

## CAS Accounting Changes Task Force Modeling Sub-Committee

### Income emergence study Preliminary Results

2010 CAS Annual Meeting  
November 8, 2010

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### Disclaimer

- The results demonstrated within are based on preliminary analyses.
- The purpose of this presentation is to illustrate potentially interesting aspects of the proposed accounting changes to property and casualty contracts, and therefore assist the AAA in forming their public policy views.
- The observations within were produced by the CAS Accounting Changes Task Force, however they do not represent official position of either the CAS nor the AAA.

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### IASB Exposure Draft – Income Recognition

- The IASB is proposing a “Building Block” approach for recognizing income for insurance (and reinsurance) contracts. The defined building blocks are as follows:
  - Current estimates of future cash flows (premiums, claims, and expenses)
  - Time value of money
  - An explicit risk adjustment
  - A Residual margin
- For US GAAP, FASB reached similar conclusions in many areas. However, instead of a separate risk adjustment and residual margin, FASB proposes to combine these in a single composite margin. This composite margin is released over the lifetime of the contract (i.e. over both the coverage period and the claims payment period).
- The exposure draft also specifies the treatment and recognition of acquisition expenses in two separate categories (incremental and non-incremental).

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### IASB Exposure Draft – Other Issues

- Per the Exposure Draft, the risk adjustment is to be measured at a portfolio level of aggregation (i.e. a group of contracts that are subject to similar risks and managed together as a pool).
- The choice of techniques for estimating the risk adjustment is limited to three methodologies: a confidence level estimate, the conditional tail expectation (CTE), and a cost of capital approach.
- The Exposure Draft notes that the present value of the cash flows for a ceded reinsurance contract should be estimated in the same manner as the corresponding insurance contracts.

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### Modeling Objectives

The focus of the modeling work has been to demonstrate the potential impact on income emergence resulting from the proposed IASB and FASB accounting model for insurance contracts. Some of the key issues studied were:

- The impact on income recognition at inception from revising/clarifying requirements on expense recognition.
- The impact from discounting liabilities and recording a related risk adjustment/composite margin, and amortizing these amounts over time.
- Potential differences in income emergence based on the definition of a portfolio under the IASB model, resulting from the consideration (or lack of consideration) of diversification effects.
- The potential impact from using different risk adjustment methodologies and estimation techniques under the IASB model.
- The potential impact from calculating the net risk adjustment directly or by considering gross and ceded results separately under the IASB model.

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### ASSUMPTIONS AND DATA

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### Modeling Assumptions

Below are some of the key modeling assumptions used to create the scenarios:

•Income for each scenario is modeled as if all business was written at time 0. While in reality insurance companies continually write business throughout the year, this was done for illustrative purposes.

•Further, in order to highlight the effects of the proposed accounting changes we have made some simplifying assumptions, such as assuming that general expenses are incurred as premiums are earned and all loss payments are made just prior to the end of each time period. In addition, we assume that all losses and expenses will emerge as expected (i.e. no favorable or adverse reserve development).

•The model displays only the impacts on underwriting income. Investment income and taxes are not reflected in the graphs as the IASB and FASB proposals for insurance contracts do not impact the recognition of income for these items.

•Liabilities are discounted using a risk-free yield curve plus an illiquidity adjustment (specifically, US Treasury yields as of 12/31/2009 plus 35 basis points)

•Income is shown on a semi-annual basis for the first 3 years, with the subsequent income streams combined together.

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### Data Utilized

• Expected loss ratios, expense ratios, and loss payment patterns for each line of business are based on 2009 industry results, normalized to a 95% combined ratio (details are included in the Appendix).

• Expenses are further broken down into incremental acquisition costs (assumed to be commissions and premium taxes), non-incremental acquisition expenses (principally underwriting salaries and related costs), and general expenses.

• The underlying basis for the risk adjustment measures was the current S&P reserve risk charge factors by line of business for AAA-rated companies. These factors were used to derive parameters to determine the risk adjustment under the different measurement techniques.

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### BASELINE RESULTS

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### Baseline Considerations

- A line of business is considered to be a single portfolio, with no consideration of diversification across portfolios
- The underwriting income produced by each accounting model is exactly the same (based on a projected 95% combined ratio). The model results show the difference in the timing of income recognition.
- The risk adjustment for the proposed IASB model is estimated using a “Cost of Capital” approach with return on capital set at 8% above the risk free rate. At each stage, future capital needs are estimated by applying the S&P reserve charge to the projected future cash flows, which are then discounted to the current date.
- The composite margin under the FASB DP building block approach is amortized based on the formula proposed by the FASB (with no short-duration modification applied).

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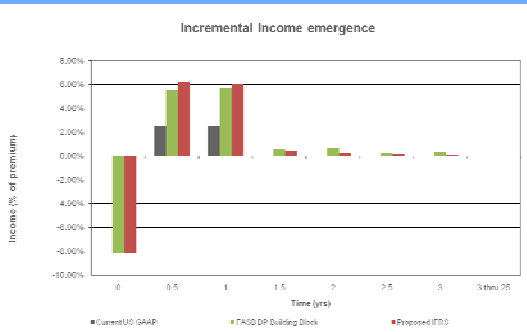
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### Commercial Auto Physical Damage




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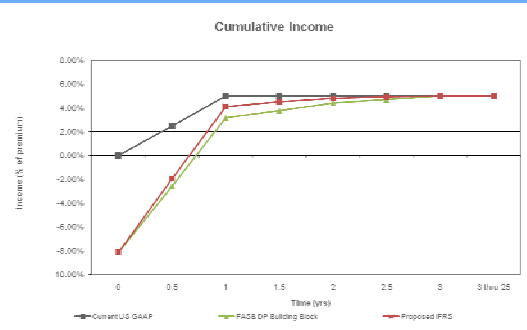
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### Commercial Auto Physical Damage




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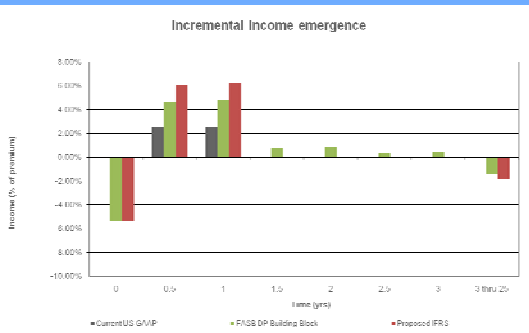
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## Workers Compensation



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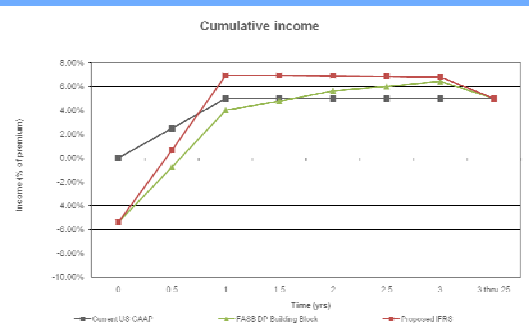
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## Workers Compensation



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## Baseline Observations

- A key observation in the graphs is the loss at time 0. In these examples, we have treated non-incremental acquisition costs as being fully expensed at inception. Current practices under GAAP vary significantly, however we have assumed that these are fully deferred today. (EITF 09-G may require certain companies to change the way they treat these expenses.)
- Under the proposed accounting frameworks, the provision for these expenses are included in either the residual margin (unearned premium in the modified model) or the composite margin. The recognition of income to offset these expenses then depends upon the amortization of these margins.
- The underlying risk component of the composite margin amortizes faster under the FASB methodology than the amortization of the risk margin under the IASB approach. However, in these examples the significant level of non-incremental expenses imbedded in the composite margin slows down the income emergence in the FASB examples.
- In certain cases (the Workers Comp example), the underwriting income may accrue to a level higher than current GAAP, before converging to a common level. This is most likely to occur in long-tail lines where the level of discount may exceed the risk margin.

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## DIVERSIFICATION CREDIT/ PORTFOLIO DEFINITION

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- ### Diversification Credit/Portfolio Definition Assumptions
- This scenario shows the effect of recognizing each individual line of business as a portfolio (with no diversification benefit) versus combining multiple lines of business into a single portfolio for income statement purposes.
  - We used commercial lines business (i.e. CMP, Com'l Auto, Other Liability, Workers Comp) as an example.
  - The diversification credit was approximated by simulating a combined lognormal distribution and measuring the resulting change in coefficient of variation for the combined distribution against the average of the individual coefficients of variation. This difference was then applied to determine a risk adjustment for the combined portfolio, via the cost of capital method.

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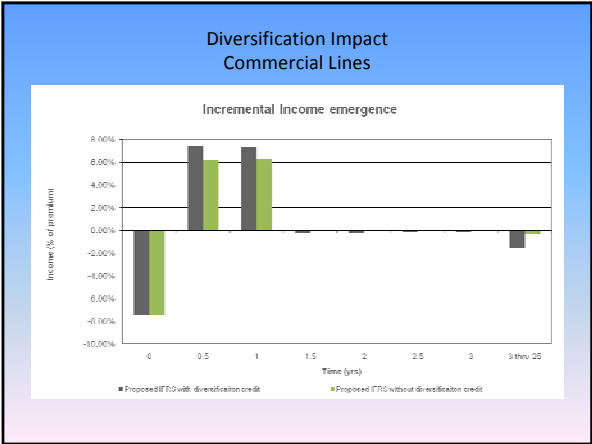
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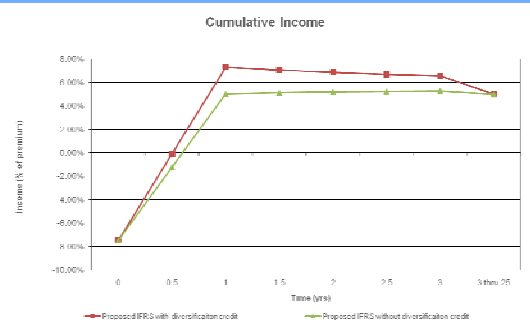
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### Diversification Impact Commercial Lines




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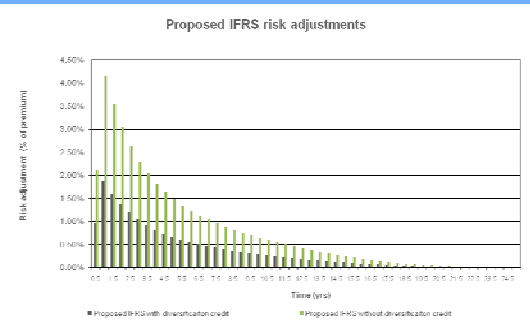
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### Diversification Impact Commercial Lines




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### Diversification Observations

- The failure to recognize the diversification credit between lines of business results in a higher risk adjustment when combining the results from individual lines of business versus considering the combined lines as a single portfolio.
- As can be seen in the graphs, this results in a delay in the recognition of income when there is no diversification benefit.
- The diversification credit as a % of the undiversified risk adjustment can be substantial (roughly 50% in this example).

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## RISK ADJUSTMENT METHODOLOGIES

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### Risk Adjustment Assumptions

- The confidence level and CTE approaches were based on a study of industry coefficients of variation for each line of business.
- The selected percentiles for the confidence level method were 75%, 80%, and 85% while the selected percentiles for the CTE method were 50%, 55%, and 60%. These were determined in order to produce comparable risk adjustments between the two methods. (Note that if similar percentiles were used, the risk adjustments could differ significantly.)
- The risk loads relative to central estimate liabilities were kept constant during the run-off of the underwriting year under the assumption that the coefficient of variation of the overall portfolio was unchanged during this time.

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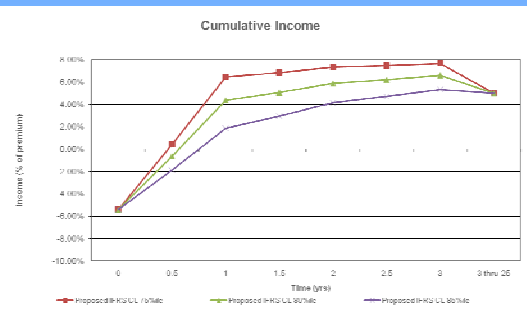
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### Risk Adjustment - Confidence Level Method Workers Compensation



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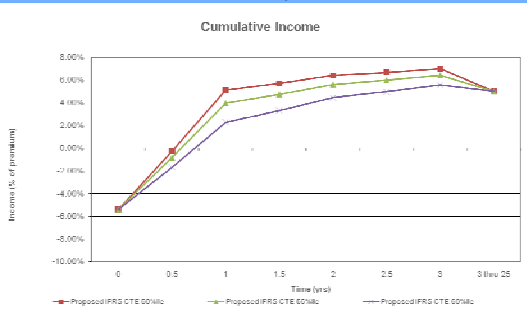
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### Risk Adjustment - CTE Method Workers Compensation




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### Risk Adjustment – Percentile Impact

- In the examples shown here, the selection of different percentiles had a more significant effect on the confidence level method.
- This is a result of the fact that the CTE method implicitly reflects some impact from the tail at each percentile and the distribution for Workers Comp is skewed. We would expect to see a similar result for other casualty lines of business.

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### REINSURANCE TREATMENT

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### Reinsurance Treatment Assumptions

- The baseline models were determined on a net basis. In this scenario, we determined the net results based on calculating separate gross and ceded income streams.
- The gross and ceded assumptions were based on relationships derived from modeling the effects of a 500 x 500 reinsurance contract on the Workers Comp portfolio. The net underwriting result was set equal to the baseline scenario.

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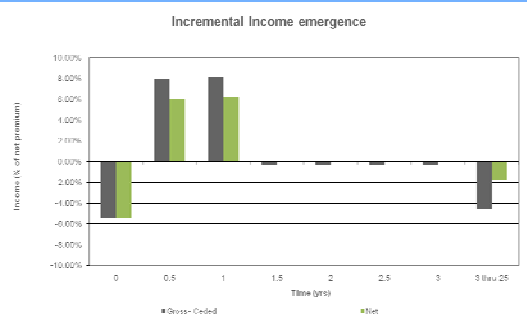
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### Reinsurance Treatment Impact Workers Compensation




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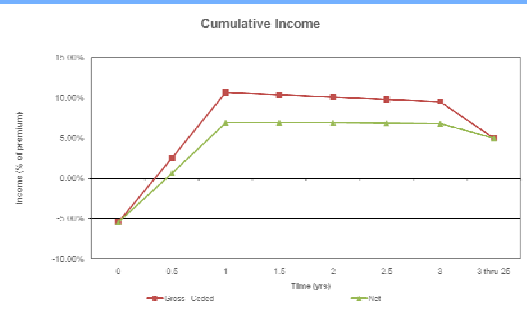
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### Reinsurance Treatment Impact Workers Compensation




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### Reinsurance Treatment Observations

- The gross minus ceded approach implies a lower risk adjustment than the directly calculated net risk adjustment. This may frequently occur when reinsurance is sold on a non-proportional basis and the ceded losses have a skewed distribution.
- Therefore, in this example the gross minus ceded approach would understate the net risk adjustment and accelerate the recognition of income.

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### Results/Next Steps

- Analysis was presented to AAA task force at meeting which included IASB and FASB representatives.
- AAA to present consolidated comments to the IASB.
- Based on IASB response and ultimate finalization of guidelines, possible development of CAS white paper and/or further modeling of proposals.

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