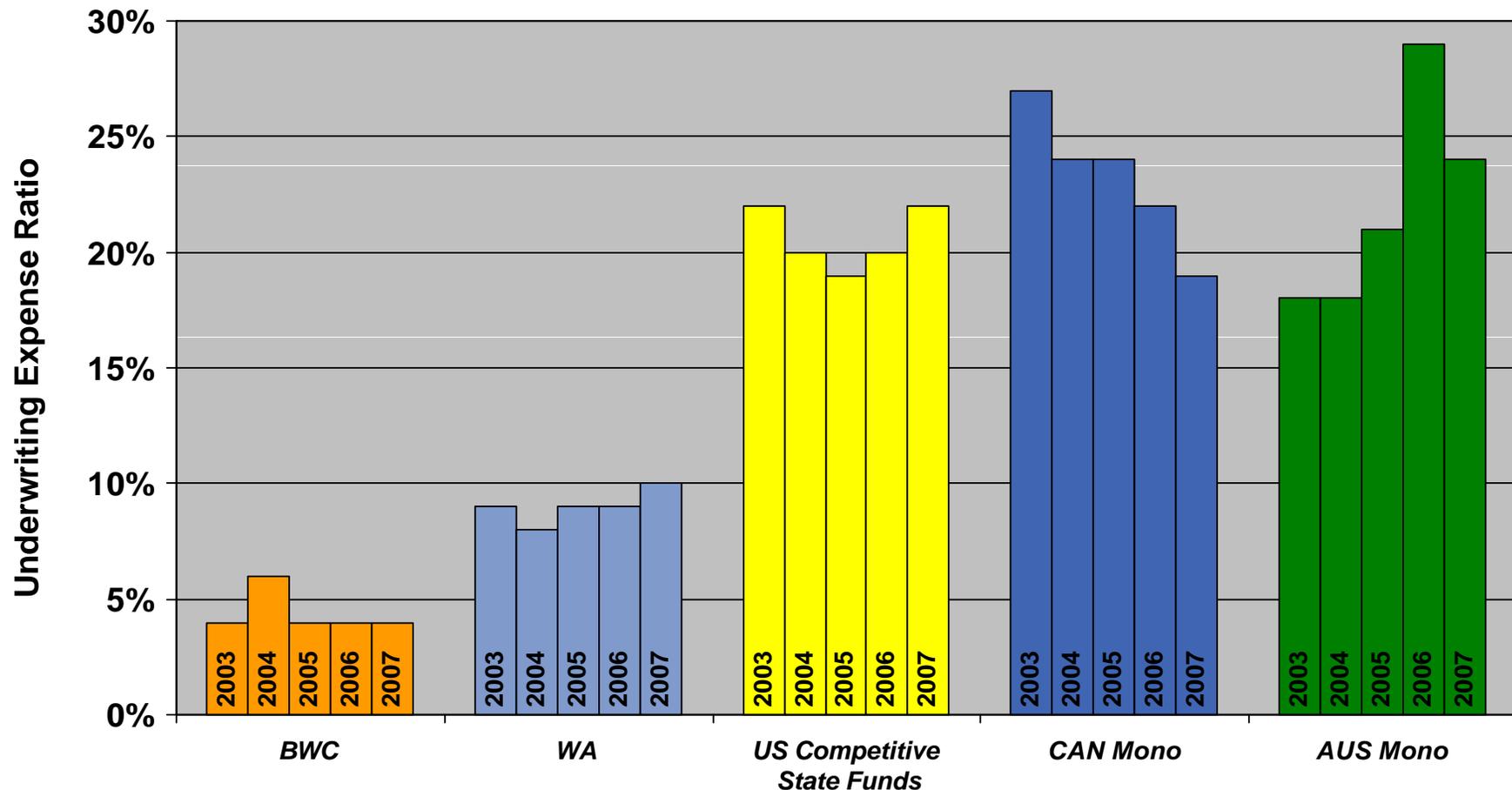


# Net Asset Level

## Review & Analysis:

Underwriting Expense Ratio (excluding loss adjustment expense) – Measures the stability and efficiency in running the insurance operations.

**Observation:** From an administrative expense standpoint, BWC has consistently been much more efficient than its peers.

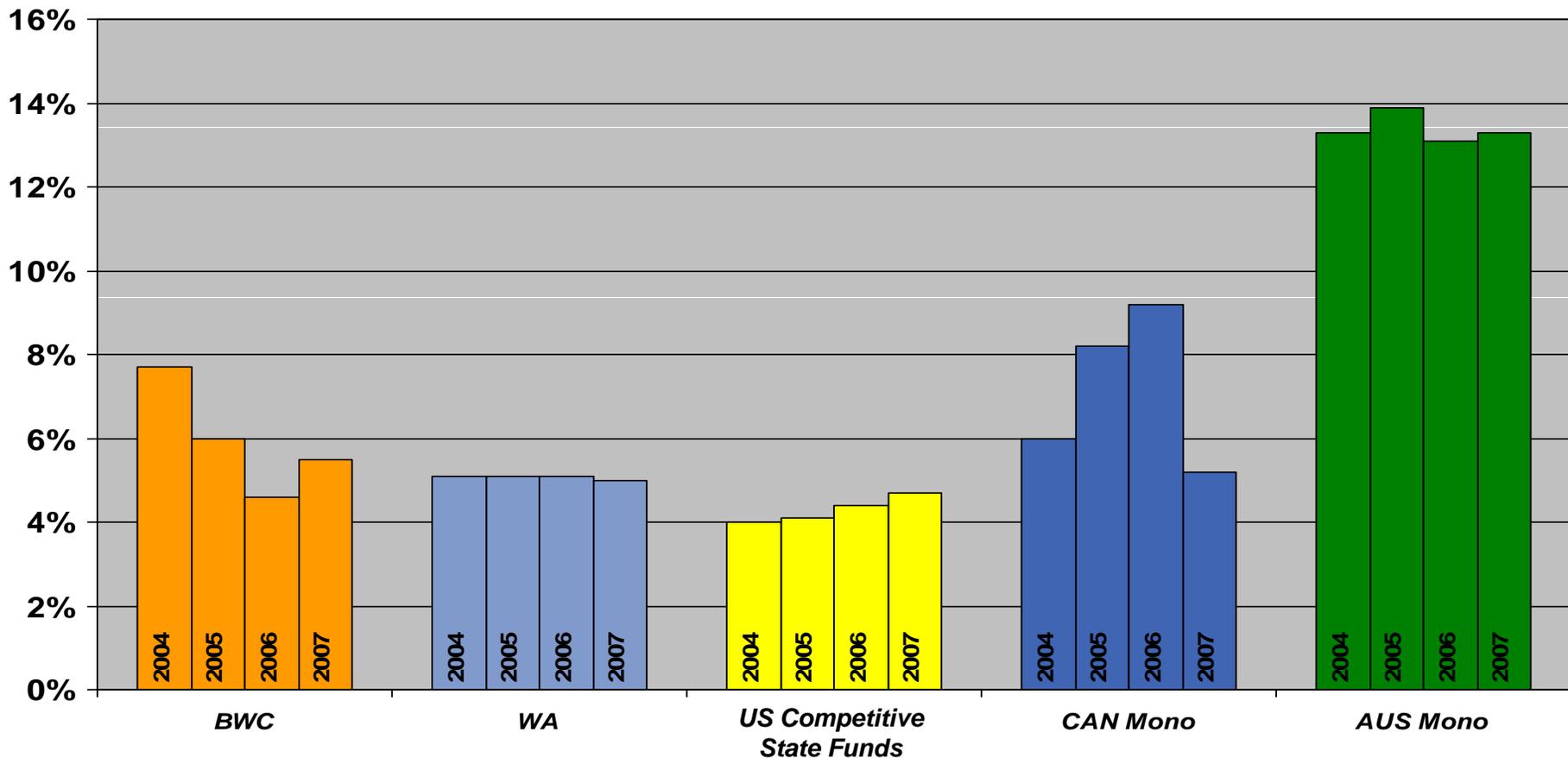


# Net Asset Level

## Review & Analysis:

**Annual Investment Return** – Measures the ability to generate a consistent level of investment income to supplement/complement the insurance operations.

**Observations:** BWC's average return is slightly higher than its US peers. BWC's historical returns have been more unstable than its peers.



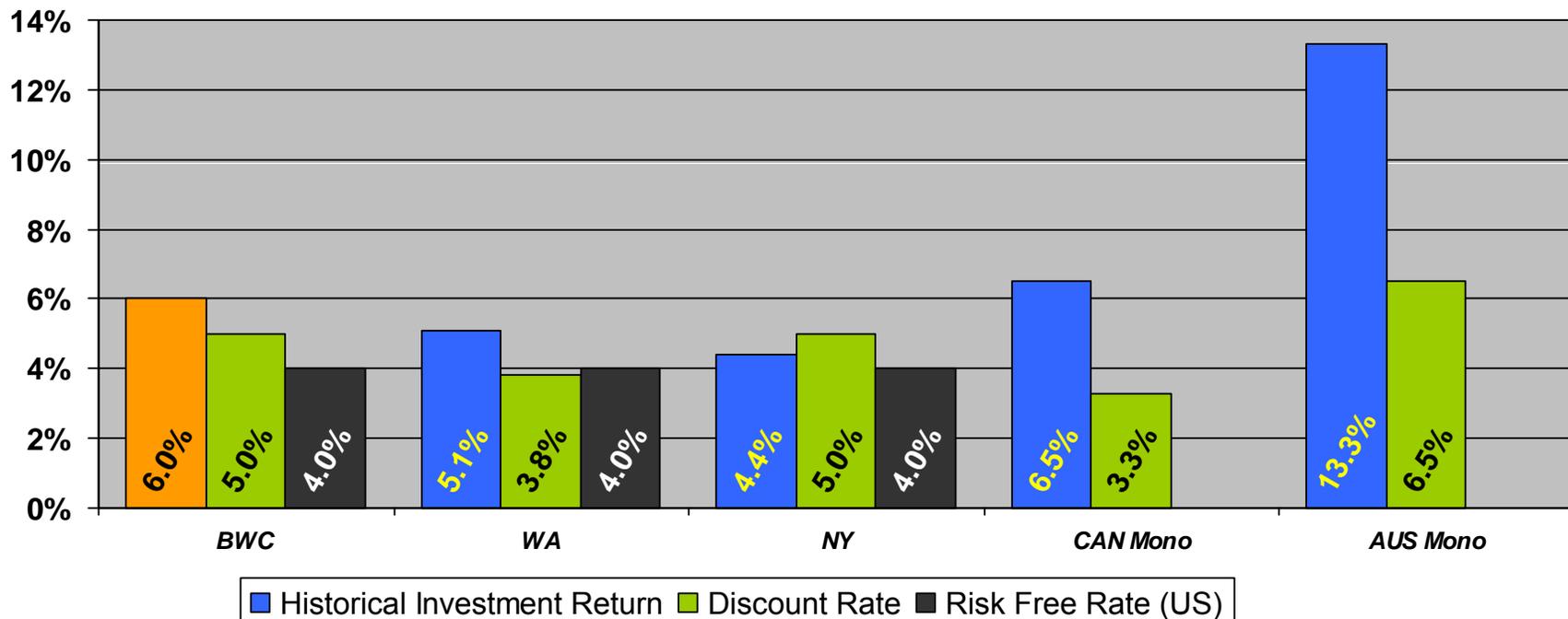
# Net Asset Level

## Review & Analysis:

**Risk Margin to Buffer Fluctuations in Investment Returns** – Comparison of historical average Investment Return, Risk Free Rate & Discount Rate used to discount reserves.

**Observations:** BWC has significant investment risk related to the use of a discount rate of 5% vs. a 4% risk-free rate; prudent net assets are needed to absorb the risk of low investment returns.

Historical Investment Returns compared to Risk Free Rate (US) and Discount Rate for Discounting Reserves

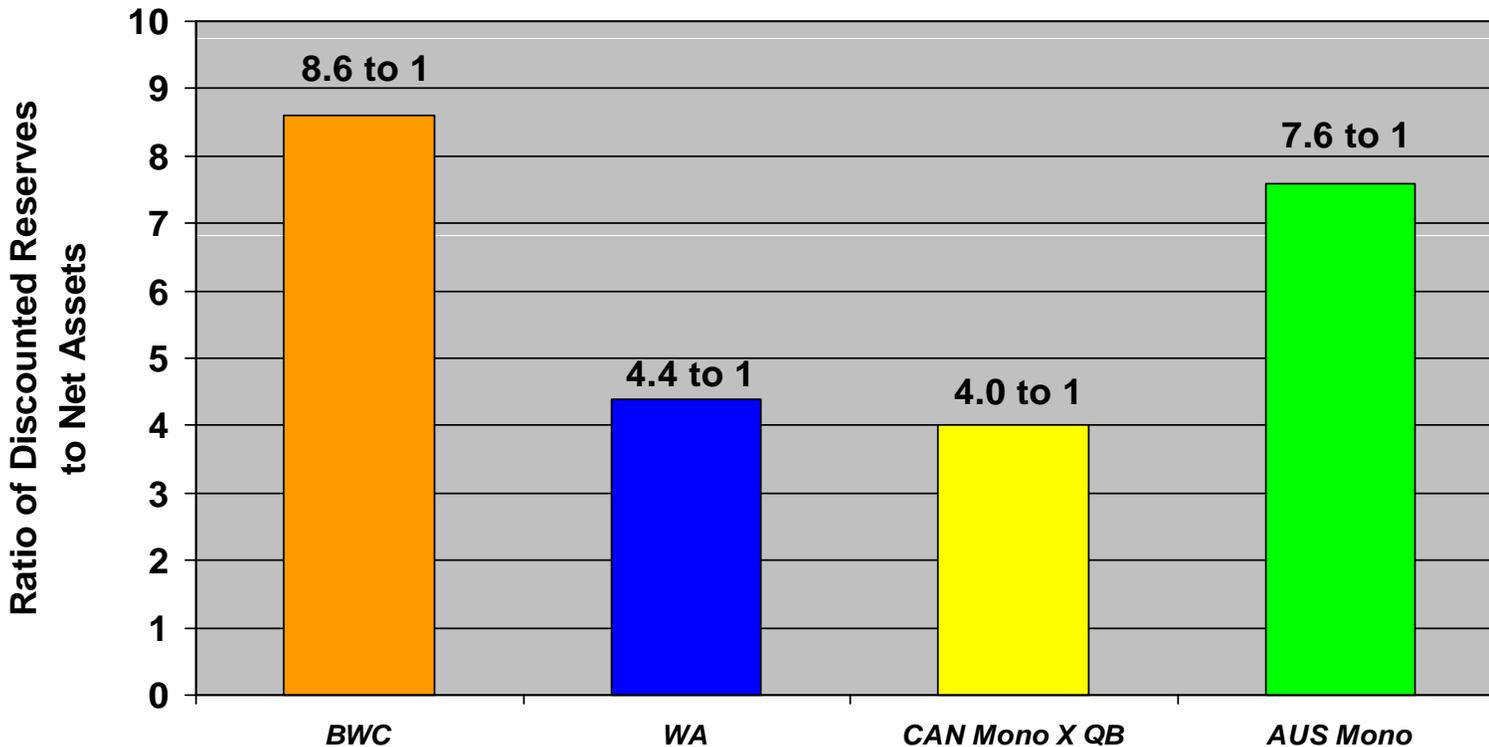


# Net Asset Level

## Review & Analysis:

**Discounted Reserves to Net Assets** – Measures the ability and strength to withstand unexpected adverse development, acceleration in insurance claim reserve payments, and unanticipated changes in interest/discount rates that vary from underlying assumptions.

**Observation:** BWC is currently more highly leveraged than its peers and has less ability to absorb the risk of adverse deviations from unexpected reserve emergence and investment returns.



# Net Asset Level

## Review & Analysis:

- The need for financial strength for the Ohio workers' compensation system is due to the financial risks associated with funding for the future costs to provide benefits to injured workers.
- Reserves are estimates of the expected future costs of unpaid claims.
- Invested assets, and the investment income from those assets, provide the cash needed to pay the benefits on the unpaid claims.
- Net assets are needed if the reserves are insufficient to pay the benefits for unpaid claims.
- Net assets are also needed if future premiums are insufficient to pay the benefits for future claims.
- Risk and uncertainty in the reserves estimates and future claim costs are the key reasons why a prudent level of net assets is needed.
- A prudent level of net assets secures the payment of benefits and avoids potentially large future premiums to pay benefits each year.

# Net Asset Level

## Review & Analysis:

Risk Analysis – identification and assessment of major financial risks

- Reserve Uncertainty – e.g. range of estimates, changing development patterns
- Investment – risk free rate vs. discount rate vs. actual investment yield
- Frequency & Severity Trends – unanticipated shifts in the number or cost of claims, including medical inflation
- Payroll Trend – unanticipated decreases in the premium rate base
- Pricing Risk – delays in changing premium rates in reaction to trends
- Payment Pattern Fluctuations – unanticipated changes in timing of payments
- CAT Event Risk – rare catastrophic events occurring once in 100+ years
- Economic Downturns – shocks from drop in investment return, drop in payrolls, rise in frequency, rise in medical inflation, faster payment pattern
- Operational Risk – failure of controls on claim payments, investment operations, expenses, inability to estimate reserve or premium needs, fraud or abuse from claimants or providers, judicial decisions, legislative changes, litigation settlements, etc.

# Net Asset Level – Funding Ratio

## Review & Analysis:

**Funding Ratio** – a customized metric that provides an indication of financial strength and security.

For BWC, Deloitte applied this concept to the SIF based on recent data as an example of how a funding ratio can be used to evaluate financial strength.

# Net Asset Level – Funding Ratio

## Review & Analysis:

The definition of the Funding Ratio used for this analysis:

$$\text{Funding Ratio} = \frac{\text{Funded Assets}}{\text{Funded Liabilities}}, \text{ where}$$

Funded Assets = cash, investments and current receivables less deposits and current payables

Funded Liabilities = Reserves for funded unpaid claims and funded claim expenses (HPP on PA/PEC), excluding any risk margin, discounted at a risk free discount rate.

# Net Asset Level – Funding Ratio

## Review & Analysis:

Preliminary SIF numbers and Deloitte estimates for 6/30/2008 indicate:

<u>Funded Assets</u> (available to pay unpaid claims obligations)		<u>millions</u>	<u>Unpaid Claims Estimates</u> (undiscounted actuarial central estimate)		<u>millions</u>
Cash and invested assets		15,809	PA (Funded)		19,094
Premium in course of collection		798	PEC (Funded)		2,880
Accounts receivable less reserve for uncollectible		156	HPP Expense (Funded portion - PA & PEC)		1,175
Retro premium receivables		282			
Investment trade receivable		72	<b>Undiscounted Liabilities (Funded)</b>		<b>23,149</b>
Accrued investment income		184	Discount factor @ risk-free rate (4%)		0.64
			Discounted Liabilities (Funded)		14,714
<u>Deductions</u>			<b>FUNDED LIABILITIES</b>		<b>14,714</b>
Premium payment security deposits	(88)				
Warrants payable (outstanding checks)	(37)				
Inter-fund receivables minus payables	(132)				
<b>FUNDED ASSETS</b>		<b>17,044</b>			

<b>Funded Assets</b>	<b>17,044 million</b>
<b>Funded Liabilities</b>	<b>14,714 million</b>
<b>Funding Ratio</b>	<b>1.158</b>

# Net Asset Level

## Review & Analysis:

Risk Modeling – evaluating the potential impact of major risks by using a financial model to simulate potential outcomes.

- Reserve Risk – percentiles generated from a statistical model derived from BWC's historical data
- Investment Yields, Frequency & Severity Trends, Medical Inflation, Payroll Trend, Payment Pattern Fluctuations – assumed random variation within a likely range
- Pricing Risk – simulated BWC premium rate changes based on loss costs and trends
- CAT Event Risk – simulated one in 100+ year events
- Economic Downturns – simulated shock scenarios using assumed random variation

# Net Asset Level

## Review & Analysis:

Risk Model Results – used separate models for reserve risk vs. other risks

- Reserve Risk – percentiles of ultimate unpaid claims used to evaluate the impact on the funding ratio at different levels of confidence, e.g. 75<sup>th</sup>, 95<sup>th</sup>, 99<sup>th</sup>, to gauge sensitivity of the funding ratio to reserve risk.
- Future Funding Ratios – random simulations used to develop percentiles of financial results projected out to 2013 at different levels of confidence, e.g. 75<sup>th</sup>, 95<sup>th</sup>, 99<sup>th</sup>, to gauge sensitivity of the funding ratio to other risks.
- Preliminary Results – Funding Ratio – Sample Target Range

Using preliminary results of risk analysis for reserve risk and other risks:

	Percentile	75 <sup>th</sup>	95 <sup>th</sup>	99 <sup>th</sup>
Reserve Risk		1.05	1.10	1.45
Other Risks (combined) (no economic downturn vs. simulated downturns)		1.05-1.20	1.10-1.25	1.15-1.30
Overall Funding Ratio – Target Range		1.20 to 1.75		

# Net Asset Level

## Review & Analysis:

### Impact of Risk Model Results:

- Additional Net Assets Needed – the Funding Ratio range is applied to the estimated Funded Liabilities to produce the Target Assets. The difference between the Target Assets and the Funded Assets as of 6/30/08 is the indicated additional net assets needed to attain the target Funding Ratio.

	Preliminary 6/30/08	Target Funding Ratio	Target Funding Ratio
Funding Ratio	1.158	1.20	1.75
Funded Liabilities	14,714 million	14,714 million	14,714 million
Target Assets		17,656 million	25,749 million
Funded Assets	17,044 million		
Additional Net Assets Needed		612 million	8,705 million

# Net Asset Level

## Performance Assessment



### Peers and Industry Standards Considered

State workers' compensation funds,  
Canadian provincial funds, Australian funds.

# Net Asset Level

## Deloitte Conclusions:

- Adopting an industry metric would not be appropriate for BWC; nor would a static measure, such as a fixed amount of net assets.
- An approach that is dynamic and self-adjusting is recommended.
- The policy could incorporate the concept of an acceptable range for the Funding Ratio.
- A funding policy could be tailored to each of the BWC's Funds where a material amount of a Fund's obligations are funded, as opposed to pay-as-you-go.
- A funding policy would not address potential financial issues associated with pay-as-you-go funding. However, simple metrics could be developed to assess the ultimate cost impact of pay-as-you-go funds.

# Net Asset Level – Funding Policy

## Deloitte Recommendations:

- Adopt a “Funding Policy” to maintain prudent funded net assets to support the financial strength of the State Insurance Fund and to help maintain stability in premium costs.
- Develop a customized approach, based on guidelines driven by a few key metrics, that is dynamic and self-adjusting.
- Target a funding ratio range, with appropriate recommended actions, depending on how recent, current and projected funding ratios compare to that range.
- Incorporate guidance in the funding policy, with appropriate options for premium credits or surcharges if the funding ratios indicate excessive or inadequate financial reserves.

# Net Asset Level

## Recommendation Impact

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
Adopt a Funding Policy with Guidelines & Metrics				
Target a Funding Ratio Range & Recommended Actions				
Policy Guidance with Premium Options based on Funding Ratio				

# Excess Insurance and Reinsurance

## The Situation:

- BWC has not historically purchased excess insurance or reinsurance.
- There are limited BWC net assets available to absorb the risk of potential adverse impact of very rare or unlikely events that could be covered by reinsurance.
- Many insurance entities, including state workers' compensation funds, use reinsurance primarily as part of their enterprise risk management.
- While the cost of reinsurance is not normally prohibitive, BWC does have the ability to recover from large costs from an extreme event. However, the purchase of reinsurance can provide relief in avoiding a cost recovery burden to employers if such an event does occur.

# Excess Insurance and Reinsurance

## Review & Analysis:

- BWC has not historically had catastrophic losses.
- Catastrophic losses are possible in Ohio, but the chance of such losses are unknown.
- Catastrophic losses could impair BWC's current net assets.

# Excess Insurance and Reinsurance

## Performance Assessment



### Peers and Industry Standards Considered

US Competitive State Funds, US Monopolistic Funds where information was available, information from reinsurance market on catastrophic reinsurance of workers' compensation.

# Excess Insurance and Reinsurance

## Conclusions:

- Limiting the impact of a catastrophic event to 5% to 10% of net assets would be consistent with industry practice.
- A small reinsurance cost, as a percent of premium, should not affect premium rates, but will provide some reinsurance protection against major catastrophic events.
- If a major event occurs, reinsurance will lessen the financial stress on BWC's financial strength and reduce the need to increase premium rates.
- Deloitte recommends that BWC test the reinsurance market from time to time to determine if catastrophic reinsurance can be purchased at reasonable terms for a reasonable cost.

# Excess Insurance and Reinsurance

## Recommendation Impact

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
Limit impact of CAT event to 5-10% of Net Assets				
Test Reinsurance Market for CAT Protection				

# Actuarial Audit Reserves and Expected Payments

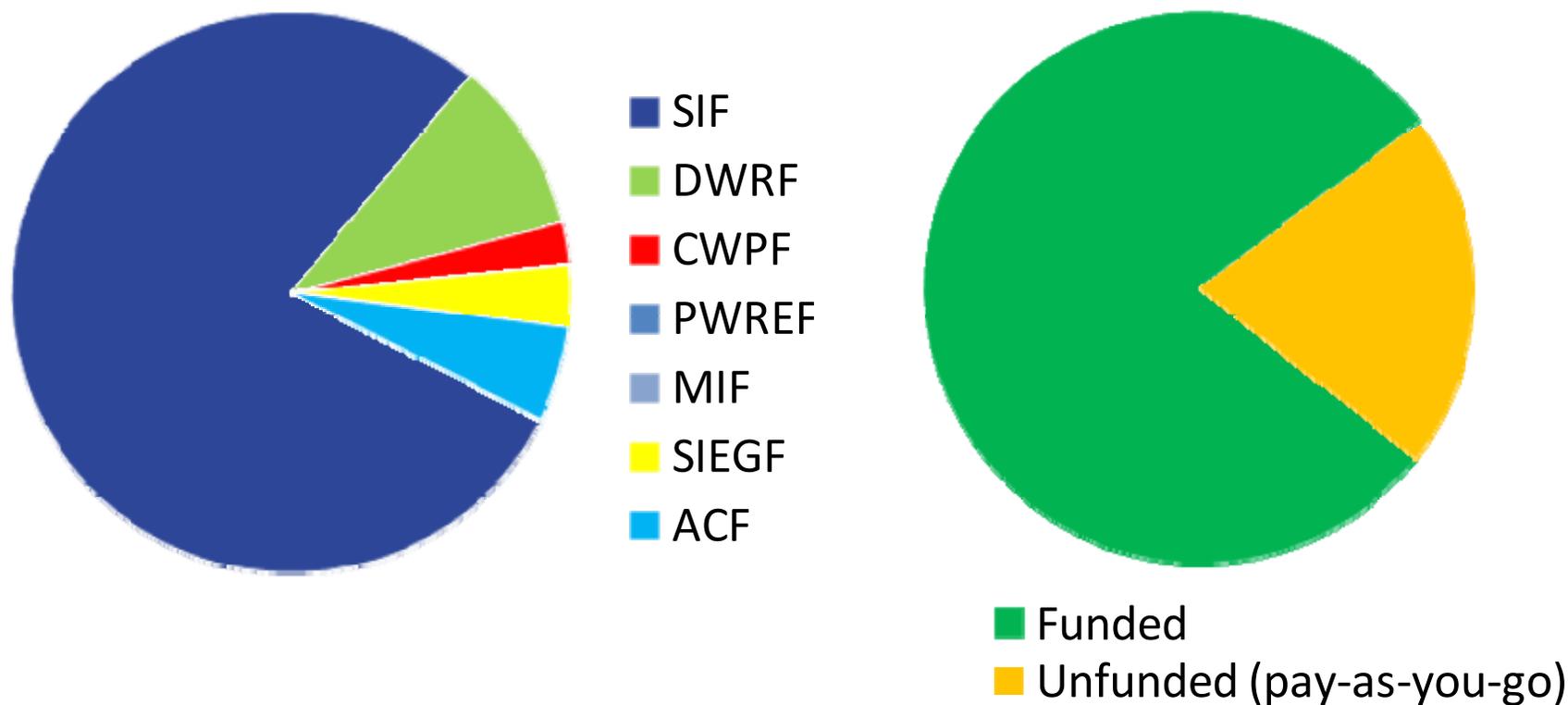
## The Situation:

- The BWC's recorded reserves of loss and loss adjustment expense for unpaid claims, and the expected future payment of those reserves, are based on Oliver Wyman Actuarial Consulting, Inc.'s ("Oliver Wyman") Actuarial Audit Analysis.
- BWC's recorded reserves are discounted using a 5% interest rate without any explicit risk margin or contingency provision.
- Our objective was to review these reserves and expected payments, and assist the BWC in establishing objective quality management principles and methods by which to review these reserves. *Deloitte's unpaid claim estimates were not intended for the purposes of recording an amount in BWC's financial statements.*
- Our Review Process
  - Review Oliver Wyman's 6/30/07 Annual Audit Report and 12/31/07 Quarterly Audit Report for each Fund.
  - Perform an actuarial analysis of the SIF unpaid losses as of 6/30/2008 based on data as of 12/31/2007 and compare actual payments through 6/30/08 with expected payments.

# Actuarial Audit Reserves and Expected Payments

## Review and Analysis:

### BWC Loss & LAE Reserves @ 6/30/08 (preliminary) By Fund and By Funding



# Actuarial Audit Reserves and Expected Payments

## Review and Analysis:

- Annual Actuarial Audit Reserve Report as of 6/30 – There is only a limited time frame, prior to issuance of financial statements, to perform analysis and implement new or revised processes or methods, if necessary. Further, the BWC does not have sufficient time to review the Actuarial Audit Report in detail in order to make judgments about the findings.
- Quarterly evaluations as of 9/30, 12/31, and 3/31 – These interim evaluations allow the BWC to understand changes in claim data earlier and provides key data to monitor changes.
- Transparency of Audit Report:
  - Certain aspects of the Actuarial Audit Report are transparent and include sufficient support while other aspects are not as transparent and lack supporting details.
  - Certain estimates are difficult to follow, although it is possible for a reviewing actuary to replicate most of the calculations.
  - The runoff analysis of prior estimates is not in sufficient detail to allow the BWC to understand changes and trends in estimated ultimate losses. The runoff review is not performed on an undiscounted basis and is not analyzed by accident year.

# Actuarial Audit Reserves and Expected Payments

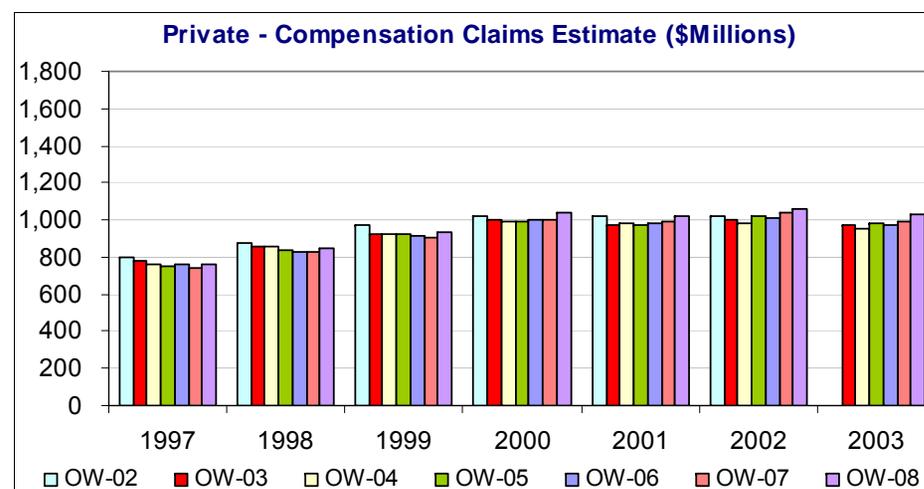
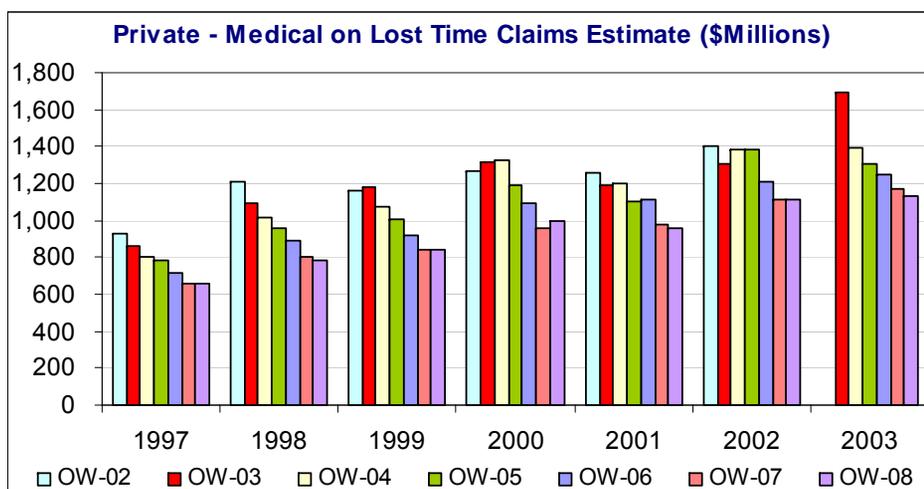
## Review and Analysis:

- The current method employed relies heavily on BWC's historical loss development data organized into quarterly incremental paid loss history by accident year.
- The most common actuarial approach to loss development analyses utilizes cumulative paid loss development history as well as incurred loss history, defined as paid losses plus outstanding case reserve estimates. Different results are possible using these different data and methods.
- While the Actuarial Audit Report contains detailed analyses by compensation type and type of provider, the unpaid claim estimates are provided based only on one actuarial method.
- Actuarial Standard of Practice No. 43 on unpaid claim estimates indicates the need to consider the use of multiple methods, unless reliance upon a single method model is reasonable given the circumstances. Given the potential variability in unpaid claim estimates, a comparison of estimates from different methods may assist the BWC in assessing reserve risk.
- There are other provisions of the actuarial standards that could also be important to review and consider in finalizing the estimates of unpaid losses and loss adjustment expenses for BWC's various funds.
- According to Actuarial Standard of Practice No. 20 on discounted reserves, the actuary should be aware that a discounted reserve is an inadequate estimate of economic value unless appropriate risk margins are included. The current reserves do not appear to include an explicit risk margin, however, some assumptions may reflect the risk of underestimation.

# Actuarial Audit Reserves and Expected Payments

## Review and Analysis:

- Oliver Wyman actuarial audit estimates for medical on lost time claims have shown sizable year-to-year reductions from 6/02 to present, while their estimates for compensation have been relatively consistent.



- The method used for estimating medical on lost time claims relies on a stable size of loss distributions across accident years, which is less likely to be true for smaller segments. This has led to more conservative estimates from Oliver Wyman results.
- The method used for each compensation type is appropriate.

# Actuarial Audit Reserves and Expected Payments

## Review and Analysis:

### Deloitte Analysis

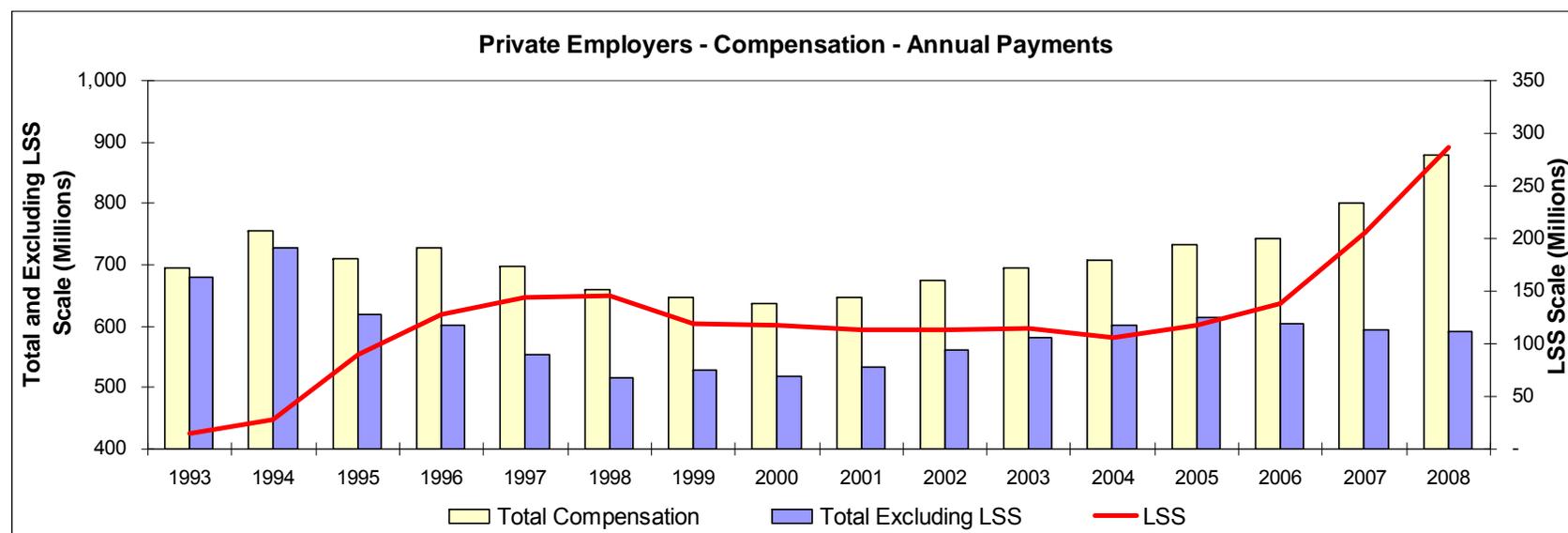
- Performed an actuarial analysis of private employers and public employers within the SIF for unpaid claims as of 6/30/08 based on claim data as of 12/31/07.
- Estimates determined separately for medical only, medical on lost time claims (all provider types combined) and each compensation type.
- Incorporated multiple methods based on both incremental and cumulative to date accident year paid and incurred (paid loss plus MIRA case reserves) claim data.
- Data preparation
  - Compiled incremental payment history from various sources to create cumulative payment history.
  - Compiled MIRA case reserves at annual evaluations back to June 30, 2002 to create cumulative incurred development history.
  - Compiled incremental annual payment history back to June 30, 2002 for all accident years back to 1953 to evaluate development beyond 30 years of age and determine estimates for accident years prior to 1977.

# Actuarial Audit Reserves and Expected Payments

## Review and Analysis:

### Data Observations

- Frequency trend is decreasing; private (PA) have a larger decrease than public (PEC/PES).
- Medical severity trends have been around 6% to 7% in recent years.
- Increase in Lump Sum Settlements (LSS) and decrease in other payments in recent years.



- Increase in LSS has distorted the development pattern and added uncertainty to estimates.
- The development in PTD and medical on lost time has been reduced.
- The development in recent evaluations for other compensation types, such as in temporary total and percent permanent partial claims, has increased.

# Actuarial Audit Reserves and Expected Payments

## Review and Analysis:

### Lump Sum Settlements

- Review of LSS payments and claim counts shows a significant increase in activity.
- Increase in LSS activity may result in ultimate cost savings, but measurement of the cost savings benefit is difficult to assess due to limited information.
  - Internal BWC performance measures are based on individual claim evaluations performed solely for the purpose of determining the LSS amount.
  - LSS payments compared to MIRA case reserves have been increasing.
  - A large number of LSS claims settle for small amounts.
  - Potential exists for LSS claims to re-open based on recent judicial developments.
- Oliver Wyman's actuarial audit approach is to not recognize potential cost savings of the increase in LSS until the benefits can be observed in the data. In our opinion, this is an appropriate and prudent approach due to the uncertainty associated with the increase LSS activity. However, the potential margin included from this approach should be considered when evaluating the funding ratio.
- A preliminary analysis of the LSS impact indicates potentially significant savings.

# Actuarial Audit Reserves and Expected Payments

## Performance Assessment



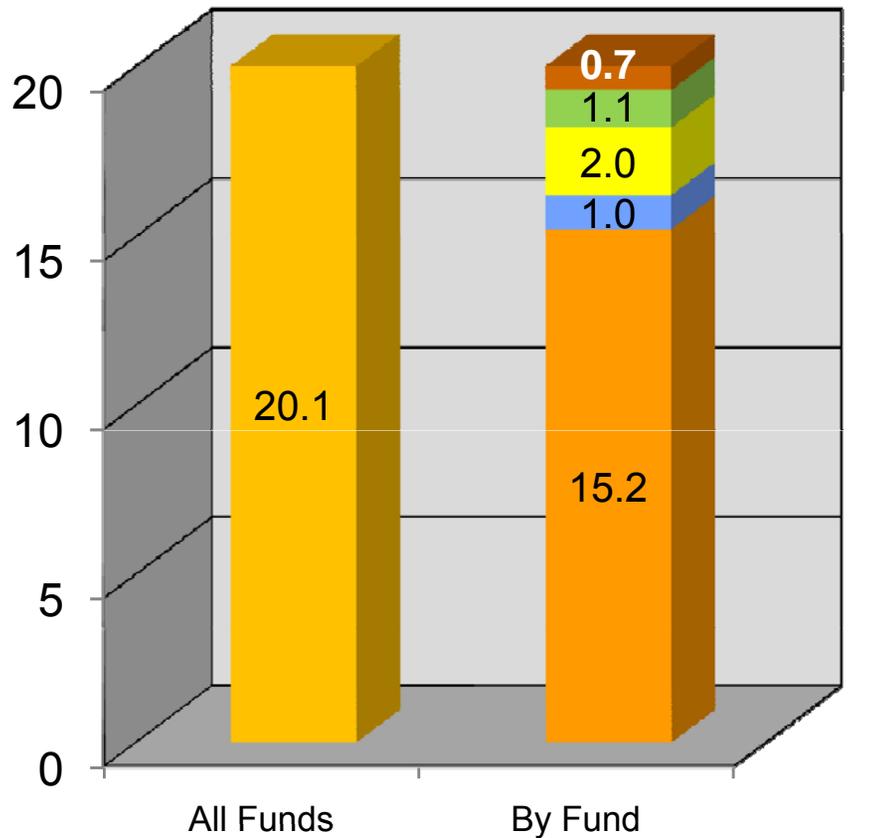
### Industry Standards Considered

Industry Reserving Practices, Actuarial Standards

# Actuarial Audit Reserves and Expected Payments

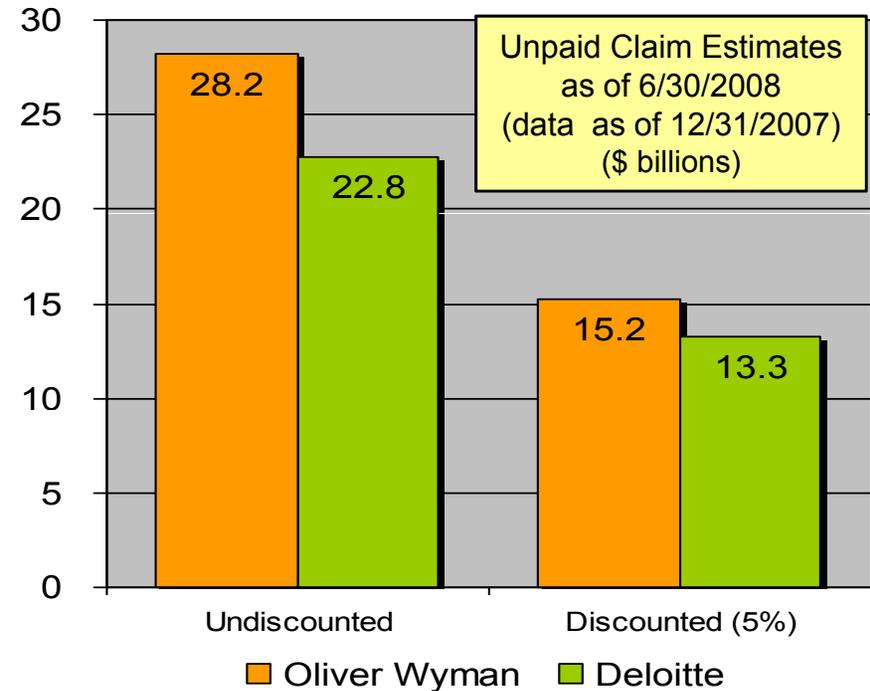
## Conclusions:

Oliver Wyman  
Discounted Unpaid Estimates  
at 6/30/08 (data as of 12/31/07 )  
(\$ billions)



■ SIF ■ SIF (HPP & Self-Insured) ■ DWRF ■ ACF ■ SIEGF

## Comparison of SIF Estimates



- Deloitte's SIF discounted estimate is lower by \$1.9 billion (13%). (PA - 8% lower, PEC - 29% lower, and PES - 31% lower.)
- The discounted difference is smaller than undiscounted difference due to differences in estimated future annual payments.
- Majority of difference is from medical on lost time claims.
- Deloitte's estimates are lower in more recent accident years and higher in older accident years.
- Actual payments for first six months of 2008 were consistent with expected payments.

# Actuarial Audit Reserves and Expected Payments

## Recommendations:

### Include a reserve risk margin or contingency provision

- Our estimate of the SIF does not include a risk margin for variability in the losses or a contingency provision for the risk that future investment yields are less than anticipated.
- Deloitte recommends that provisions in both areas are included when evaluating the financial strength of the “funded” obligations managed by the BWC.
  - Based on our preliminary reserve risk analysis, a provision at the 75<sup>th</sup> percentile of simulated results indicates a 5% reserve risk provision.
  - However, to provide a more appropriate level of financial security, Deloitte recommends a reserve risk provision based on the 95<sup>th</sup> to 99<sup>th</sup> percentile, which equates to 10% to 15% based on our initial analysis.
  - Deloitte also recommends using a discount factor of 4.0%, which is more reflective of a risk-free rate; this would alleviate the need for a separate investment risk provision.
  - A reserve risk provision could be included in the recorded reserves.
  - A reserve risk provision should be considered in evaluating net assets.

# Actuarial Audit Reserves and Expected Payments

## Recommendations:

### Disclose significant risk provisions, margins, or discounts

- The BWC should disclose any significant risk provisions, margins, or discounts to the extent they are included in the financial statements.
- The BWC should include these risk and discount elements when evaluating its financial strength even if the financial statements do not.
- We caution that the difference between our estimates and Oliver Wyman should not be interpreted as indicating that the BWC's recorded reserve needs to be adjusted at this time. Rather, the BWC should consider including reserve risk and the impact of discounting reserves at a risk-free rate when evaluating the financial statements.

### Require an annual Statement of Actuarial Opinion

- BWC is responsible for several funds which report material amounts of actuarial liabilities.
- While there is an annual actuarial audit reserves report for these liabilities, there should be a statement of actuarial opinion issued by a qualified actuary to support the amounts recorded in the BWC financial statements.
- The actuarial opinion, as well as the other actuarial work related to audit reserves, should comply with Actuarial Standards of Practice Nos. 7, 20, 23, 36, 41, 43 and any other applicable standards. All applicable provisions of these standards should be addressed.

# Actuarial Audit Reserves and Expected Payments

## Recommendations:

### Conduct further in-depth studies of potential savings from LSS

- The increased LSS activity in recent years could potentially lead to a significant reduction in ultimate losses and cash flow projections.
- Our initial analysis of the impact of LSS is promising, but further in-depth study of the potential savings is recommended.

### Conduct further analysis of the risk of inflation on the DWRF

- This fund pays benefits on PTD claims for annual cost of living adjustments (COLA) for claims are below a certain threshold
- The COLA adjustment increases annually based on the consumer price index.
- This means that the number of existing claims eligible for COLA benefits increases over time as the threshold is adjusted each year.
- There can be a highly leveraged effect of inflation on the obligations of the DWRF fund and on the future assessments needed to pay the COLA benefits.
- Consequently, this fund is subject to significant risk and uncertainty due to future inflation.
- The BWC should conduct further analysis of the risk of inflation on this fund since future inflation is subject to significant changes over relatively short periods of time.

# Actuarial Audit Reserves and Expected Payments

## Recommendations:

- Additional documentation in the actuarial audit would further assist a reviewing actuary evaluating the analysis and increase transparency to the BWC.
- Additional actuarial methods in the actuarial audit may provide greater insight on the dynamics and uncertainty affecting the reserves.
- An evaluation date prior to 6/30 of the annual actuarial audit to provide more time prior to close of the financial statements for the analysis and the BWC's review.
- There are substantial uncertainties in estimating unpaid losses, such as, inflation, future development relative to historical development, impact of MIRA II, LSS activity, and deviation of future investment yields from those expected. Also, if the favorable frequency trend mitigates or reverses, more uncertainty would be introduced.
- The BWC should focus on understanding trends and sources of uncertainty on reserves as it builds its internal actuarial resources.
- The BWC should consider one or more approaches to test or validate the unpaid claim estimates provided in the external actuarial audit reviews. Also, as the BWC increases its experienced actuarial resources, more effort can be focused on internal data analysis and performing various reviews, tests and validations of the external estimates.

# Actuarial Audit Reserves and Expected Payments

## Recommendation Impact

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
Include Risk Margins & Disclose Margins/Discounts	↑	↑	↑	↑
Require Statement of Actuarial Opinion	↑	↑	↑	↑
Further study of LSS Savings & DWRP Risk	↑	↑	↑	↑
Use Add'l Methods, Document Better, Test Estimates, Focus on Risk & Uncertainty	↑	↑	↑	↑

# Performance Assessment Summary

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
Benefit Comparisons				
Administrative Cost Calculation				
Net Asset Level				
Excess Insurance and Reinsurance				
Actuarial Audit Reserves and Expected Payments				

# Performance Assessment Summary

## Overarching Themes

### Effectiveness & Efficiency

How well does the Ohio workers' compensation system utilize its resources and administer benefits?

### Financial Strength & Stability

Is the Ohio workers' compensation system fiscally sound? Does the system promote pricing stability?

### Transparency

Can the public understand the workings of the Ohio workers' compensation system?

### Ohio Economic Impact

Does the workers' compensation environment encourage business growth and development in Ohio?

## Scoring Method



Strongly supports system performance



Supports system performance



Some support for system performance



Some opportunity for system performance change/enhancement



Significant opportunity for system performance change/enhancement

# Next Steps

# Next Steps

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- Finalize documentation of the findings
- Continue work on other Group tasks

# Appendix

# Group 2 Study Elements

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## Ohio Benefit Structure

### Award Categories

- 1) Compensation Types
- 2) Benefit and Compensation Levels
- 3) Number of Benefit Types

## Pricing Process

### Statewide Rate Level

- 1) Administrative Cost Calculation

## Financial Provisions

### Loss Reserves

- 1) Current Actuarial Audit Reserve Methodology
- 2) Independent Review
- 3) Expected Payments Established by Independent Actuarial Consultant
- 4) Loss Reserve Margins and Discount Factor
- 5) Performance Assessment Implications

### Net Asset Level

- 1) Methods for Setting Net Asset Targets
- 2) Risk Margins
- 3) Disclosure

### Excess Insurance and Reinsurance

- 1) Cost Effectiveness, Catastrophic Events, and Rate Stability

# Ohio Benefit Structure Areas

Award Categories	Tasks Involved
1) Compensation Types	23. Conduct a study of the benefits and compensation paid by the BWC compared to industry peers. This study would include an analysis of all compensation types and their application by the BWC.
2) Benefit and Compensation Levels	
3) Number of Benefit Types	

# Pricing Process Areas

Statewide Rate Level	Tasks Involved
1) Administrative Cost Calculation	27. Conduct a study on the administrative cost calculation used in employer rates. This evaluation should include a review of the allocated and unallocated loss adjustment expenses of the BWC.

# Financial Provisions Areas

Loss Reserves	Tasks Involved
1) Current Actuarial Audit Reserve Methodology	21. Review the actuarial audit reserves established by the BWC's independent actuarial consultant to establish objective quality management principles and methods by which to review the performance of the workers' compensation system.
2) Independent Review	
3) Expected Payments Established by Independent Actuarial Consultant	15. Evaluate the methodology and reasonability of the expected payments established by the BWC's independent actuarial consultant.
4) Loss Reserve Margins and Discount Factor	
5) Performance Assessment Implications	21. See above.

# Financial Provisions Areas

Net Asset	Tasks Involved
1) Methods for Setting Net Asset Targets	26. Conduct a study on the amount of surplus/net assets that should be held by the BWC. This study should compare the BWC to industry standards and recommend appropriate methods of setting target surplus for the BWC and the appropriate discount rate.
2) Risk Margins	
3) Disclosure	

# Financial Provisions Areas

Excess Insurance and Reinsurance	Tasks Involved
1) Cost Effectiveness, Catastrophic Events, and Rate Stability	31. Conduct an evaluation on the excess insurance or reinsurance requirements for the BWC including the need for excess coverage or reinsurance in the event of a catastrophic event. This evaluation should include the cost effectiveness of excess coverage or reinsurance, the ability of the BWC to handle a catastrophic event, and the stability in rates provided by excess insurance or reinsurance coverage. This study should include an evaluation of reinsurance requirements and a possible reinsurance program for the BWC.

# Deloitte.