

A Deep Exploration of Loss Adjustment Expense Reserving

CLRS
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Goals of the Presentation

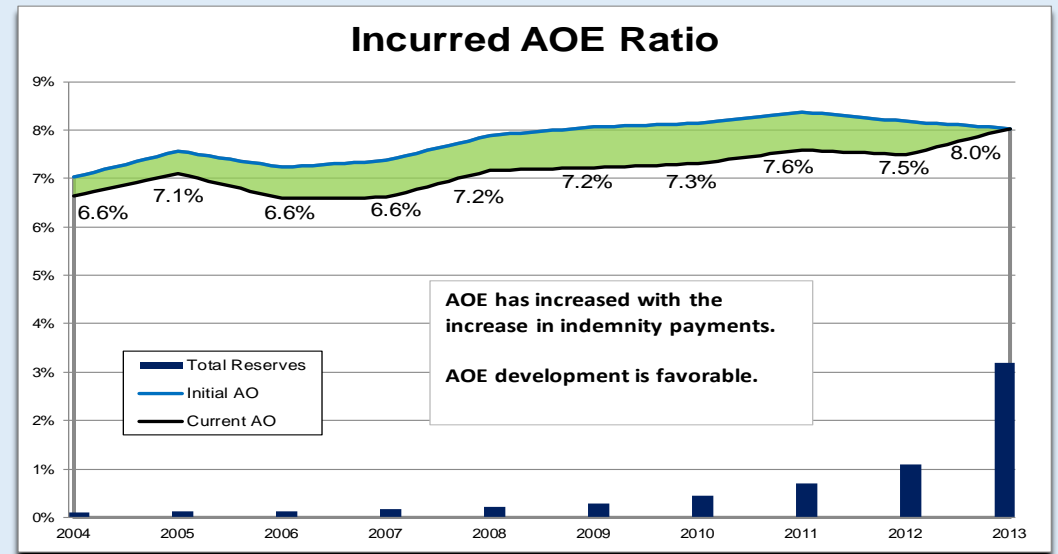
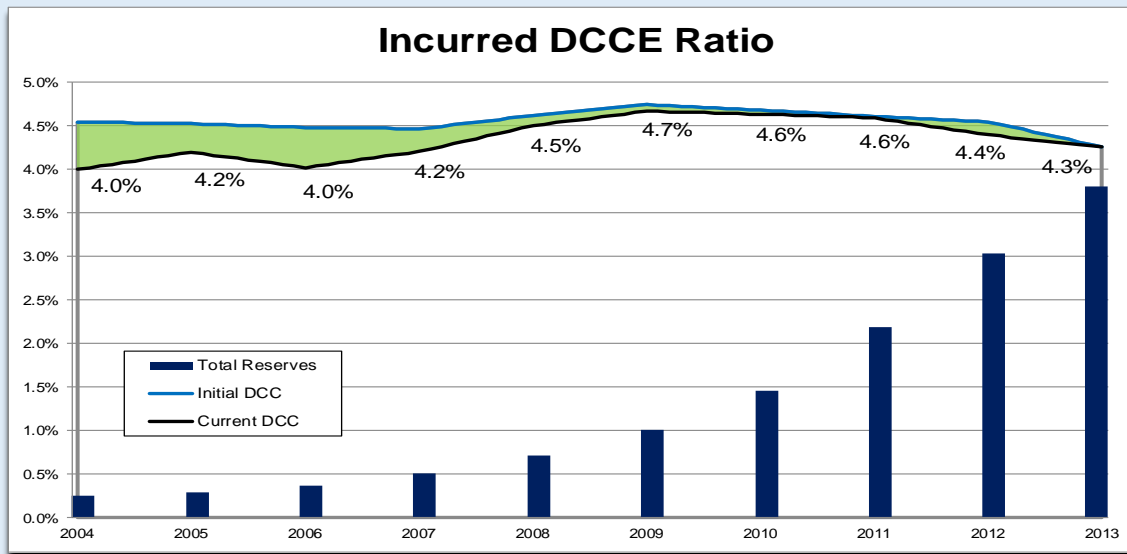
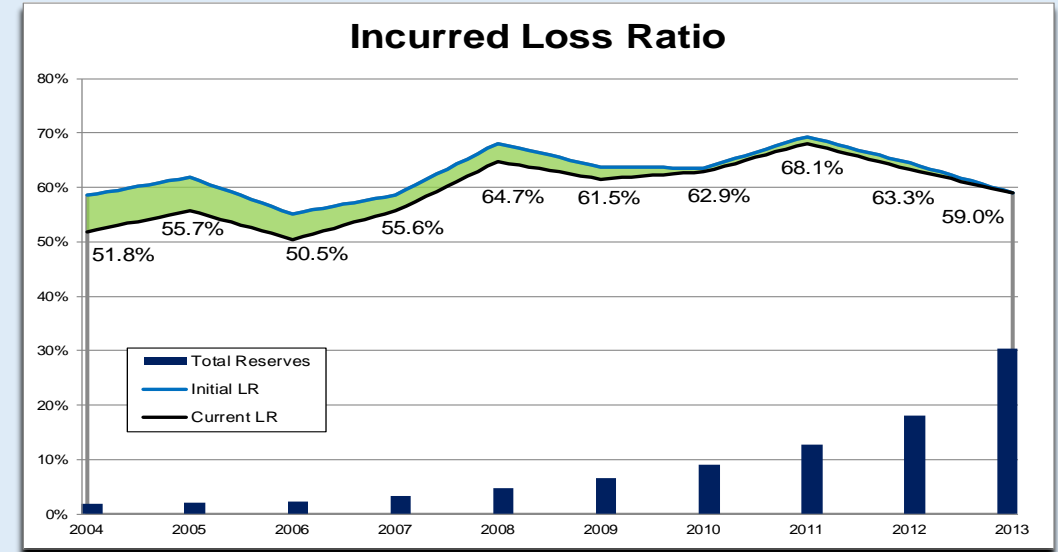
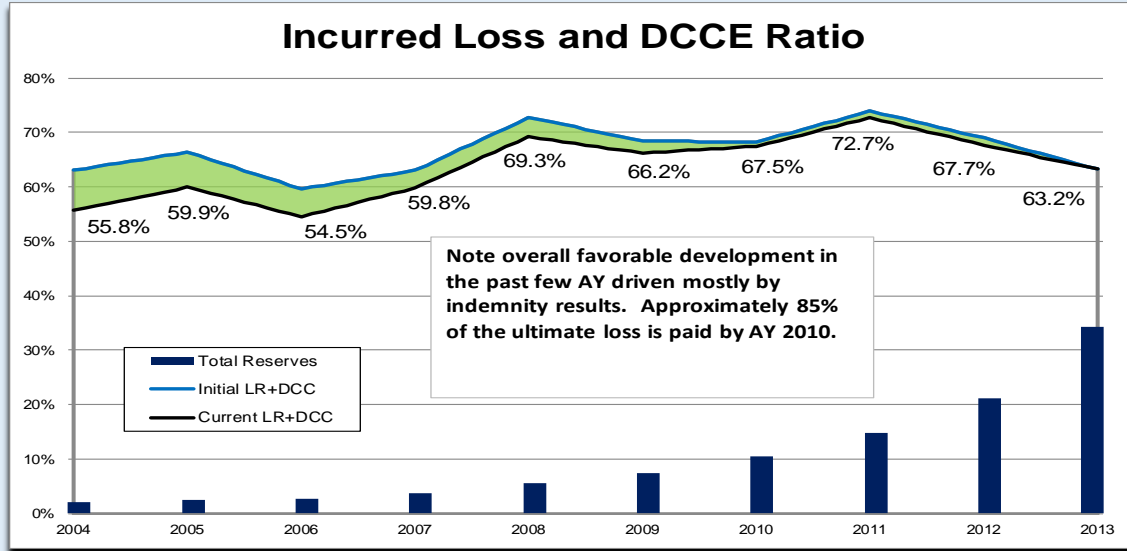
- Review of historic loss reserve redundancy/inadequacy by selected lines of business. All results shown are net of reinsurance.
- Survey of methods:
 - DCCE,
 - AOE.
- Considerations in review of reinsurance LAE reserves.

Review of historic loss reserve redundancy/inadequacy

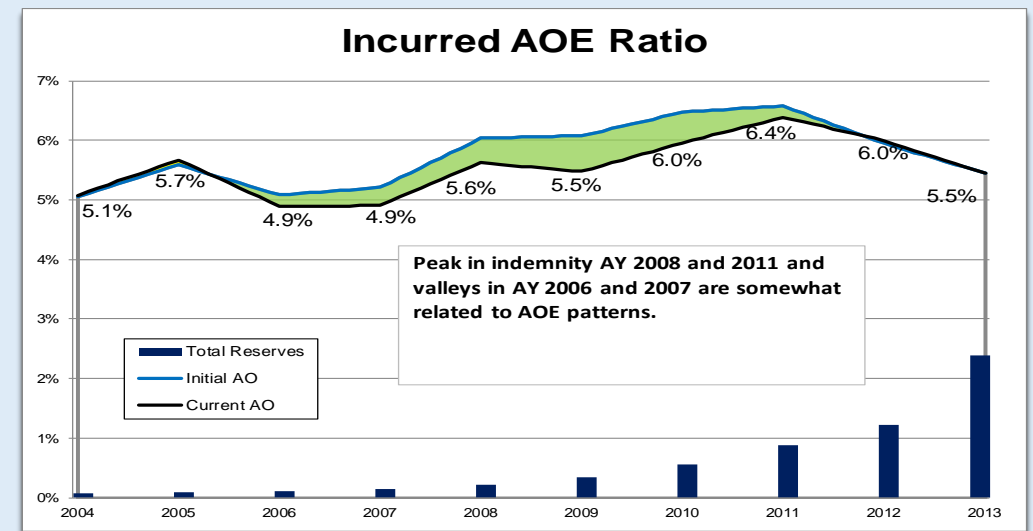
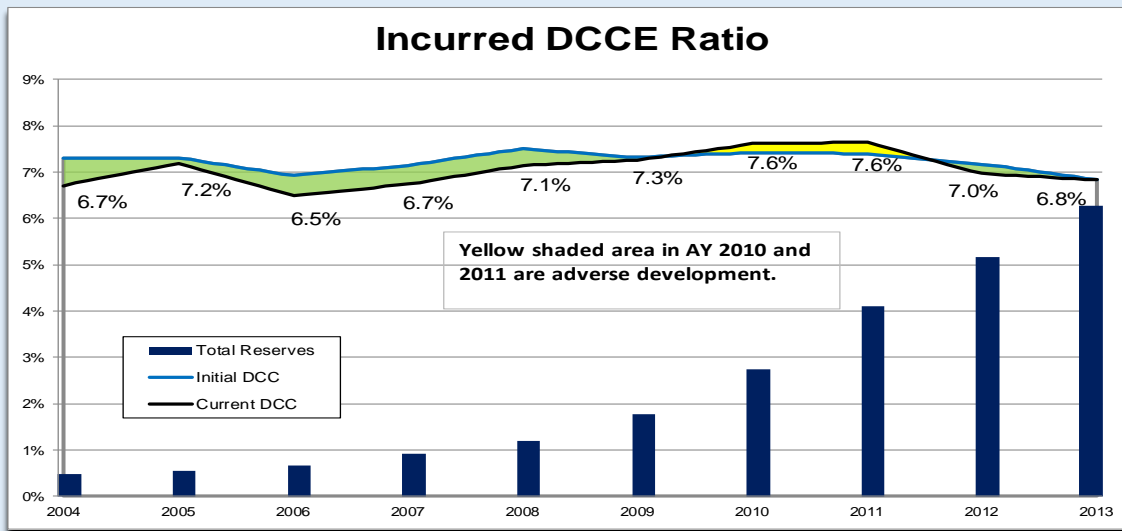
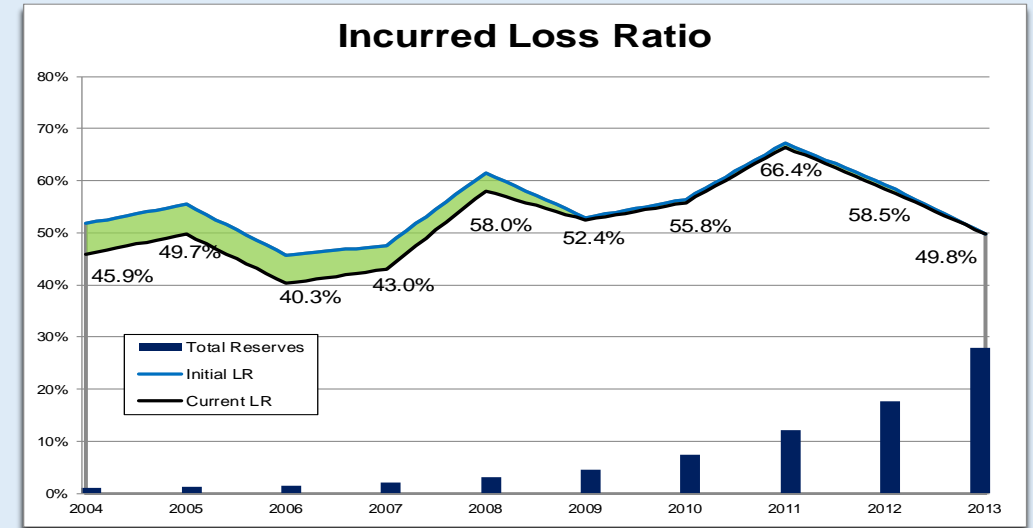
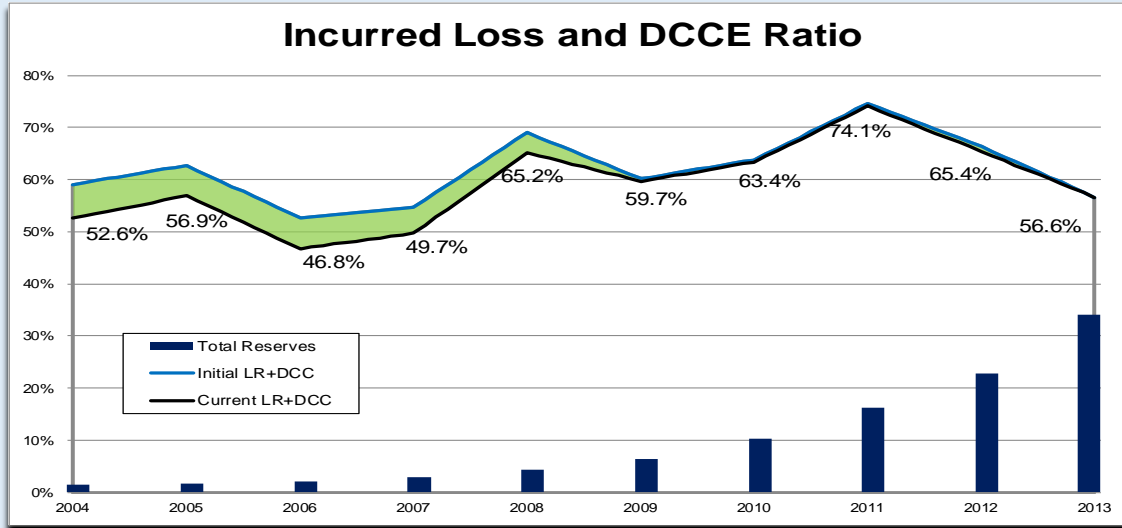
- Data from Annual Statement Schedule P – Part 1 – Summary.
- Annual Statement from AY 2004 to 2013. AY 2014 was not available yet.
- Looks at initial estimate of loss and LAE (think 12 months of development) to the current Annual Statement's (2013) expectation.
- A number of lines are reviewed.
- Any trends in expense reserves observed?

P&C All Lines Combined

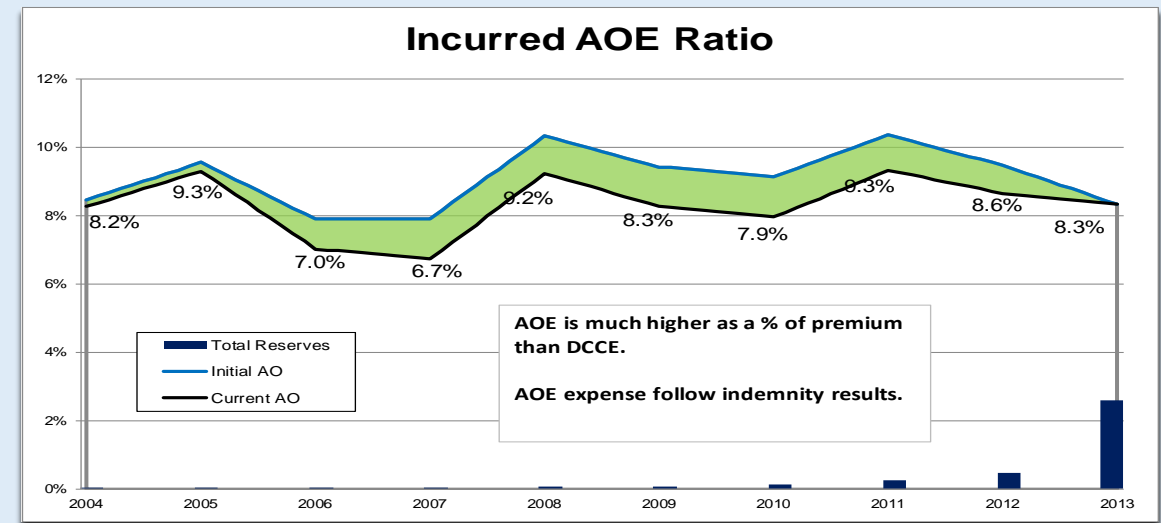
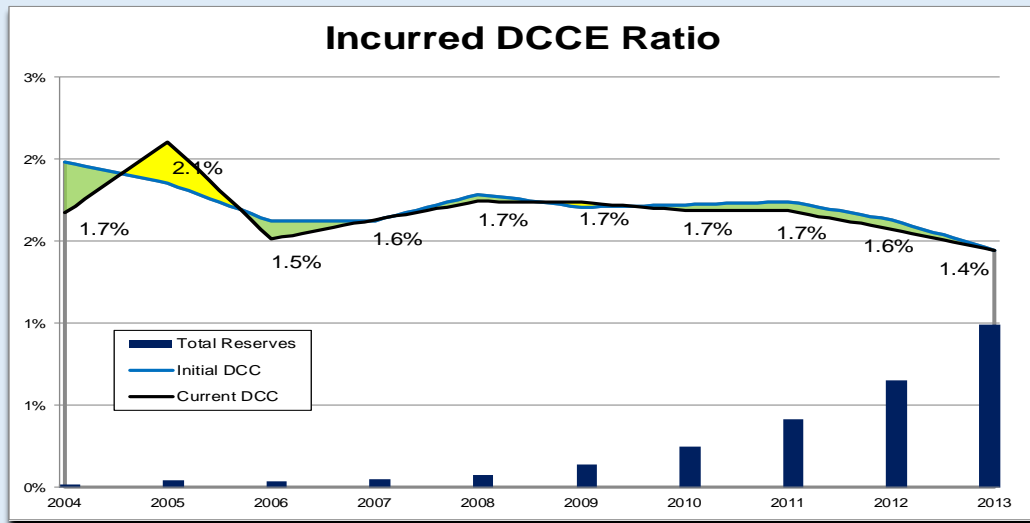
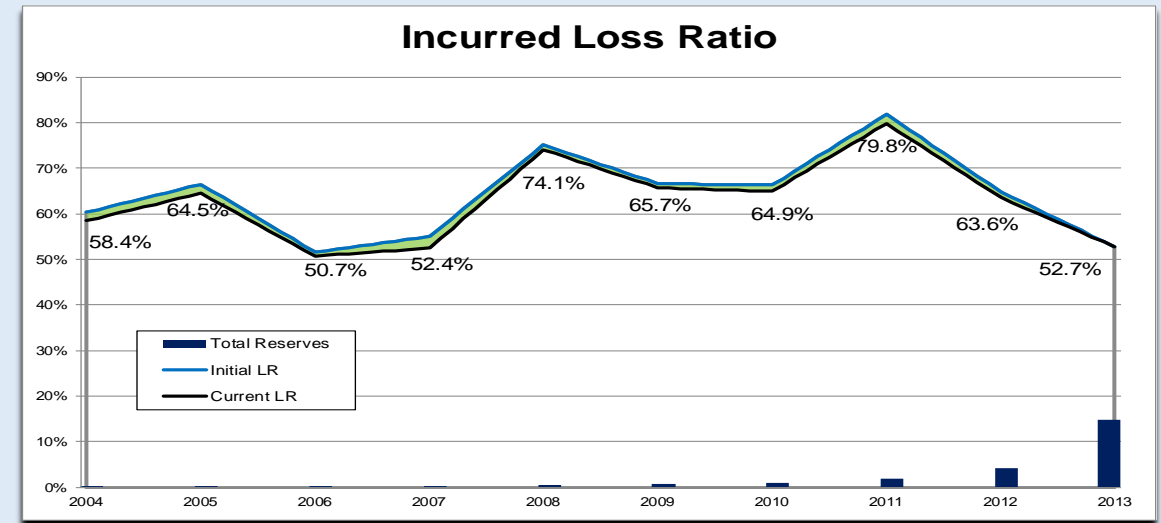
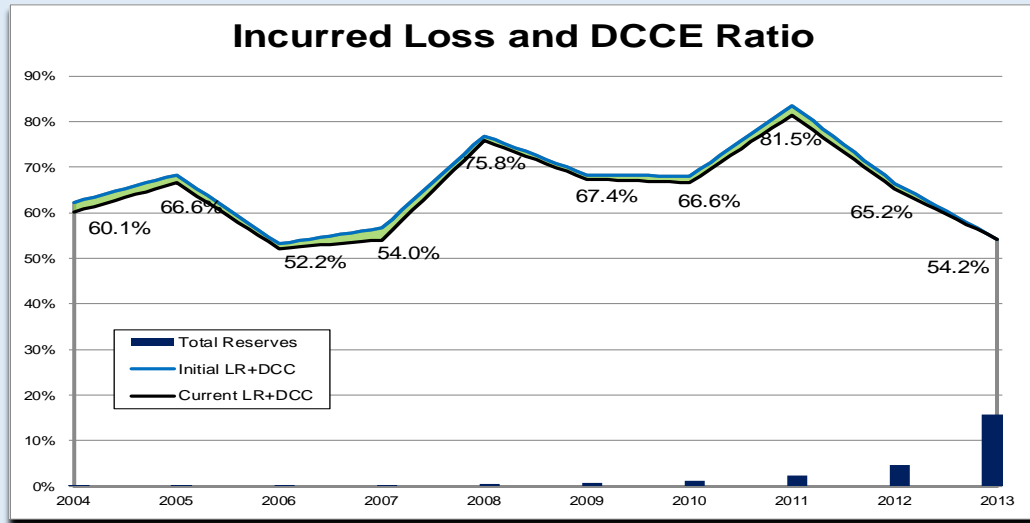
Industry Loss Development 2004-2013



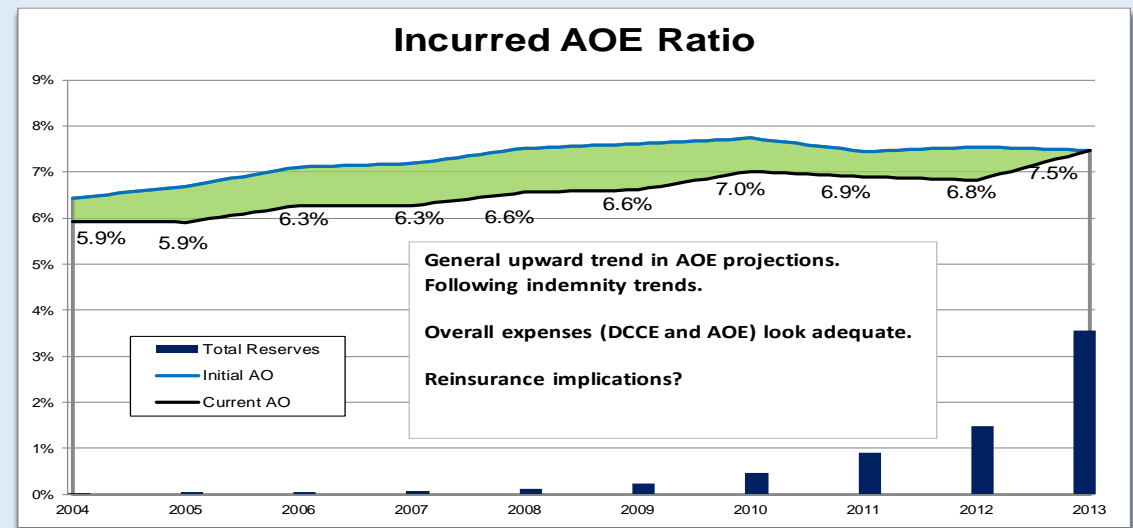
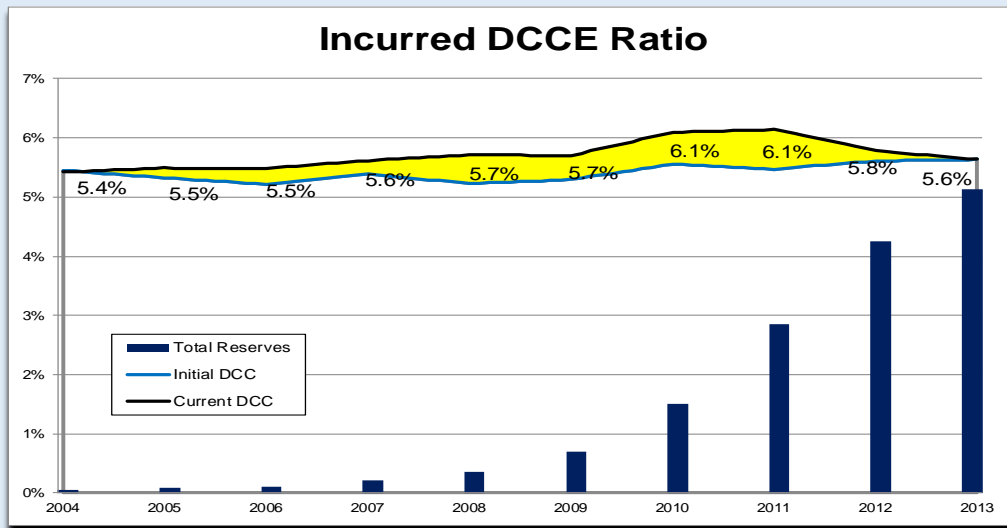
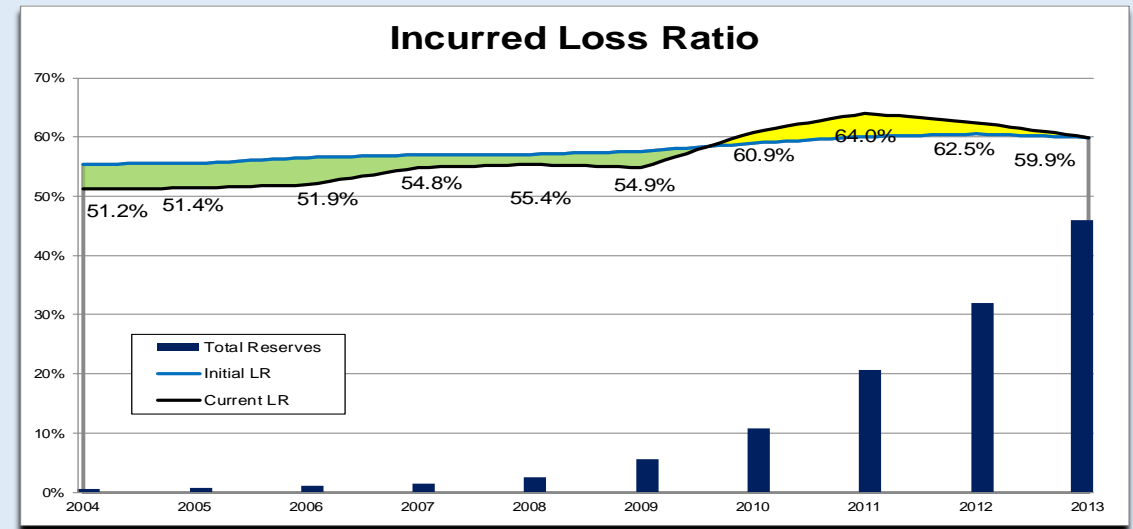
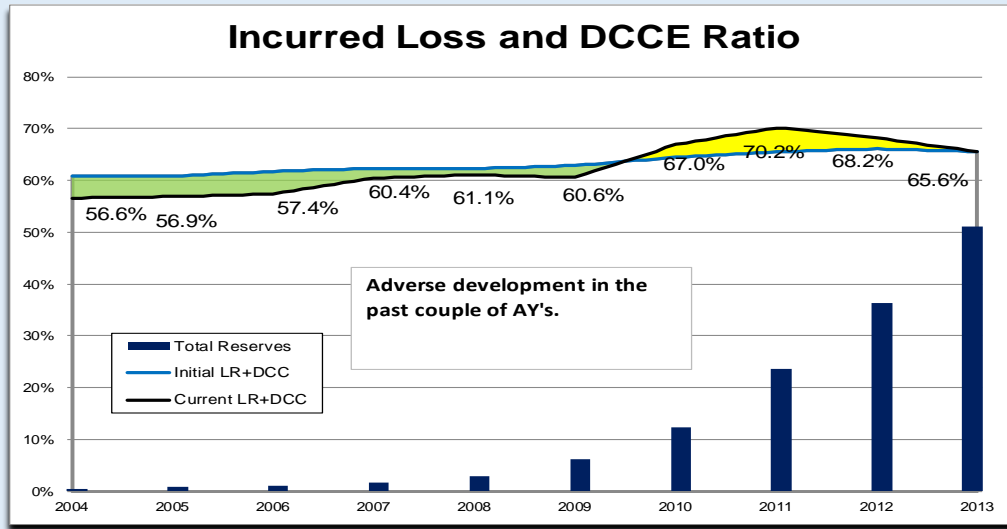
P&C Commercial Multiple Peril Industry Loss Development 2004-2013



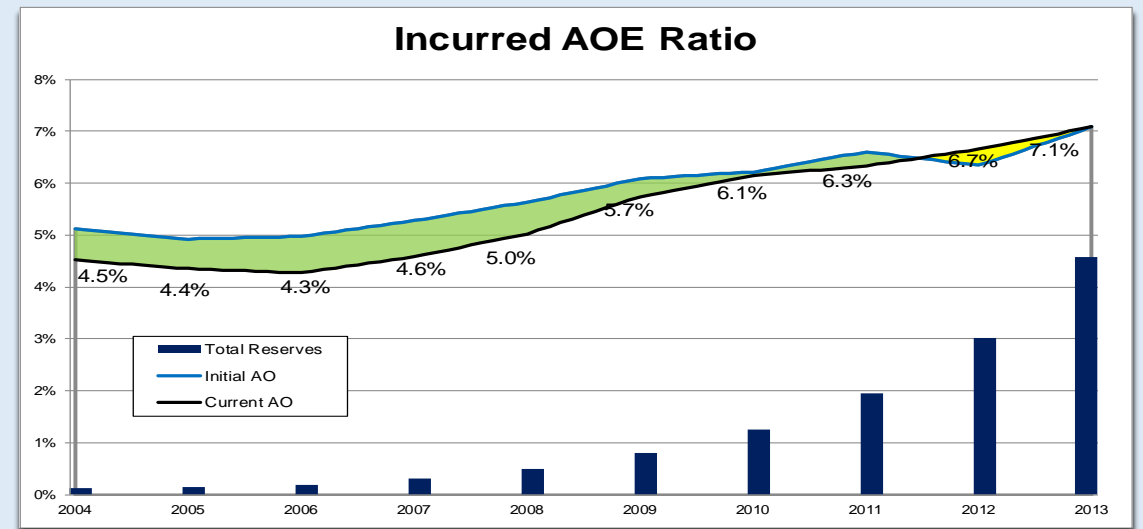
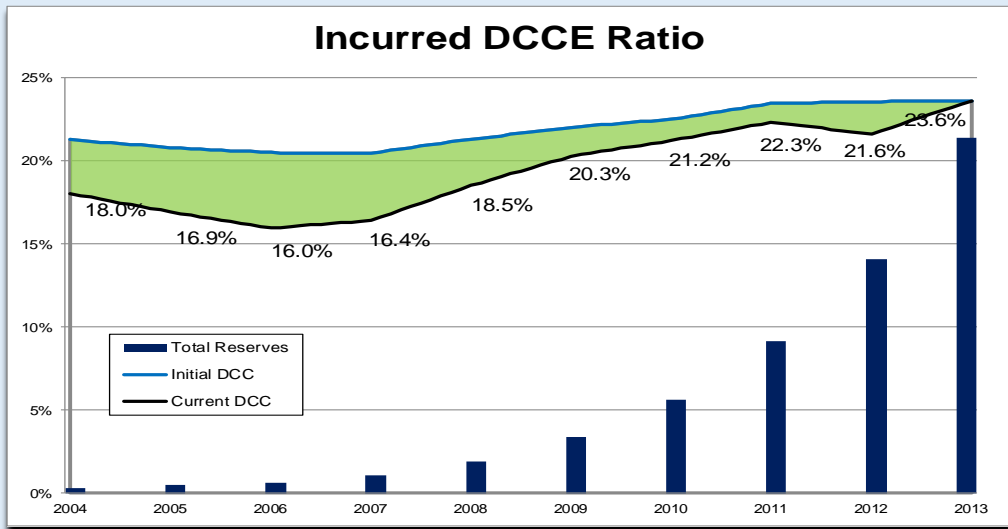
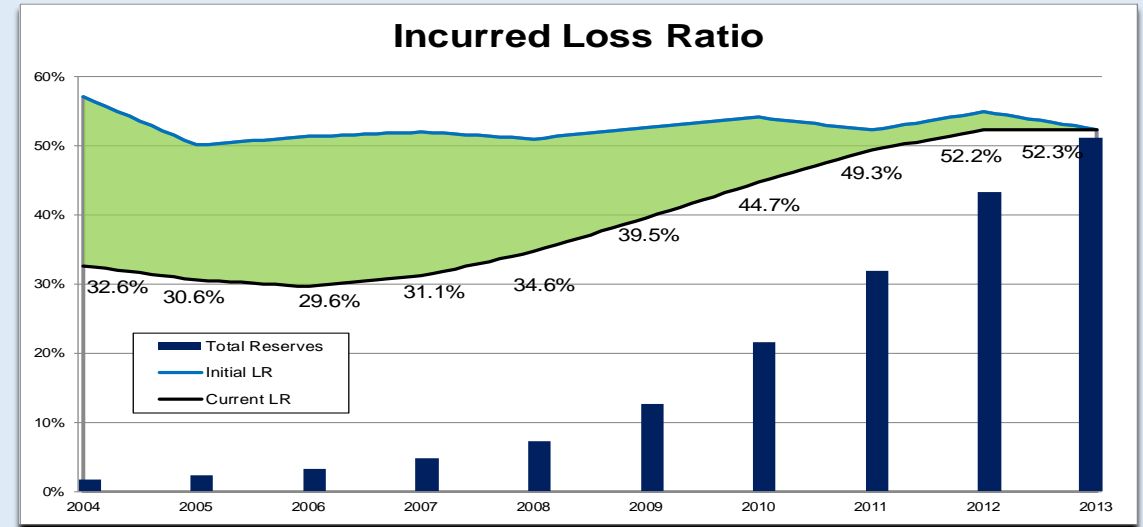
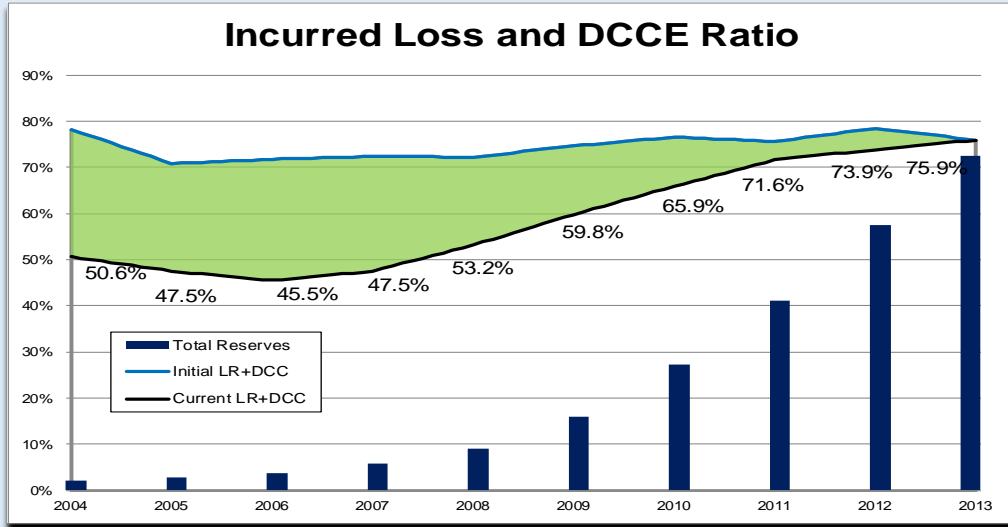
P&C Homeowners and Farmowners Industry Loss Development 2004-2013



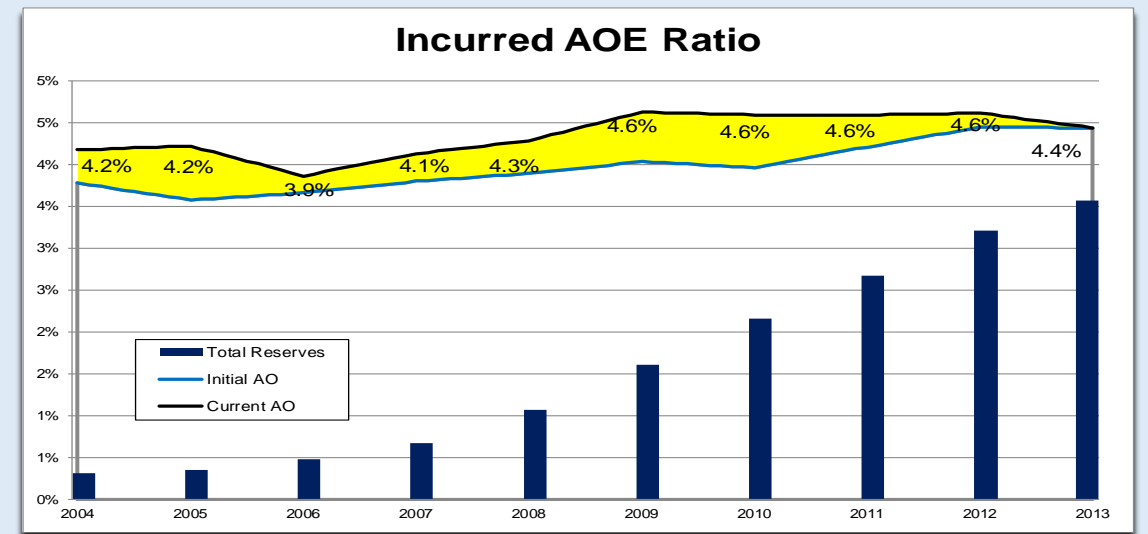
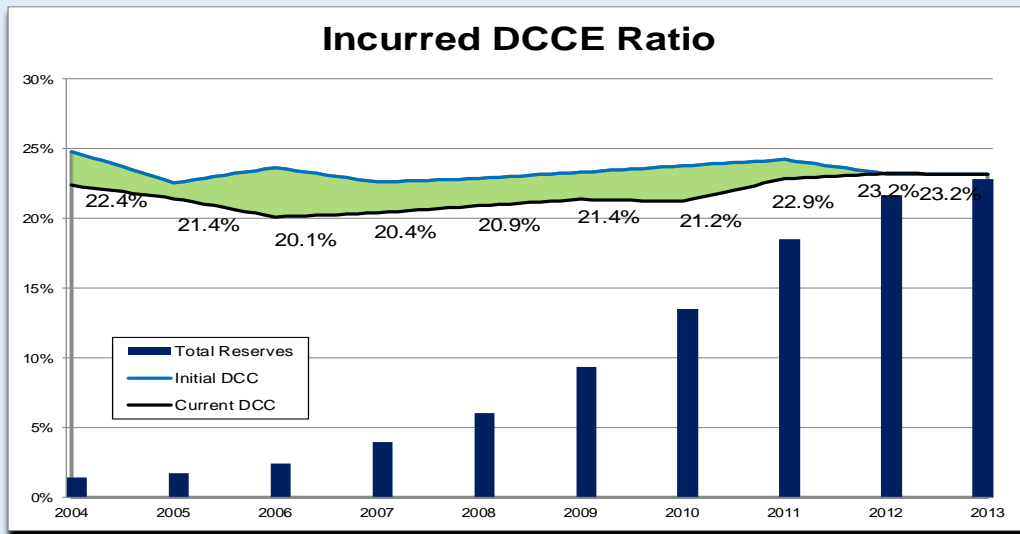
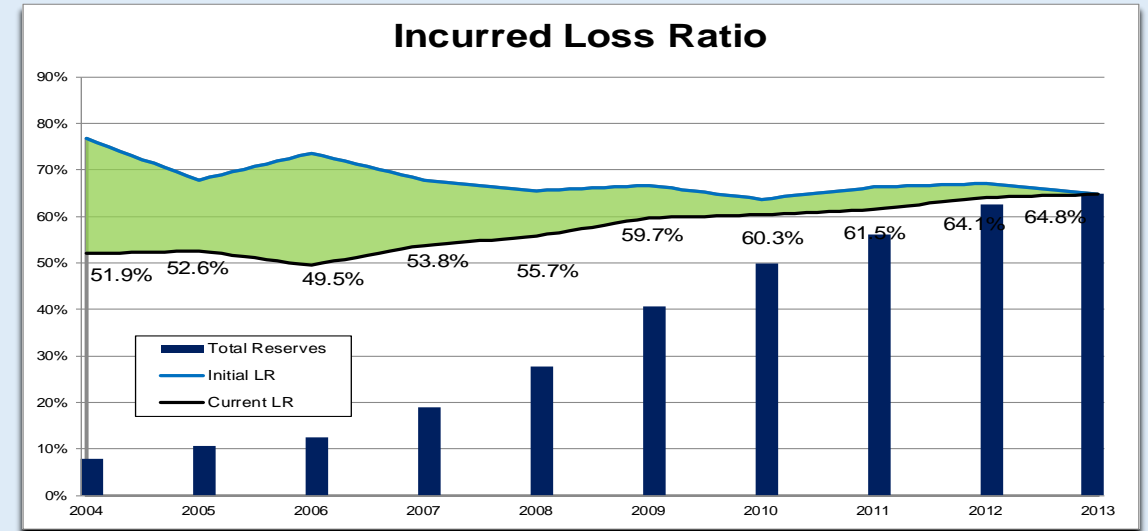
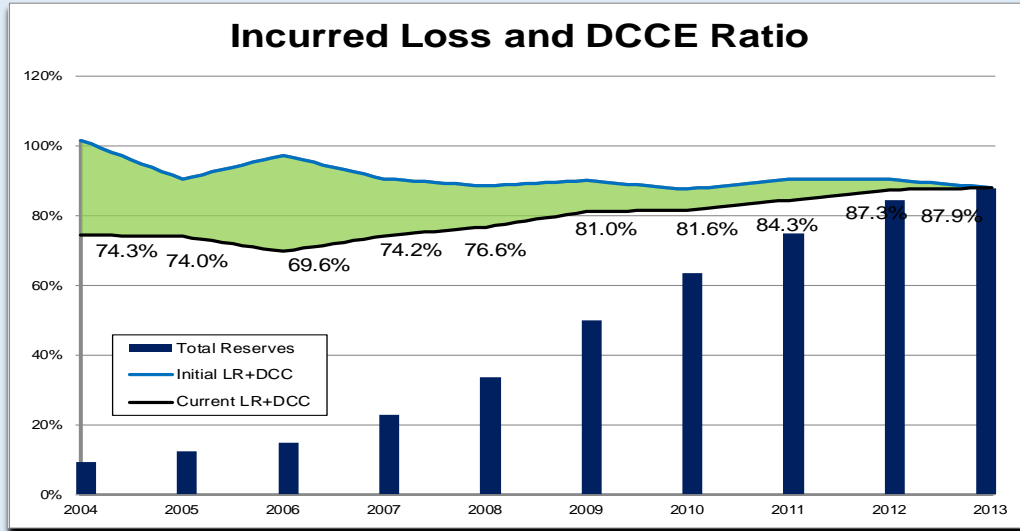
P&C Commercial Auto Liability Industry Loss Development 2004-2013



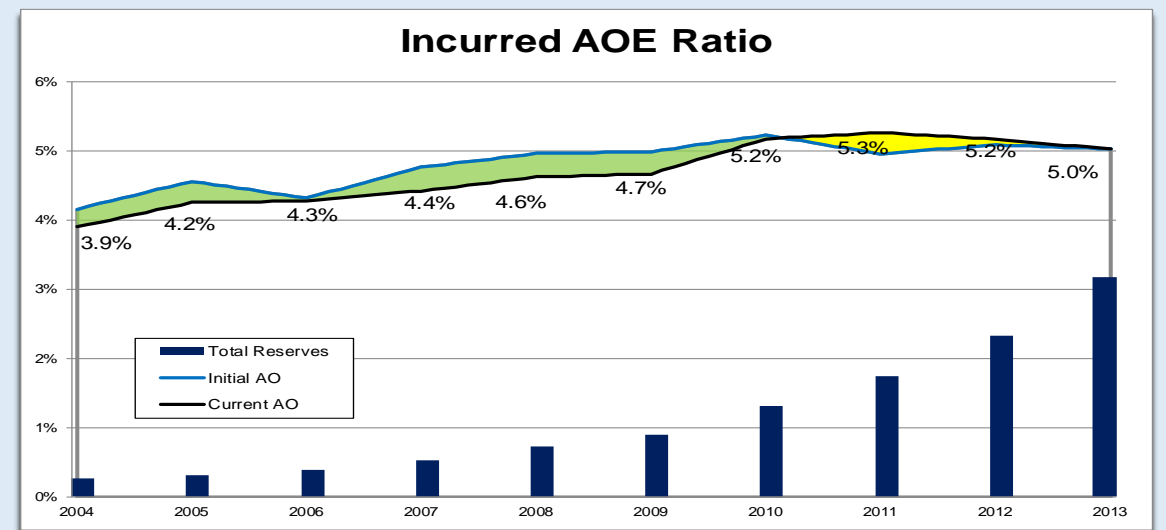
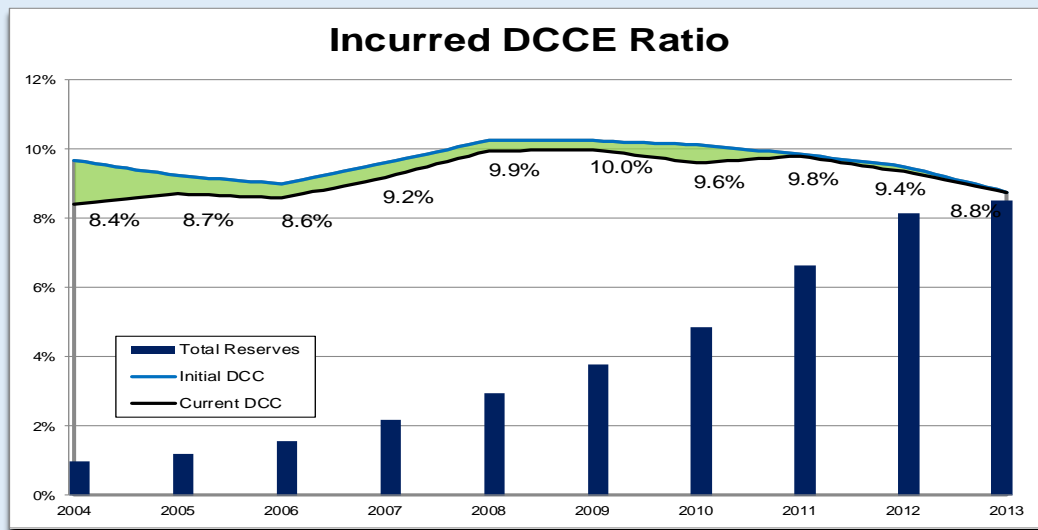
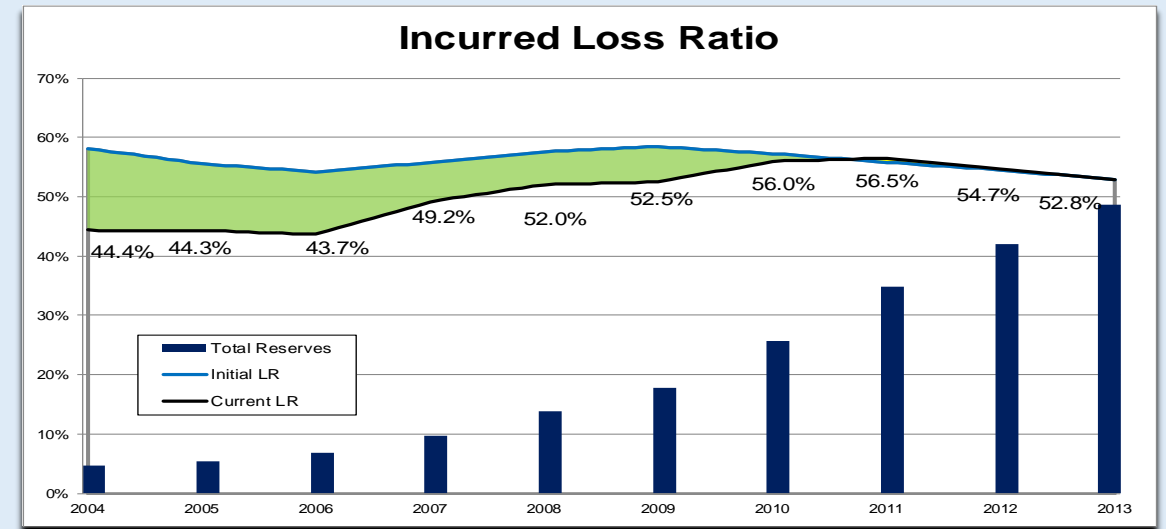
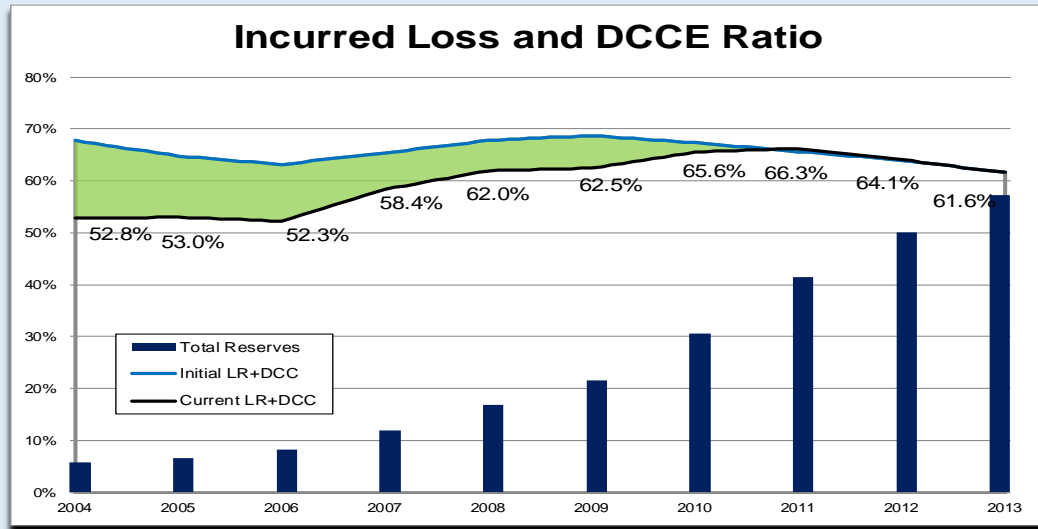
P&C Med Prof Liability (Claims Made) Industry Loss Development 2004-2013



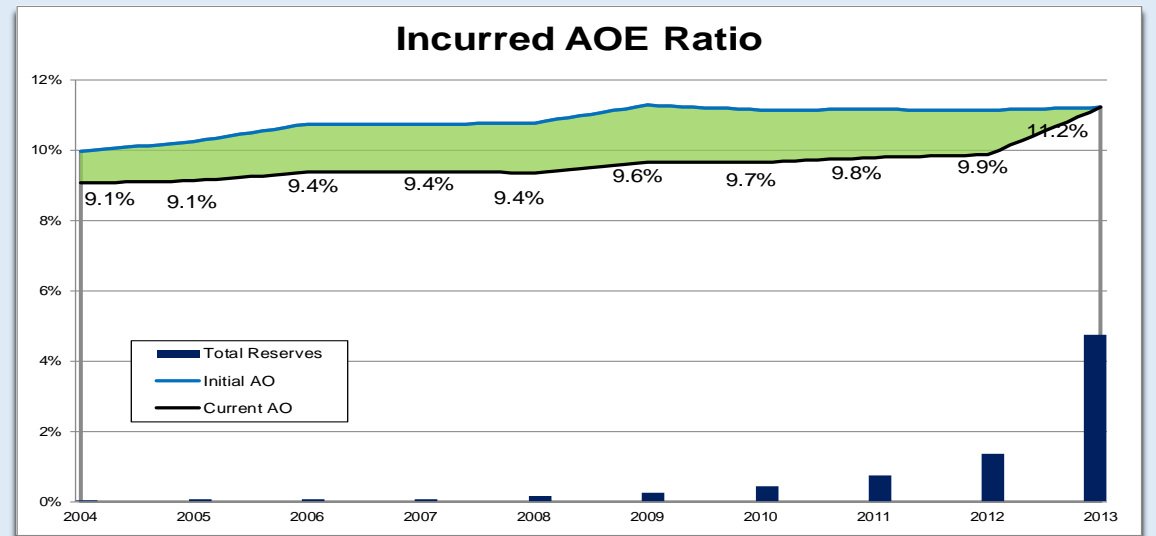
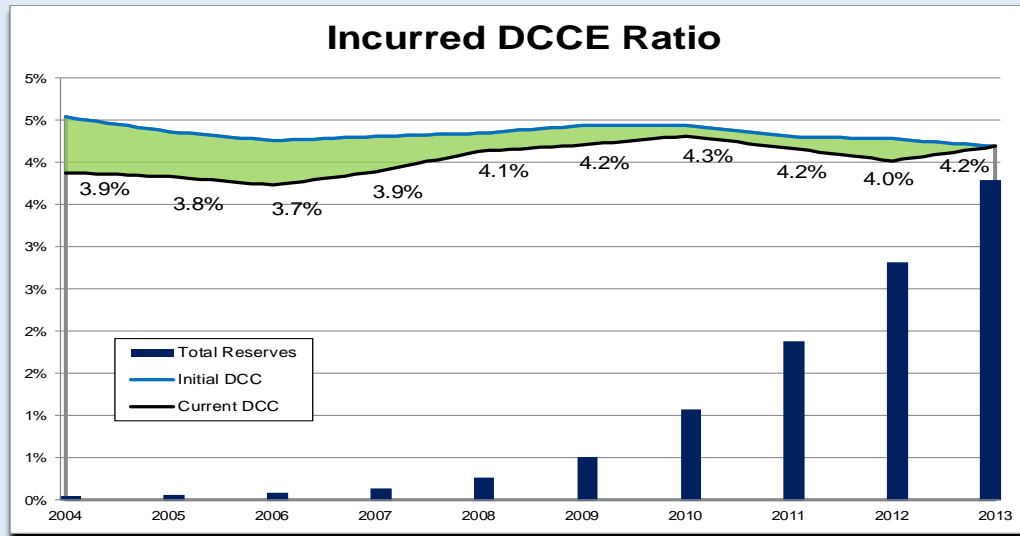
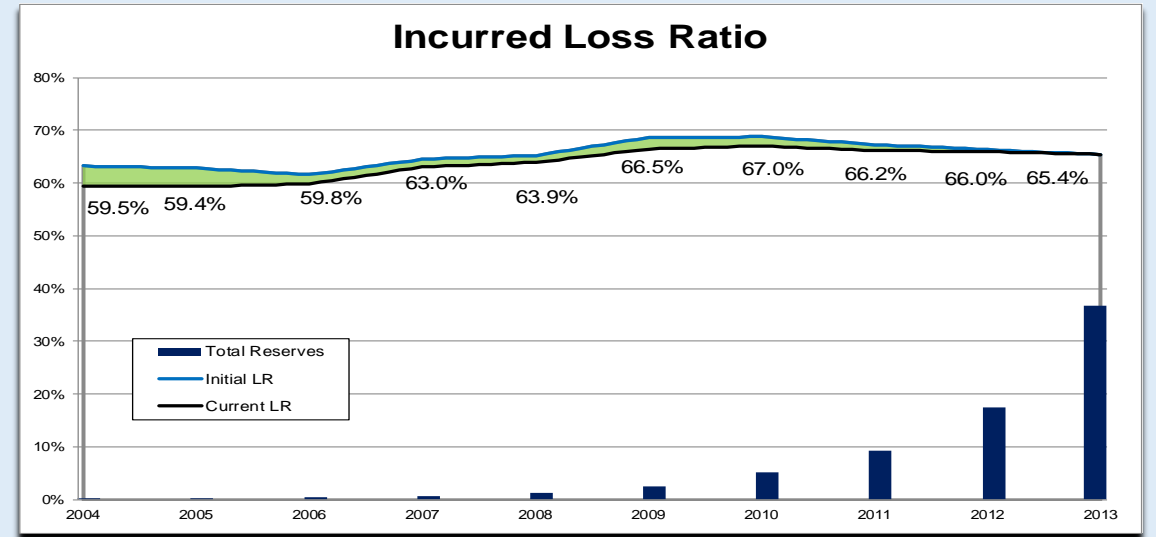
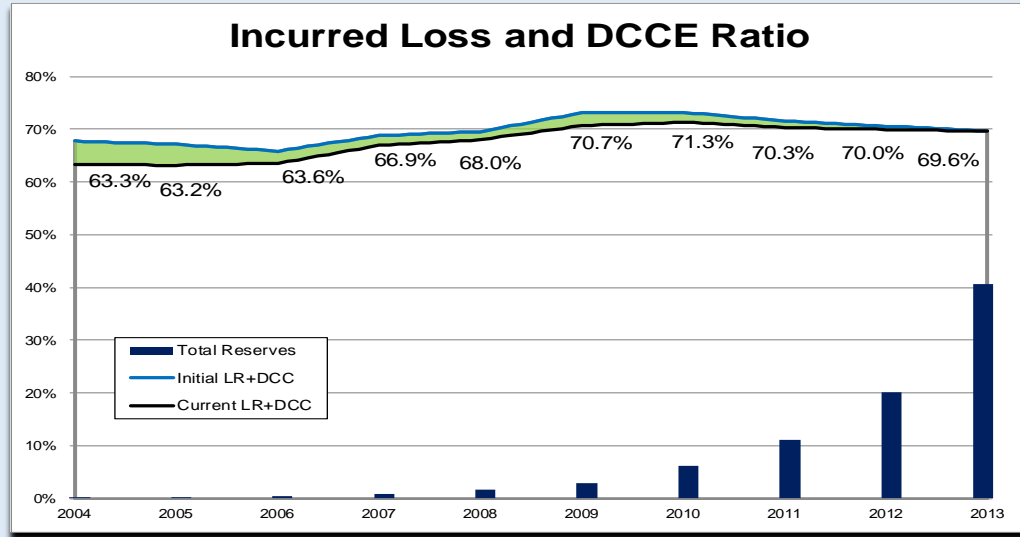
P&C Med Prof Liability (Occurrence) Industry Loss Development 2004-2013



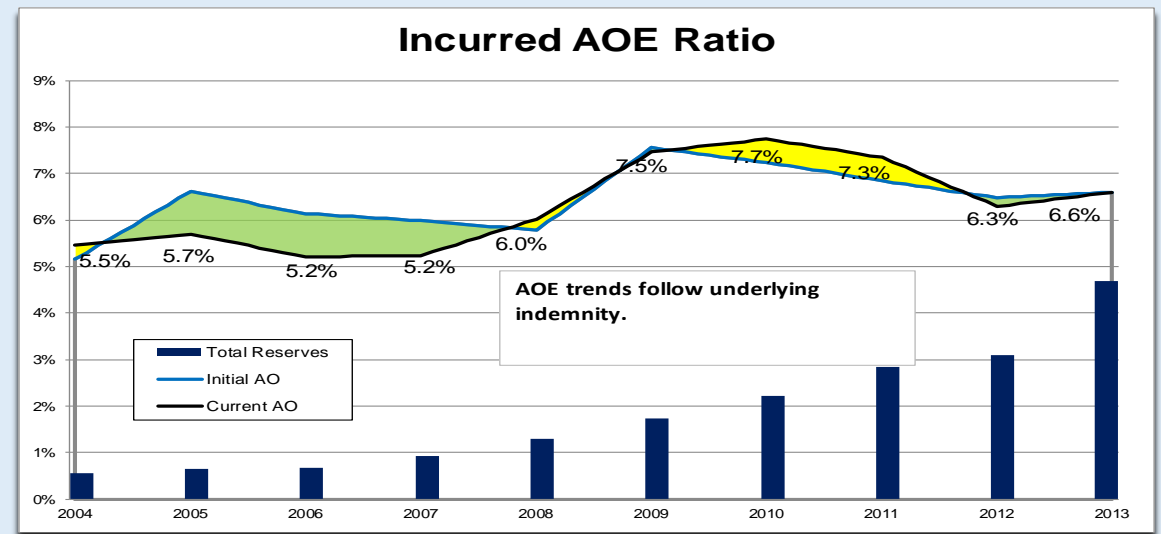
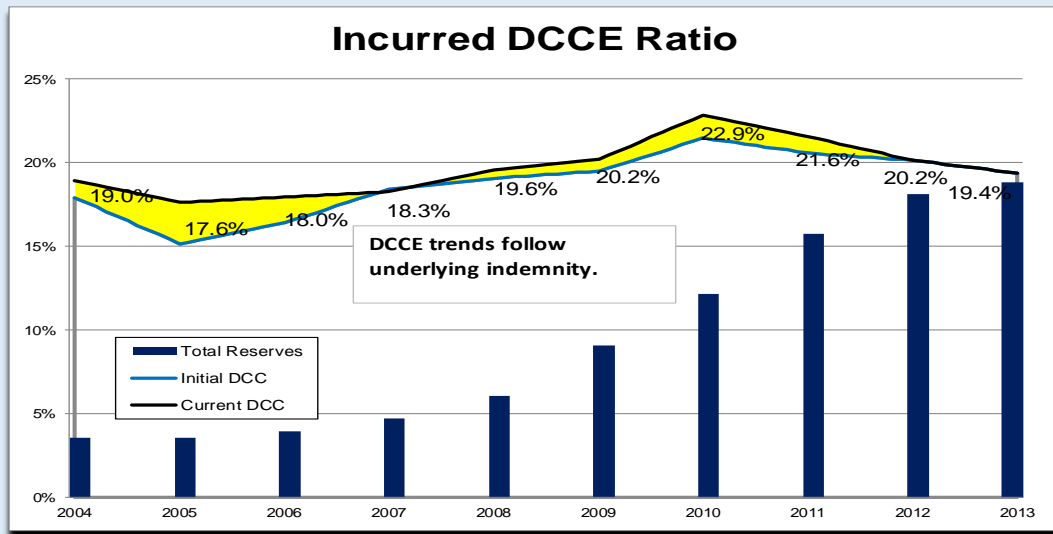
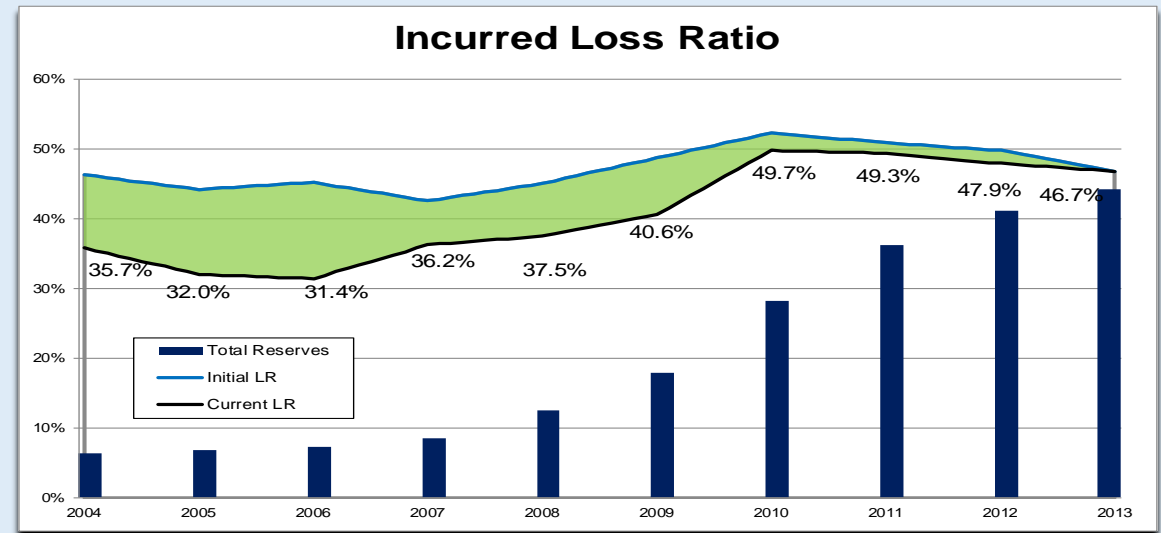
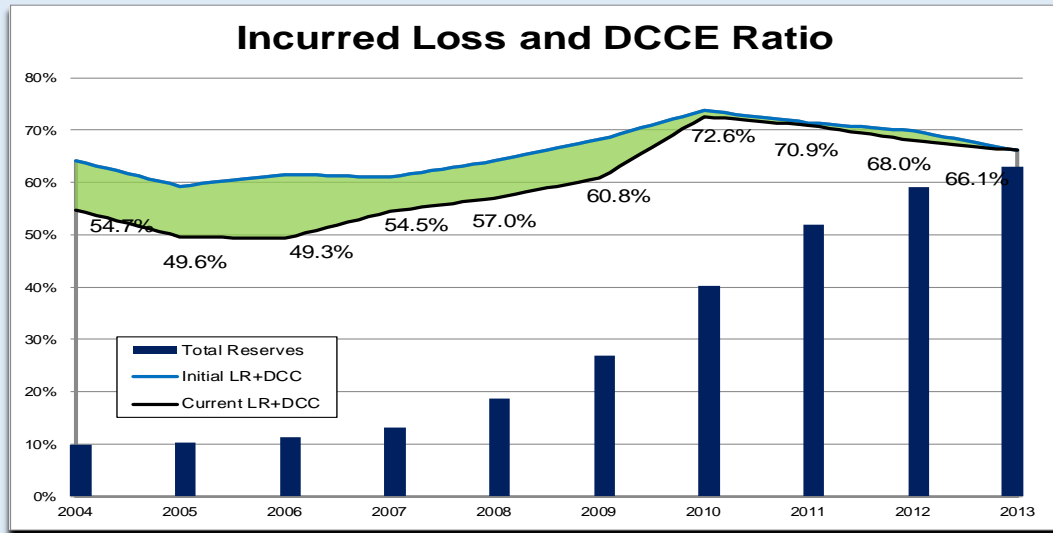
P&C Other Liability (Occurrence) Industry Loss Development 2004-2013



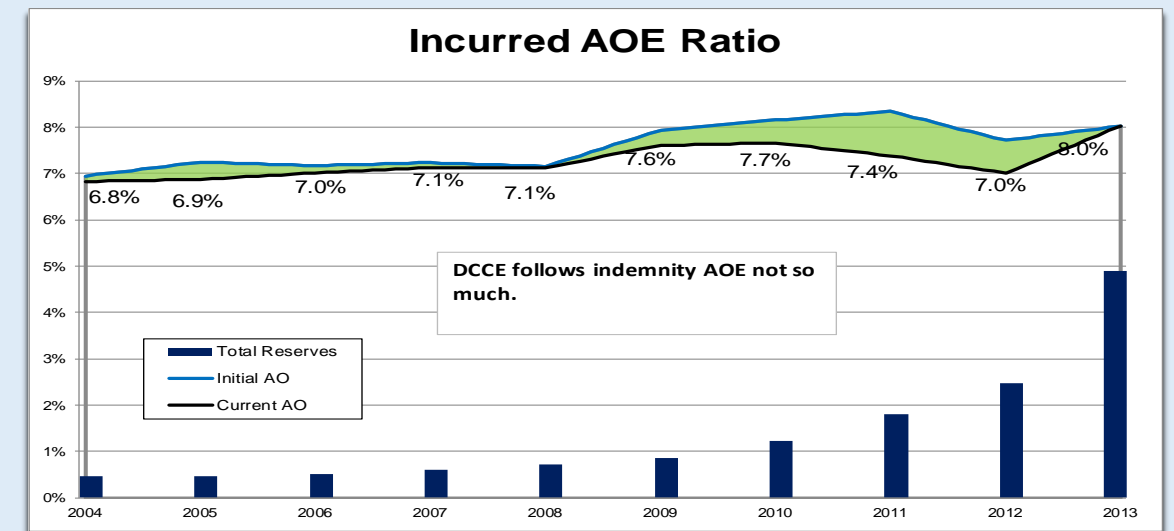
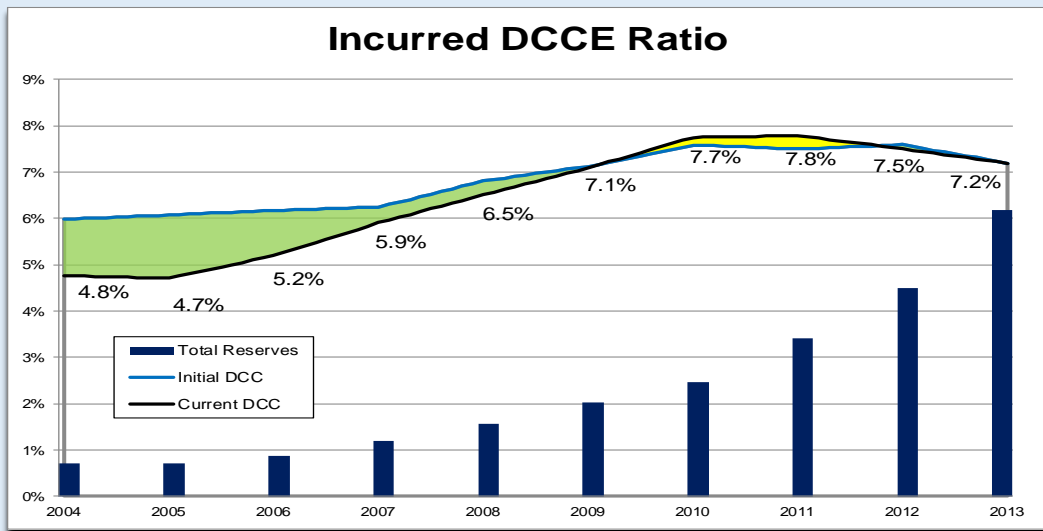
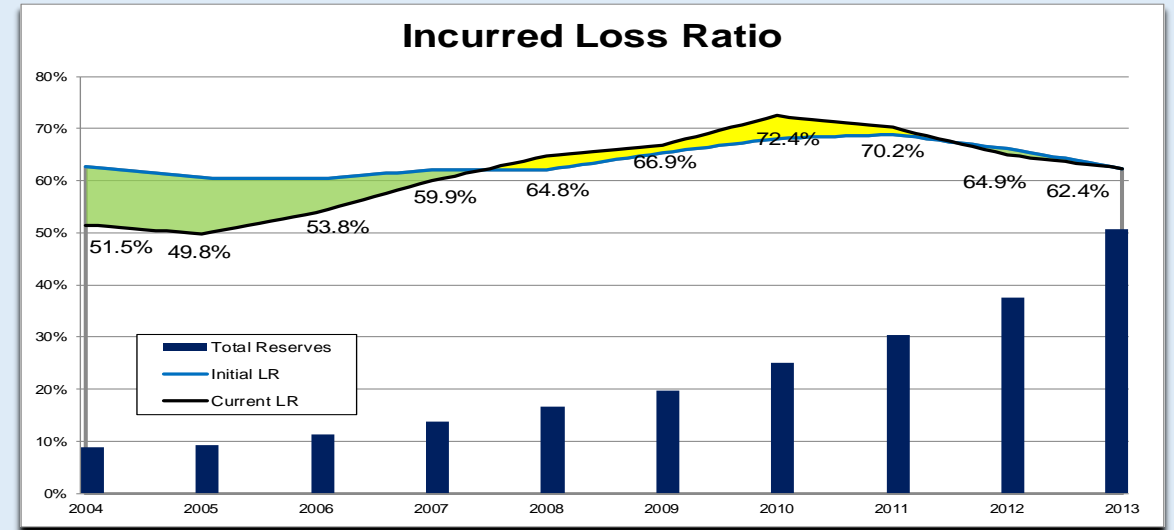
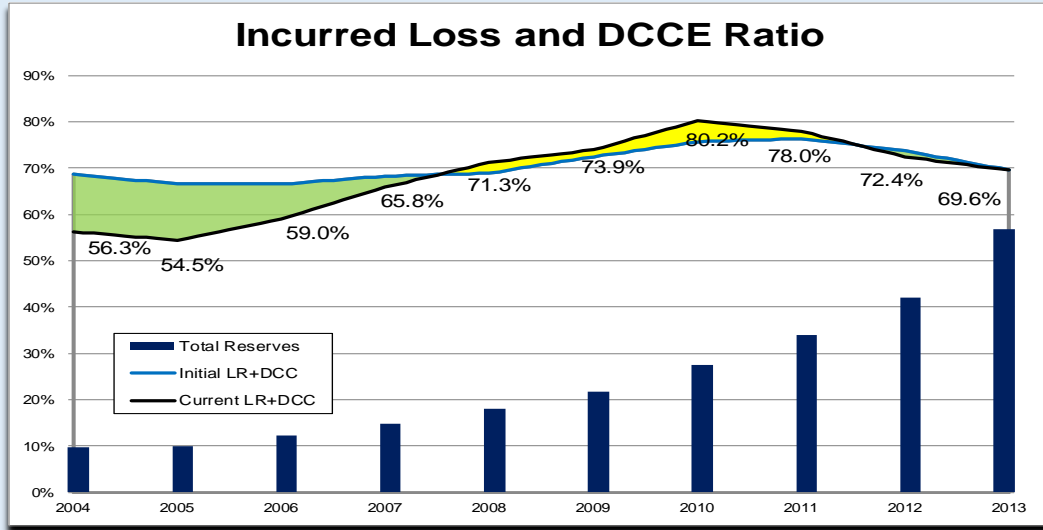
P&C Private Passenger Auto Liability Industry Loss Development 2004-2013



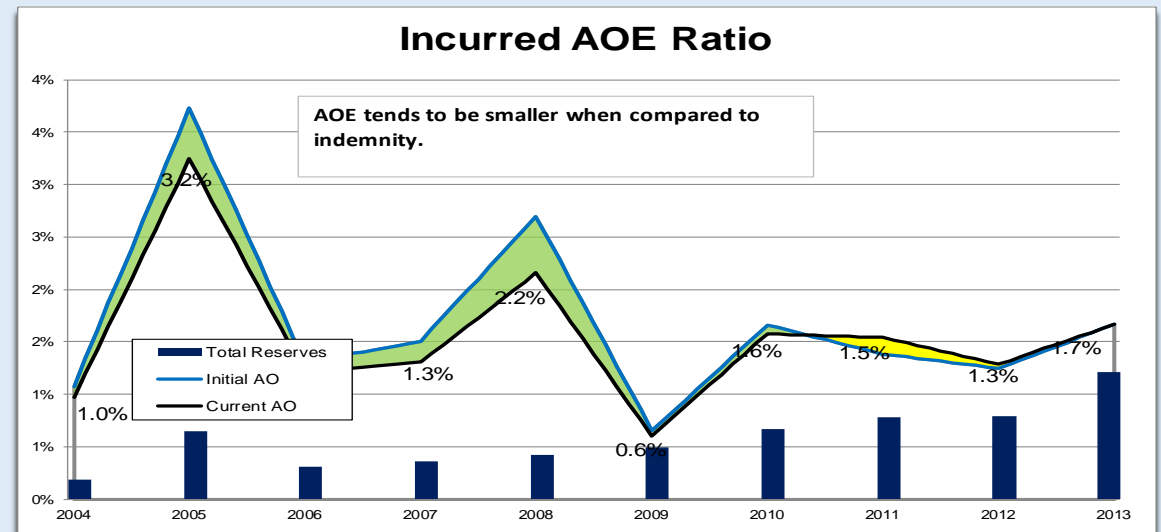
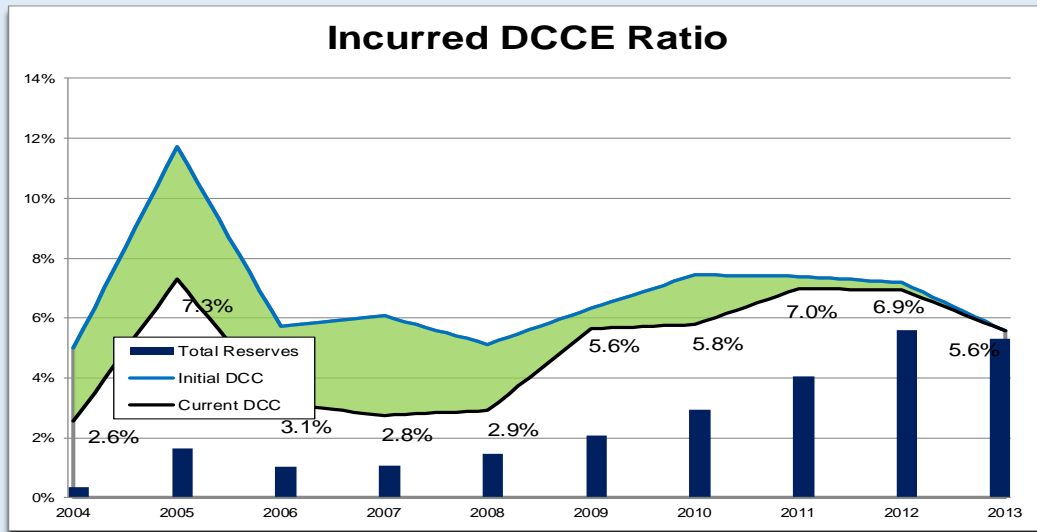
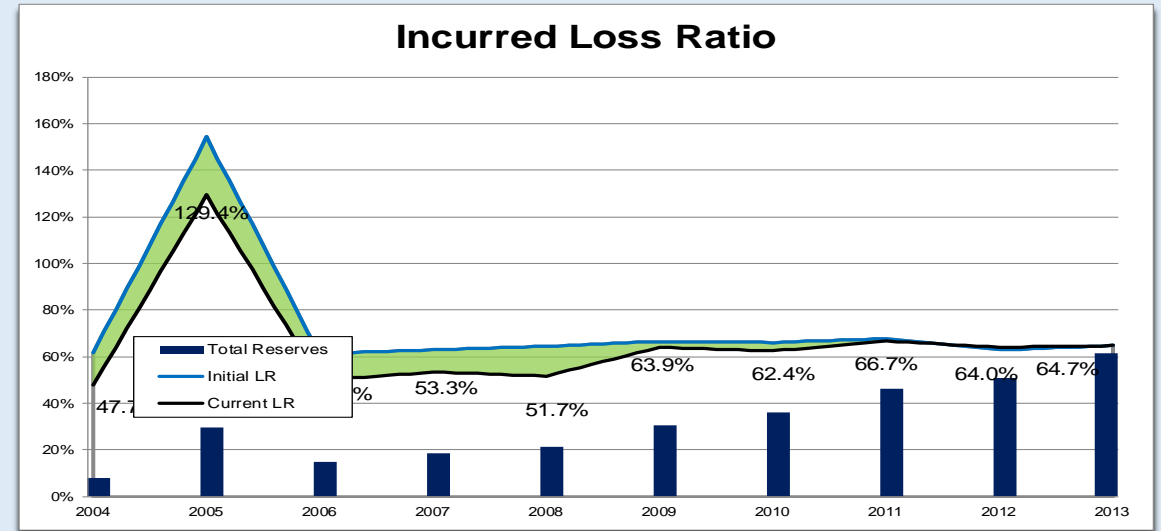
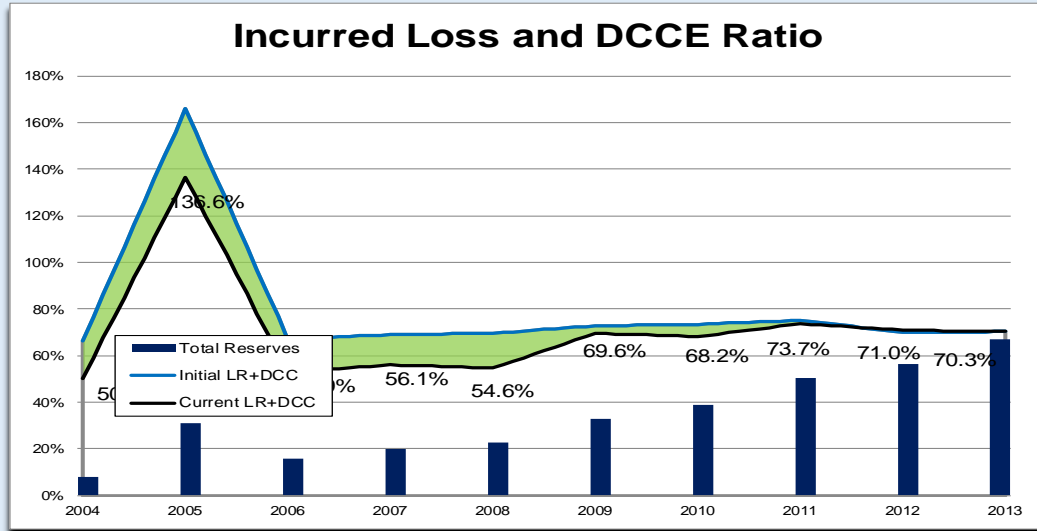
P&C Product Liability (Occurrence) Industry Loss Development 2004-2013



P&C Workers' Compensation Industry Loss Development 2004-2013



P&C Reinsurance Assumed Liability Industry Loss Development 2004-2013



Review of historic loss reserve redundancy/inadequacy

- DCCE follows indemnity trends – as expected.
- AOE follows indemnity. The lesser/greater the amount of indemnity the lesser/greater the amount of AOE.
 - AOE follows underlying claims “activity”. (Not a bold statement.)
 - Is this a result of AOE **dollars** tracking with the dollar amount of loss paid?
 - Does the change in dollar paid track with changes claim **count** which in turn cause AOE to change?
 - Is this a result of AOE allocations?
- No real trends with redundancy or deficiency for Loss and DCCE and DCCE only.
- Methods seem to be capturing the cost for AOE reasonably well. There are no significant redundancy or deficiency.
- Reinsurance AOE expenses are less than primary.

Survey of Methods

- DCCE
 - Typically use triangle methods,
 - Included/separated from loss.
- AOE
 - **Dollar**-based methods:
 - Paid to Paid Method,
 - Kittel Method,
 - Loss Activity Method,
 - Mango-Allen.
 - **Counts**-based methods
 - Johnson Method,
 - Mango Allen.
- All AOE methods reviewed assume AOE is related to underlying claim “activity”.
 - Main difference in how that claim “activity” recognized.
 - Is claim “activity” related to number of opening/closing of claims or payment of claims?

Survey of Methods Paid to Paid Method

- Seems to be the most widely used method.
- Compares Calendar Year Paid AOE to Paid Loss.
- Ratio of Paid AOE to Paid Loss provides the expected cost of Paid AOE to Paid Loss for all claims.
- Applies the Paid to Paid Ratio to outstanding reserves.
- Typical assumption is 100% of AOE needs to be reserve for all unreported claims (i.e. IBNR reserves) and 50% of AOE is unpaid for reported and open claims (i.e. case reserve).

Survey of Methods

Kittel Method

- Based on paper written by John Kittel.

“Unallocated Loss Adjustment Expense Reserves in an Inflationary Environment”, John Kittel, Casualty Actuarial Society Discussion Paper Program Casualty Actuarial Society – Arlington Virginia 1981, pp. 311-331

- Variant on the Paid to Paid Method.
- Compares Calendar Year Paid AOE to the average of the Calendar Year Paid Loss and Reported Loss.
- Applies the calculated ratio to outstanding reserves.
- Typical assumption is 100% of AOE is reserved for all unreported claims (i.e. IBNR reserves) and 50% of AOE is reserved for unpaid reported and open claims (i.e. case reserve).

Survey of Methods

Loss Activity Method

- Based on paper written by Paul Deemer.
 “Adjusting & Other” Reserves According to the Loss Activity Method”, Paul Deemer, Casualty Actuarial Society Forum Casualty Actuarial Society – Arlington Virginia, Fall 2006, pp. 97-109
- Variant on the Paid to Paid Method.
- Compares Calendar Year Paid AOE to the calculated “Loss Activity”.
- “Loss Activity” includes the sum of:
 - Current AY Reported Losses,
 - Current AY DCCE Paid,
 - Prior AYs Losses Reported,
 - Prior AYs Losses Paid,
 - Prior AYs DCCE Paid.
- Ratio applied to the sum of:
 - Unreported Losses,
 - Total Unpaid Losses,
 - Total Unpaid DCCE

Survey of Methods

Johnson Method

- Based on paper written by Wendy Johnson.
 - “Determination of Outstanding Liabilities for Unallocated Loss Adjustment Expense”, Wendy A. Johnson, Casualty Actuarial Society Discussion Paper Program Casualty Actuarial Society – Arlington Virginia 1988: May 301-314
- Relies on claim reporting and claim closure patterns.
- Data is more extensive than other methods:
 - Calendar Year AOE payments,
 - Historical open claims at year end,
 - Historical claims open during the year.
- Assumes AOE is incurred throughout the life of the claim, but maintaining the claim file will be twice as great in the first year as in subsequent years.
- Basically a counts and averages approach that can consider expense trends and changes in claim closure rates.

Survey of Methods Mango-Allen

- Based on paper written by Donald Mango and Craig Allen.

“Two Alternative Methods for Calculating the Unallocated Loss Adjustment Expense Reserve”, Donald Mango and Craig Allen, Casualty Actuarial Society Forum 1999, pp. 233-258.

- Suggests alterations to the Paid to Paid and Johnson method.

Survey of Methods

Some Strength of the Methods

- Dollar Methods
 - Simpler, easier to explain,
 - Data is accessible and can be audited,
 - Common to relate paid indemnity to paid AOE.
- Count Methods
 - Captures underlying frequency/severity trends better than dollar methods,
 - Will be able to reflect changes in underlying exposure,
 - Maybe able to reflect the impact of AOE on older claims better than dollar amounts.

Survey of Methods

Some Weakness of the Methods

- Dollar Methods
 - Does not capture the underlying frequency and loss trends,
 - May tend to have an upward bias, the average AOE paid per indemnity paid decrease over time, but average indemnity is applied to all outstanding claims,
 - May miss changes in exposure trends.
- Count Methods
 - Requires more data than paid methods, can be difficult to audit,
 - Requires a greater number of assumptions – which could lead to some selection bias.
- My experience dollar method tend to give a higher estimate of AOE reserves than count methods

Considerations in Review of Reinsurance LAE

- DCCE is usually ceded with loss payments, AOE is not.
- However it is important to understand the definitions LAE in the contract to correctly recognize what LAE being is ceded.
- Typically loss adjustment expense (both DCCE and AOE) is lower as a percent of premium for reinsurers than for primary carriers.
- Beyond understanding the definitions of what LAE is ceded, need to understand how reinsurance terms and conditions apply to ceded losses.

Considerations in Review of Reinsurance LAE

- Pro rata reinsurance contracts more likely than proportional reinsurance contracts to have challenges in determining ceded LAE reserves.
- Some terms and conditions that impact loss expense reserving:
 - Loss expense within occurrence limit, excluded from coverage or pro rata coverage.
 - Within limit expense can be included with loss reserving.
 - Excluded from coverage may need to separate loss from loss expense to get appropriate cession.
 - Pro rata, may need to separate loss adjustment expense from loss and develop separate. This can depend on the claim count volume.
- Dollar methods for AOE are used mostly in reinsurance.
 - As mentioned AOE is usually a smaller percent of premium than DCCE.
 - Not able to get claim count information needed to accurately use any claim count methods.

Considerations in Review of Reinsurance LAE

- Impact of DCCE treatment in reinsurance (considering only primary DCCE ceded to treaty not reinsurers LAE):
 - Consider an indemnity loss of \$9,000,000 with DCCE of \$1,000,000 with reinsurance \$10M xs \$5M.
 - Case 1 - DCCE within limits,
 - Total assumed loss would be \$5M which includes all DCCE,
 - Include DCCE with loss data when reserving.
 - Case 2 – DCCE outside of limits
 - Total assumed loss would be \$4M which excludes of DCCE,
 - Exclude DCCE from reserving considerations.
 - Case 3 – DCCE prorata as to limits
 - Part of the DCCE is assumed,
 - 10% of DCCE is assumed (1M/10M) or \$100,000,
 - Assumed loss is \$4.1M.
 - May consider reviewing DCCE separate from indemnity losses.

Questions????