Balance sheet integrity

In focus: the underwriting cycle seminar

Casualty Actuarial Society
October 5-6, 2009

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Ernst & Young
Quality In Everything We Do

Agenda

- Define balance sheet integrity
- Explain Ernst & Young analysis
- Present analysis results and hindsight look for five Schedule P lines
  - Personal auto liability
  - Commercial auto liability
  - Commercial multi-peril
  - Medical malpractice – claims-made
  - Other liability – occurrence
- Present hindsight look only for two more lines
  - Workers compensation
  - All lines combined

The auditing actuary's role in assessing a balance sheet

- Basic steps of our work:
  - Review Company actuary's work, performing independent analysis wherever it appears necessary
  - Establish a range of reasonable liability estimates to see if Company held lies within range
  - Check movement since prior year to check if it is consistent with loss development in interim
  - Check position in our range for consistency with prior year
- Ideally, we serve as a helpful peer review
- Possible problems we look for
  - Hiding bad news that will have to emerge eventually
  - Managing earnings

Defining balance sheet integrity — the auditing actuary's perspective

There are three quantities to consider when assessing the integrity of the reserves (considering each accident year in isolation):

1. Booked loss ratio (known)
2. Company actuary's estimate of ultimate loss ratio (often unknown or partially known)
3. Our estimate of ultimate loss ratio (known)
4. True ultimate loss ratio (not known for several years)

- True balance sheet integrity is the narrowness of the gap between 1 and 2.
- Auditing actuaries measure the narrowness of the gap between 1 and 3.
- With hindsight, the narrowness of the gap between 1 and 4 can give us some insight into what the degree of balance sheet integrity might have been at the time.

Ernst & Young analysis — description

Mechanical procedure for deriving our own ultimate loss estimates, established to minimize judgment bias:

- Development factors selected for paid and reported loss & DCC triangles
- Ultimates from chain-ladder projections compared to premium to select IELR for Bornhuetter-Ferguson projections
- Ultimates selected from among projections and liability estimated for each accident year
- Booked A&O expenses accepted without analysis

(continued)

Ernst & Young analysis — description

We wanted to compare:

- Our estimates of accident year ultimate loss ratios to booked loss ratios at 12 months
- Our estimates of year-end liabilities (excluding accident years over 10 years old) to booked

This was possible for loss and LAE net of reinsurance only, as Schedule P does not provide triangles gross of reinsurance.

(continued)

Ernst & Young analysis — description

- We also looked back at booked ultimate loss ratios for each accident year, going back to AY 1995
- We did this for loss and LAE net of reinsurance, gross of reinsurance, and ceded to reinsurance
- Ceded loss ratios fluctuate widely due to interaction of gross and net, so it was hard to discern a pattern in the charts we developed

Ernst & Young analysis — selected lines

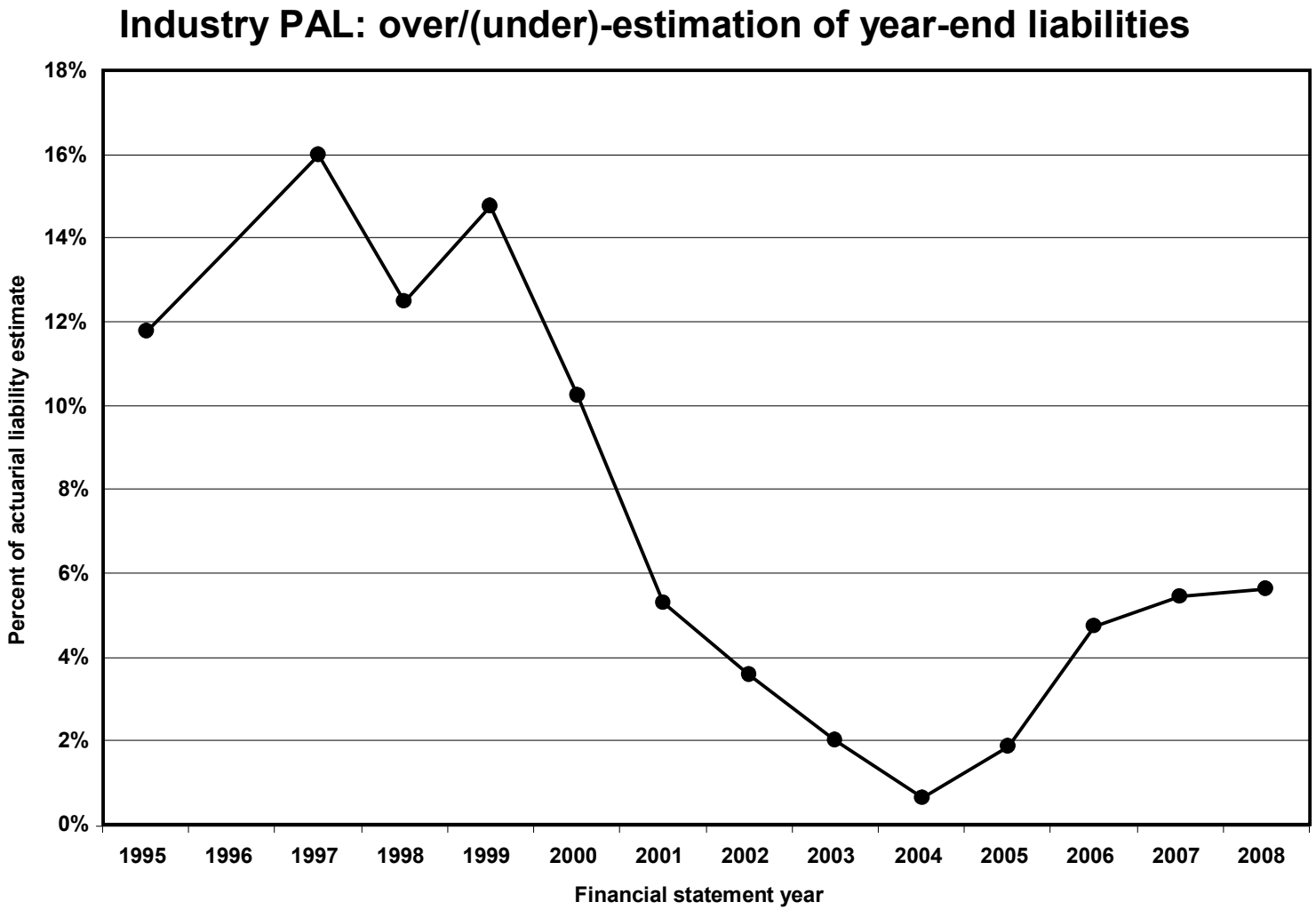
Criteria for five lines selected:

- 10 years of data in Schedule P
- Perceived consistency across industry (i.e., not reinsurance lines)
- Developing fast enough to ignore development beyond 120 months

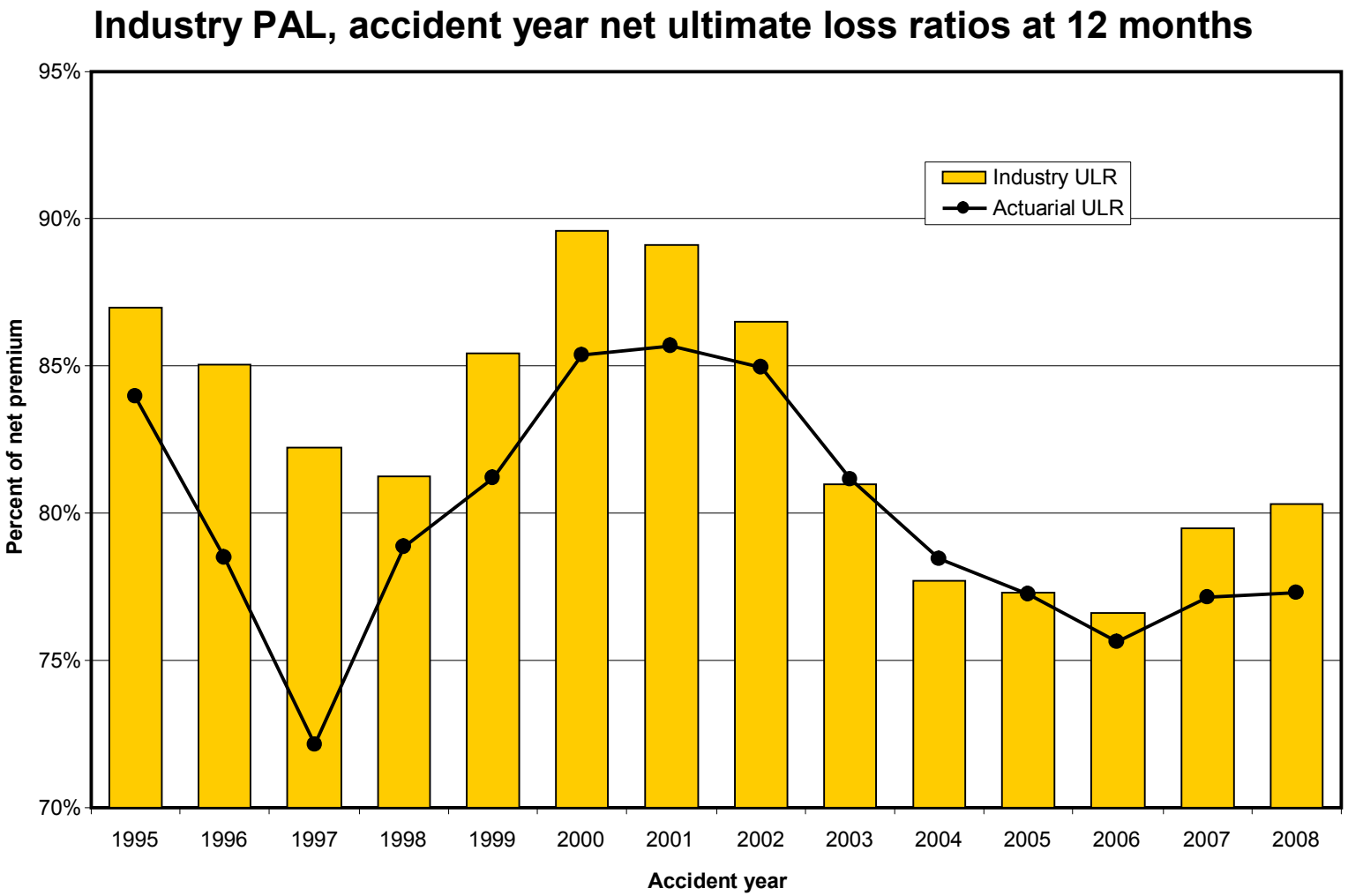
Selected lines:

- Personal auto liability
- Commercial auto liability
- Commercial multi-peril
- Medical malpractice — claims-made
- Other liability — occurrence

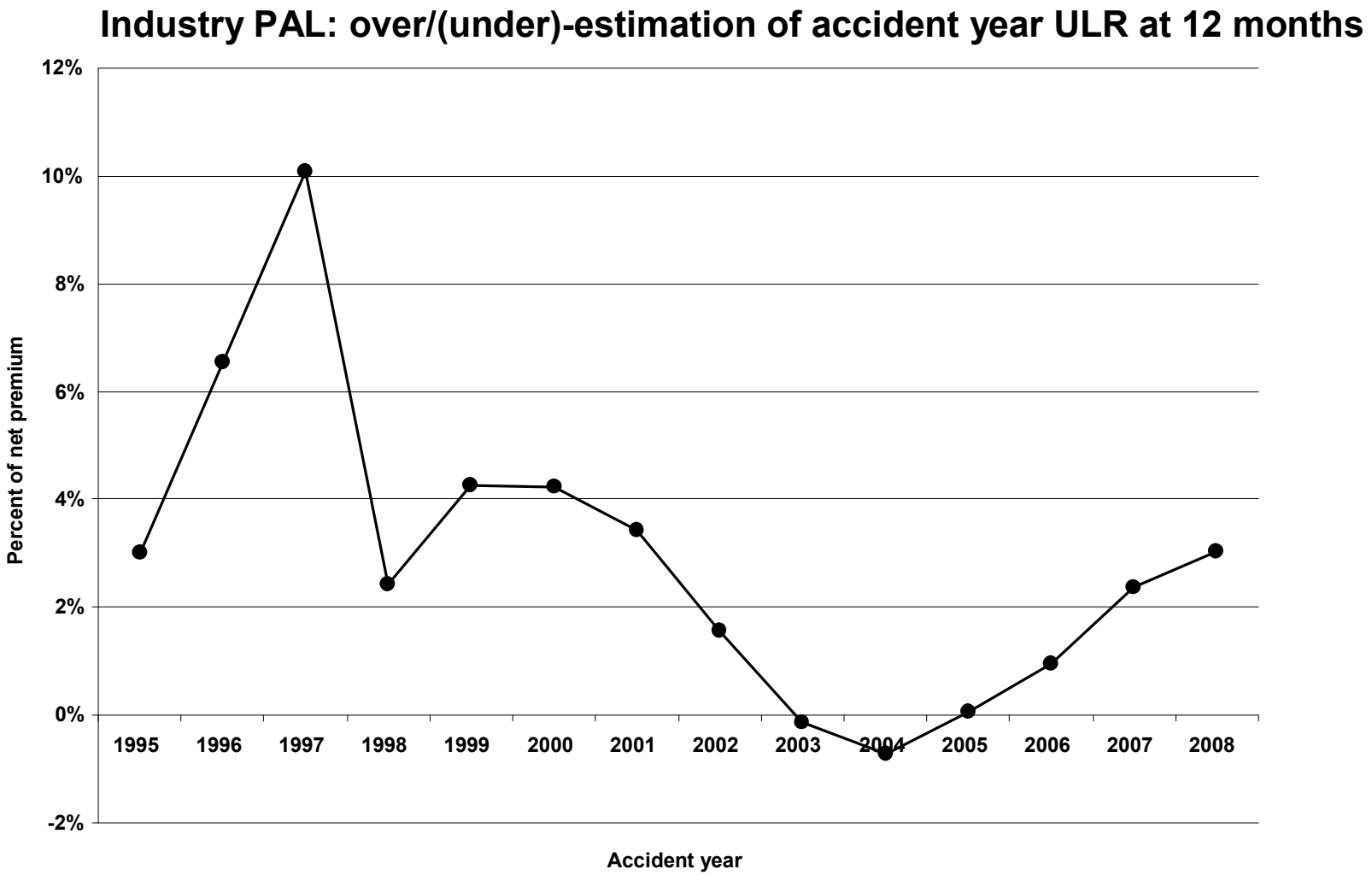
Personal auto liability (1) — total liability gap



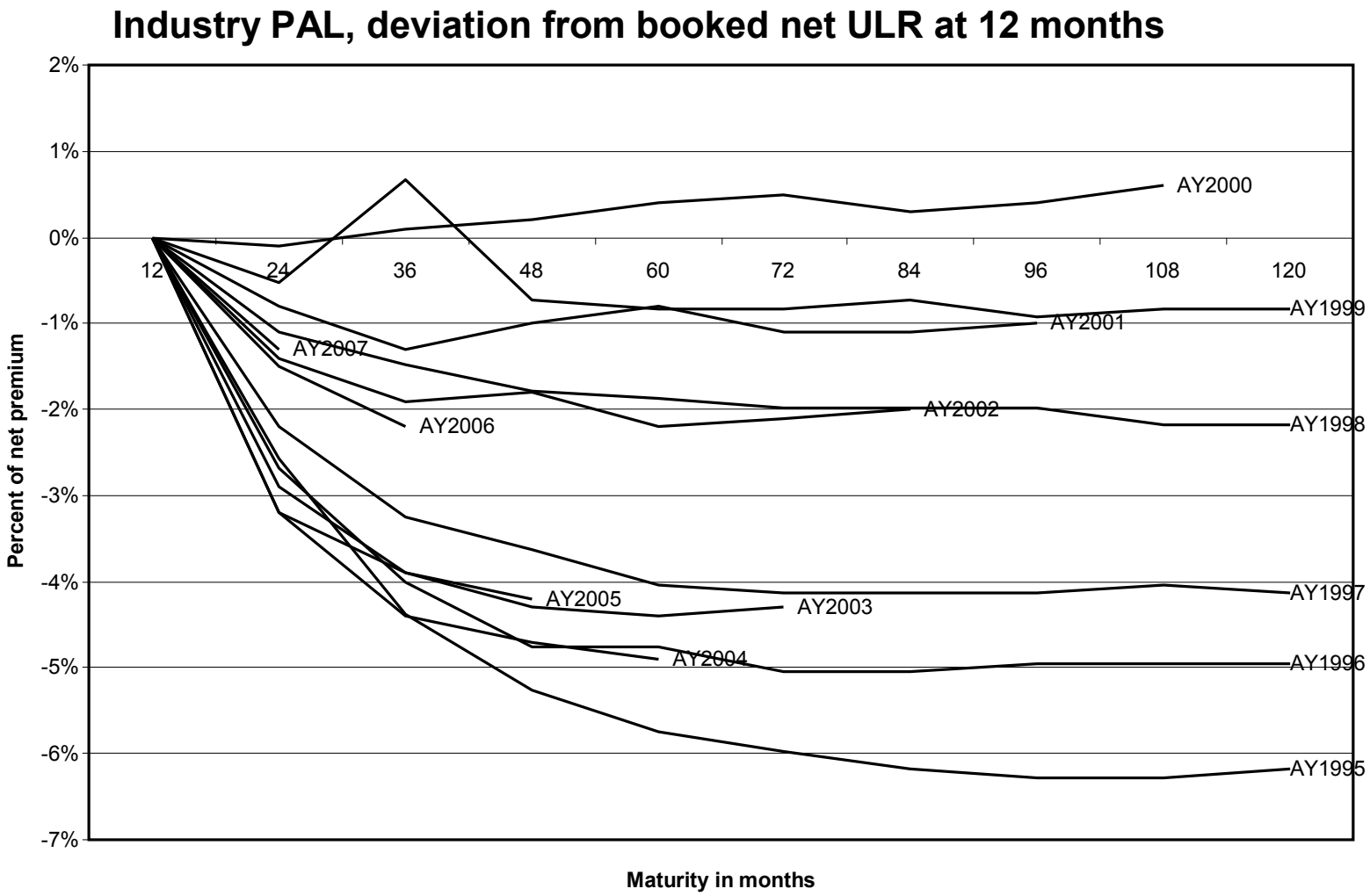
Personal auto liability (2) — AY gap



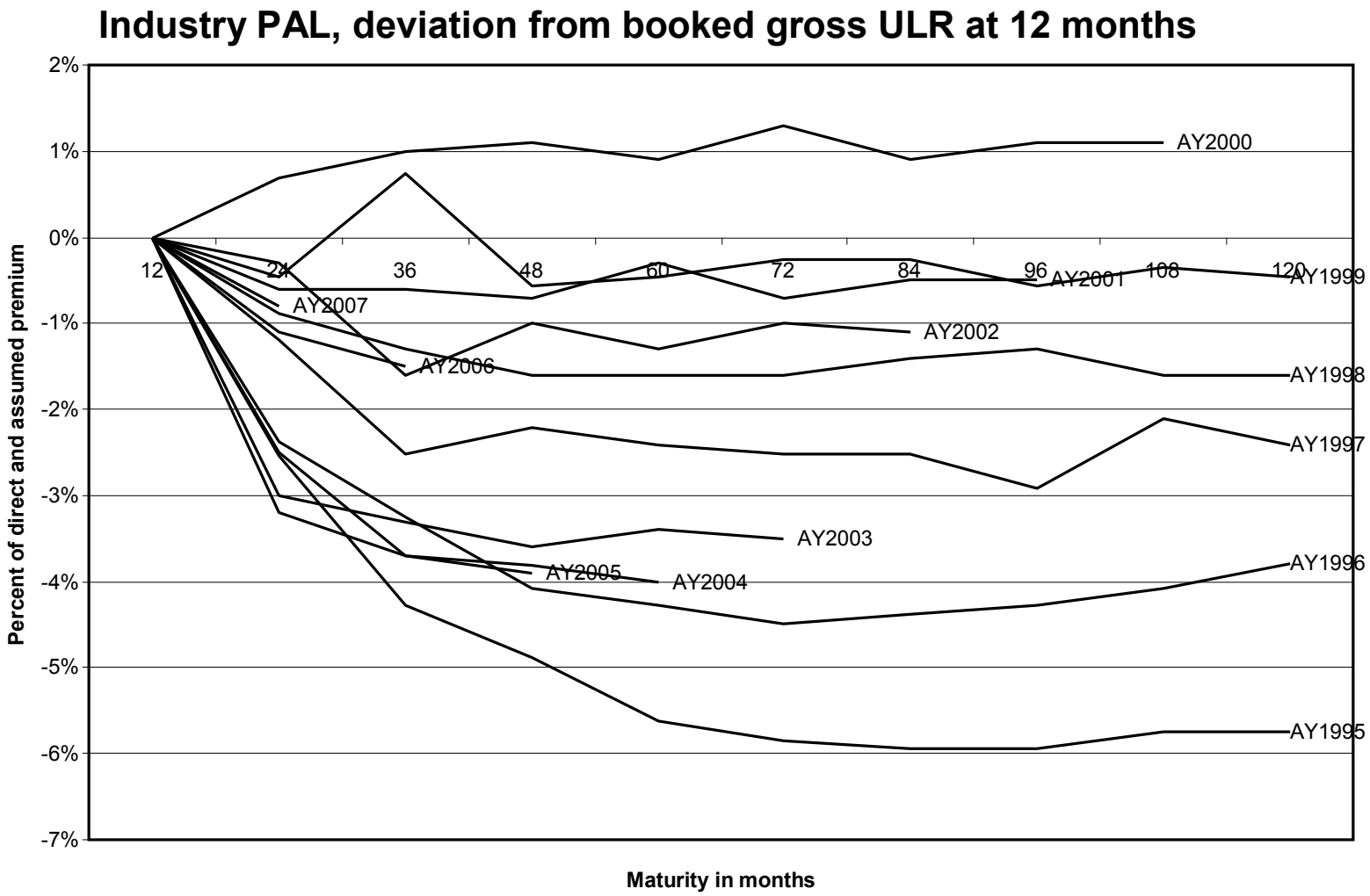
Personal auto liability (3) — AY gap



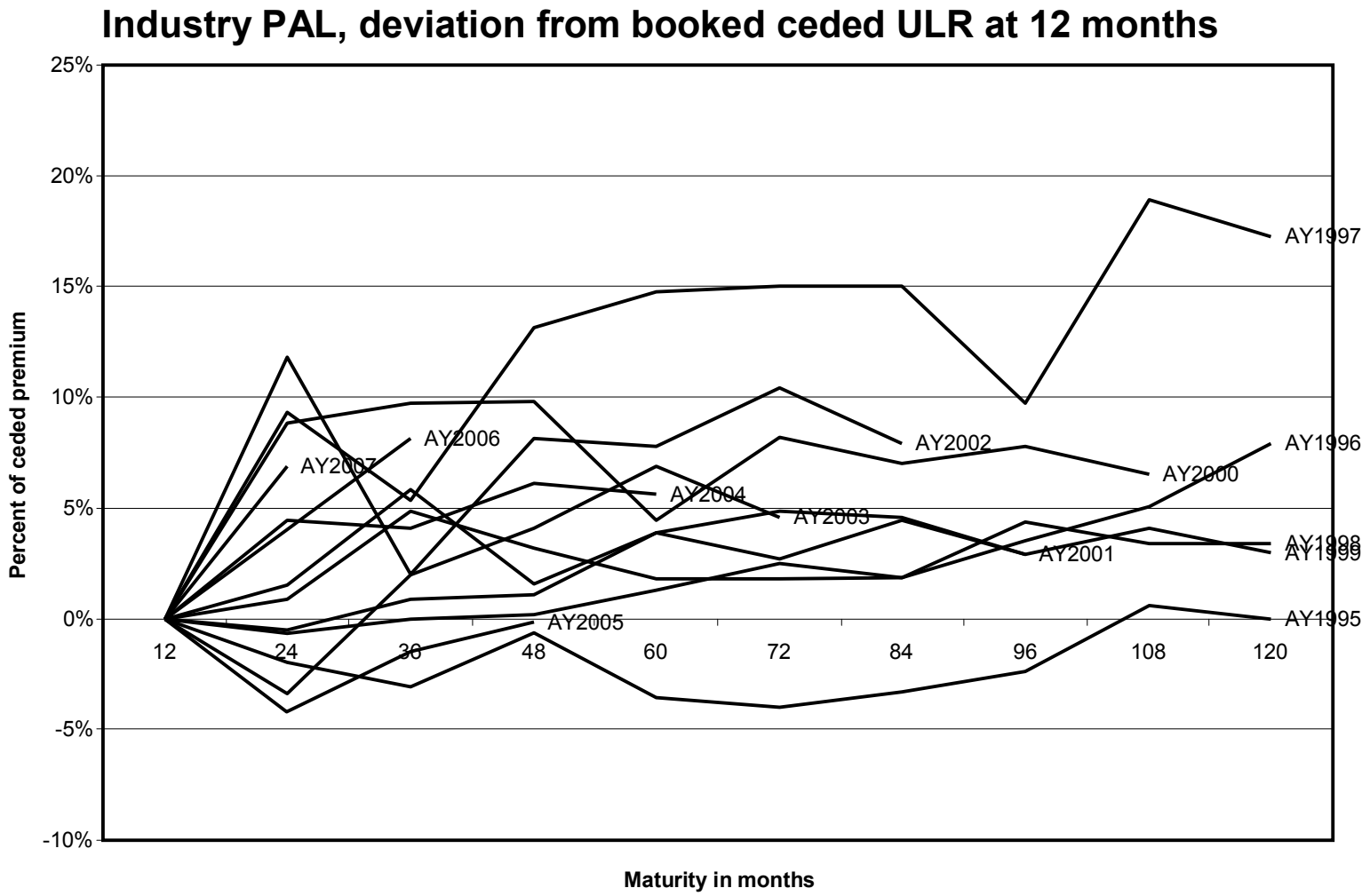
Personal auto liability (4) — *net* hindsight



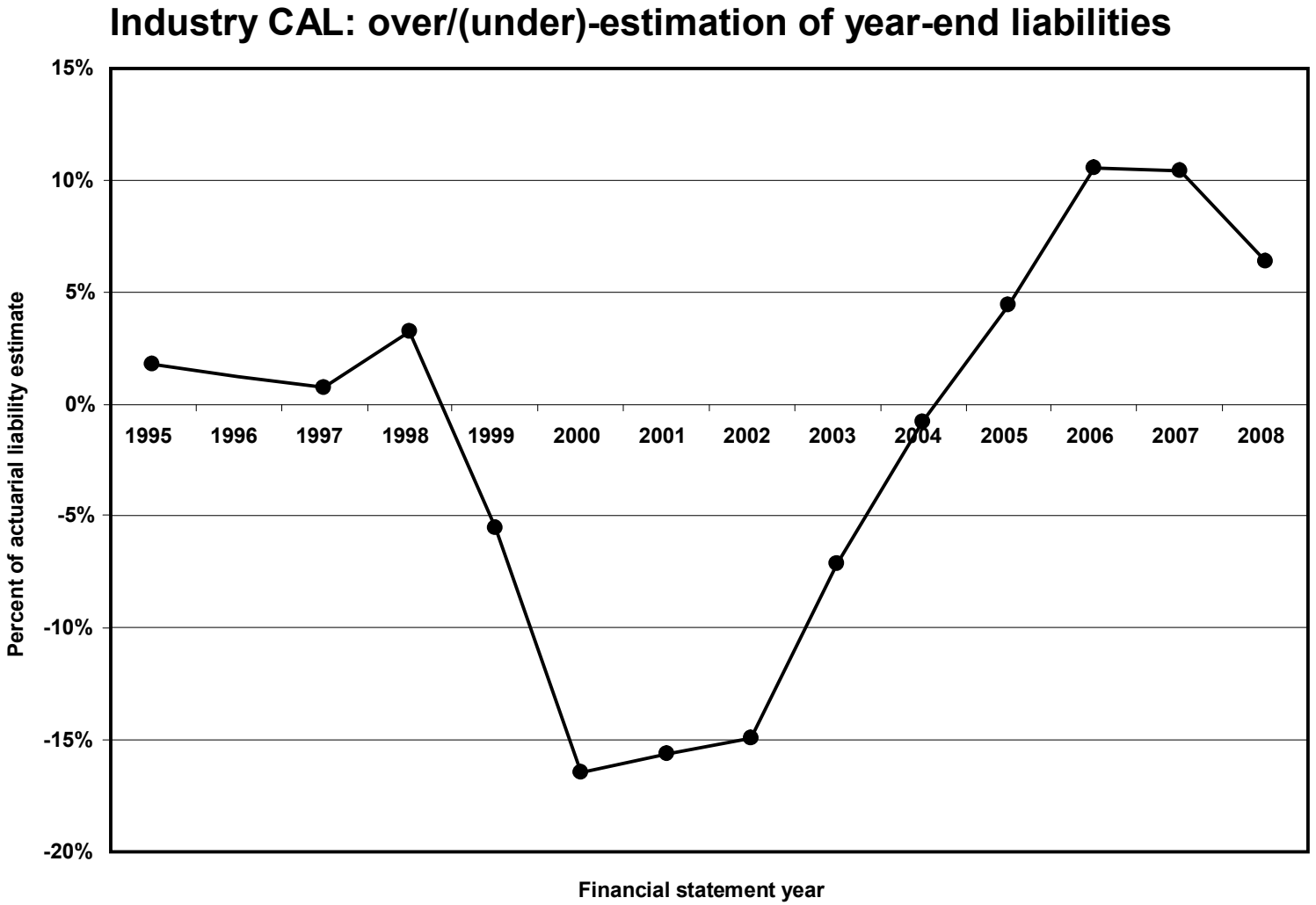
Personal auto liability (5) — *gross* hindsight



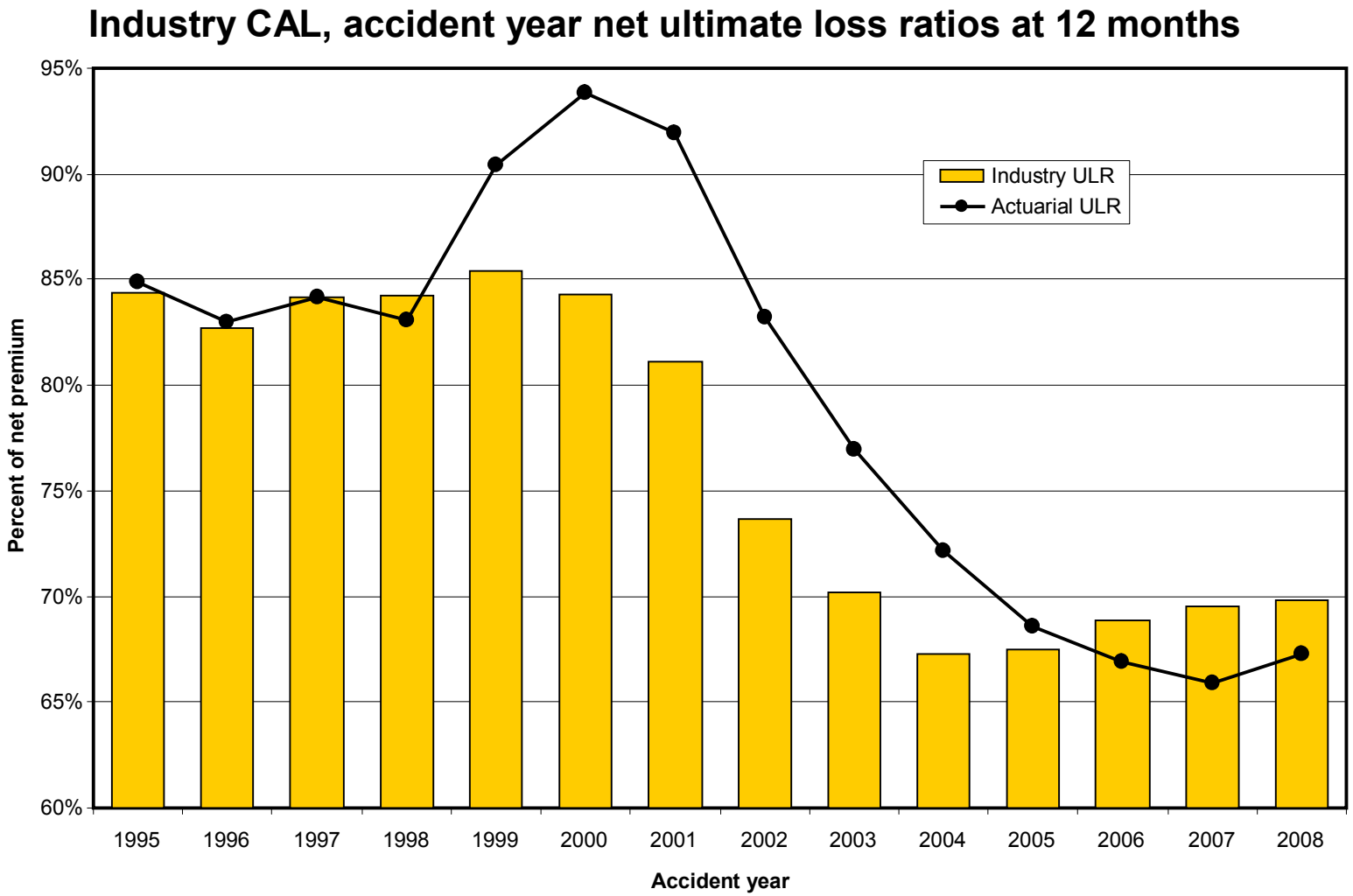
Personal auto liability (6) — *ceded* hindsight



Commercial auto liability (1) — total liability gap



Commercial auto liability (2) — AY gap



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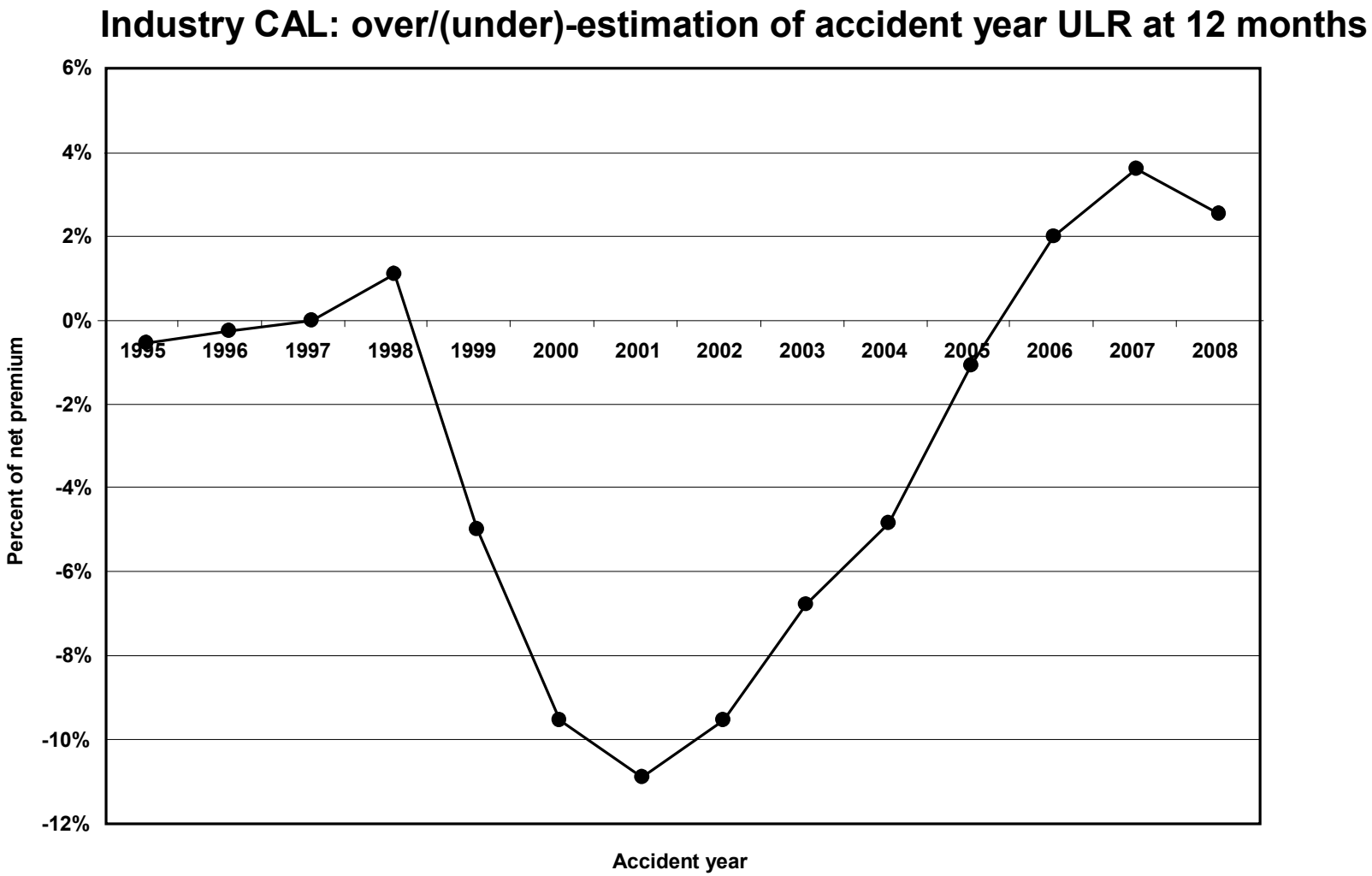

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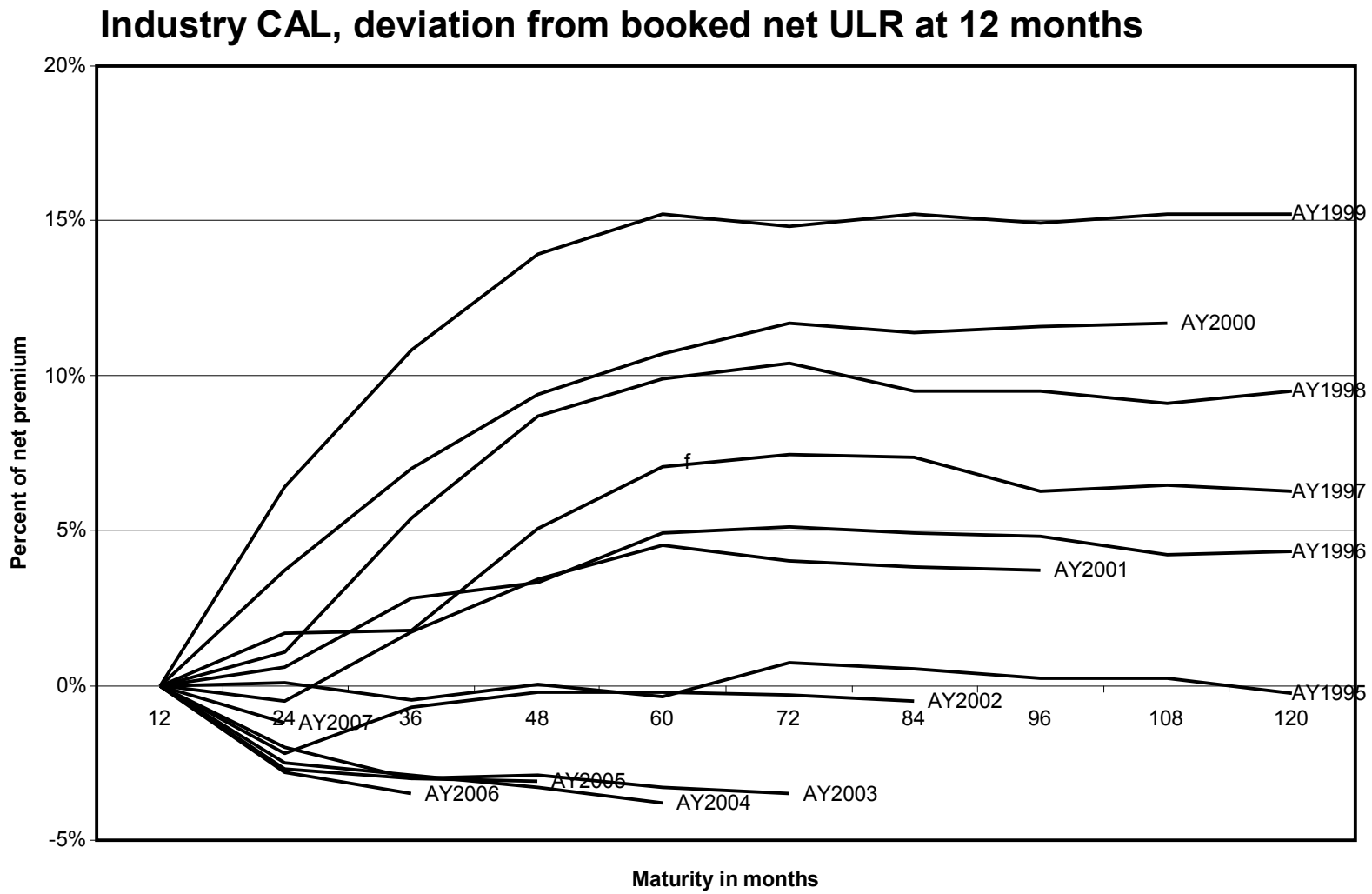

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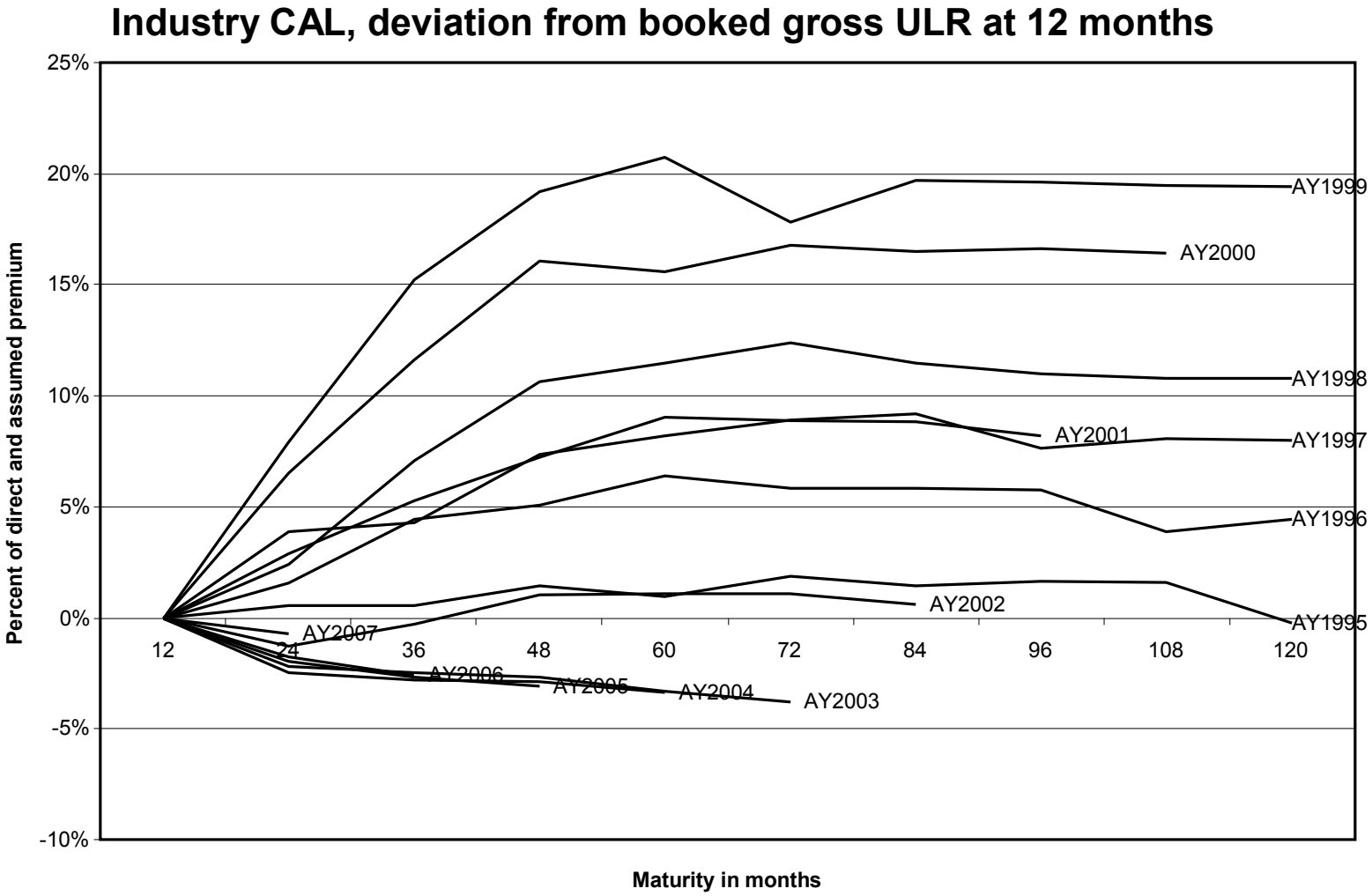

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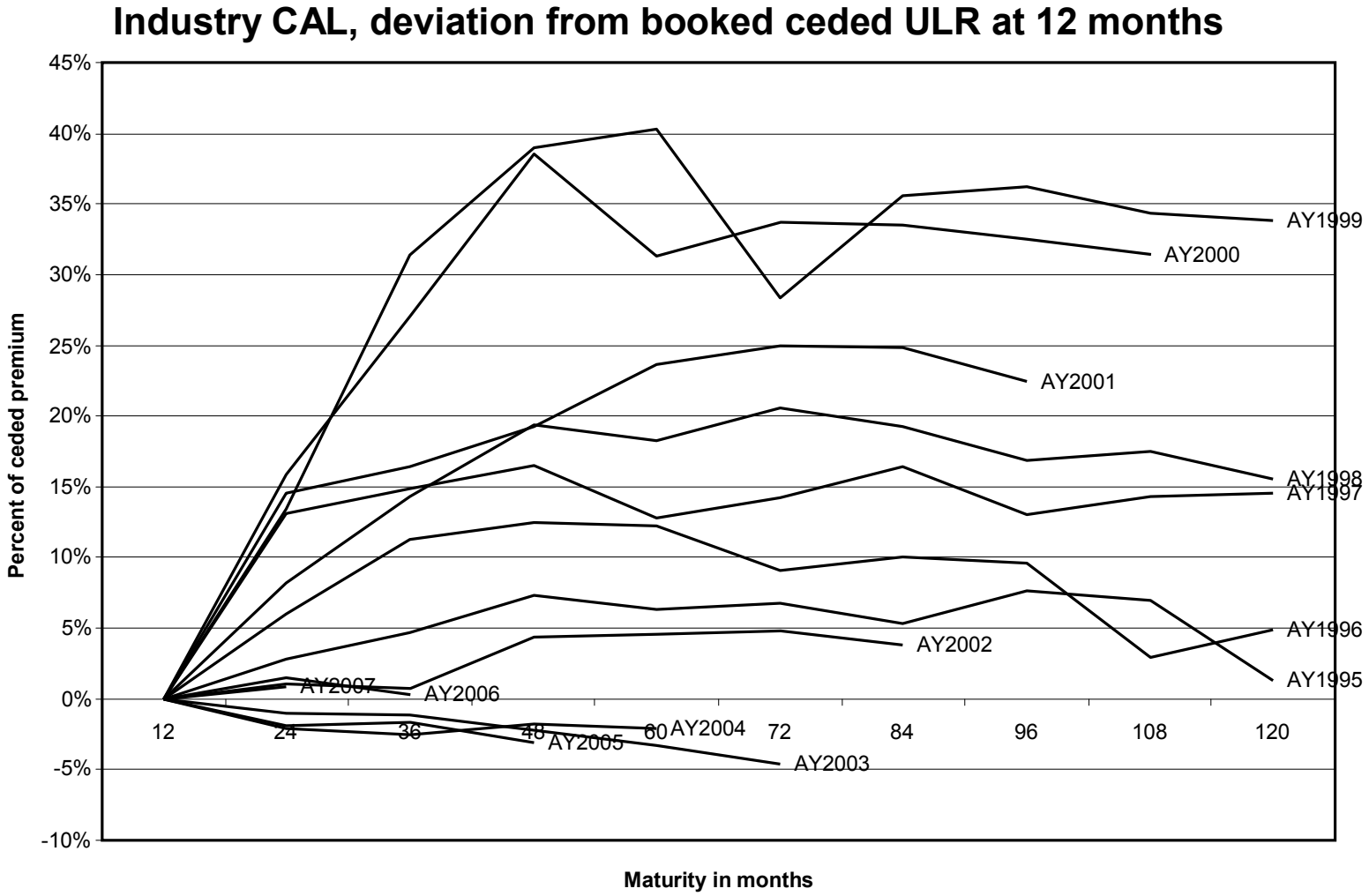
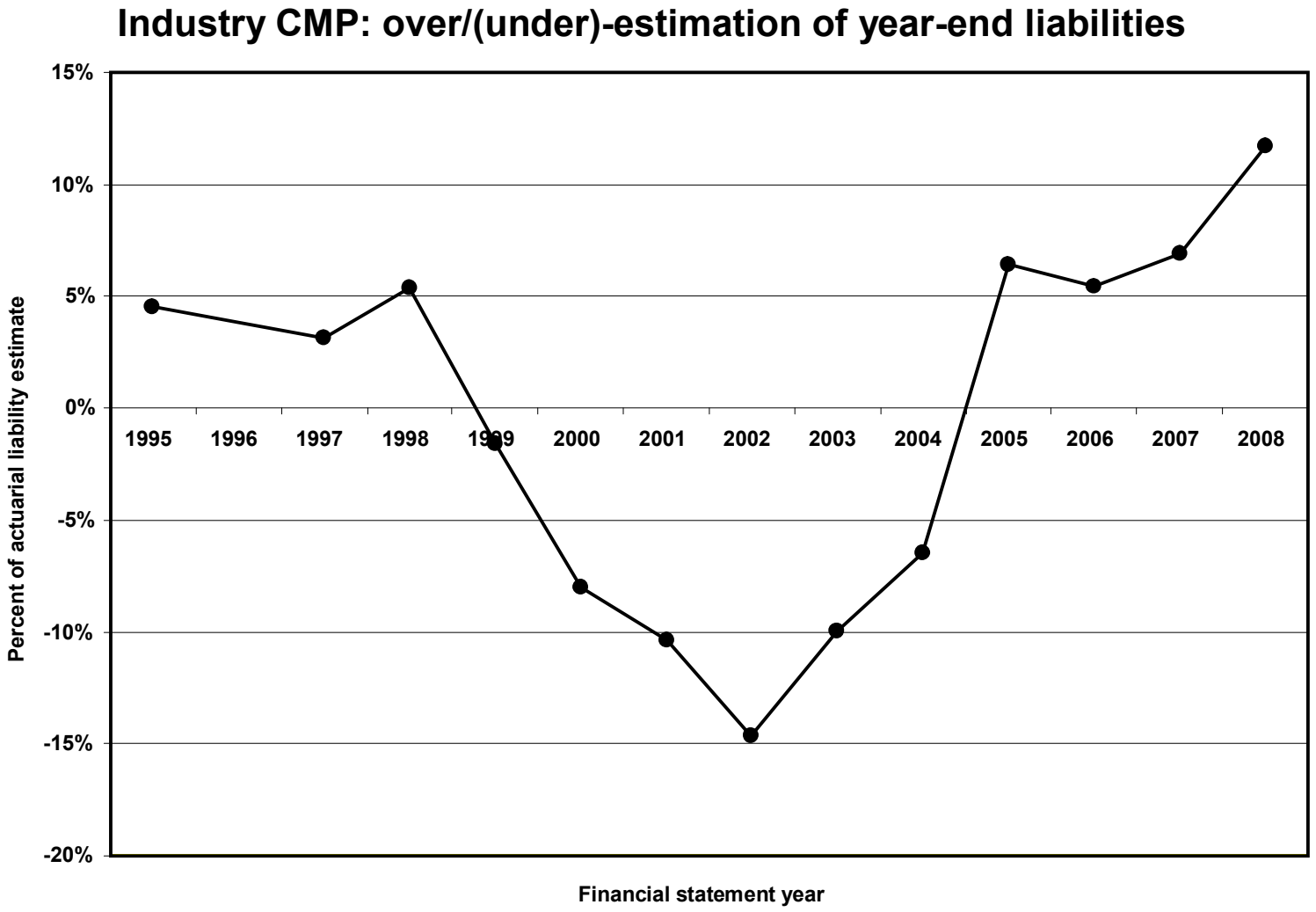
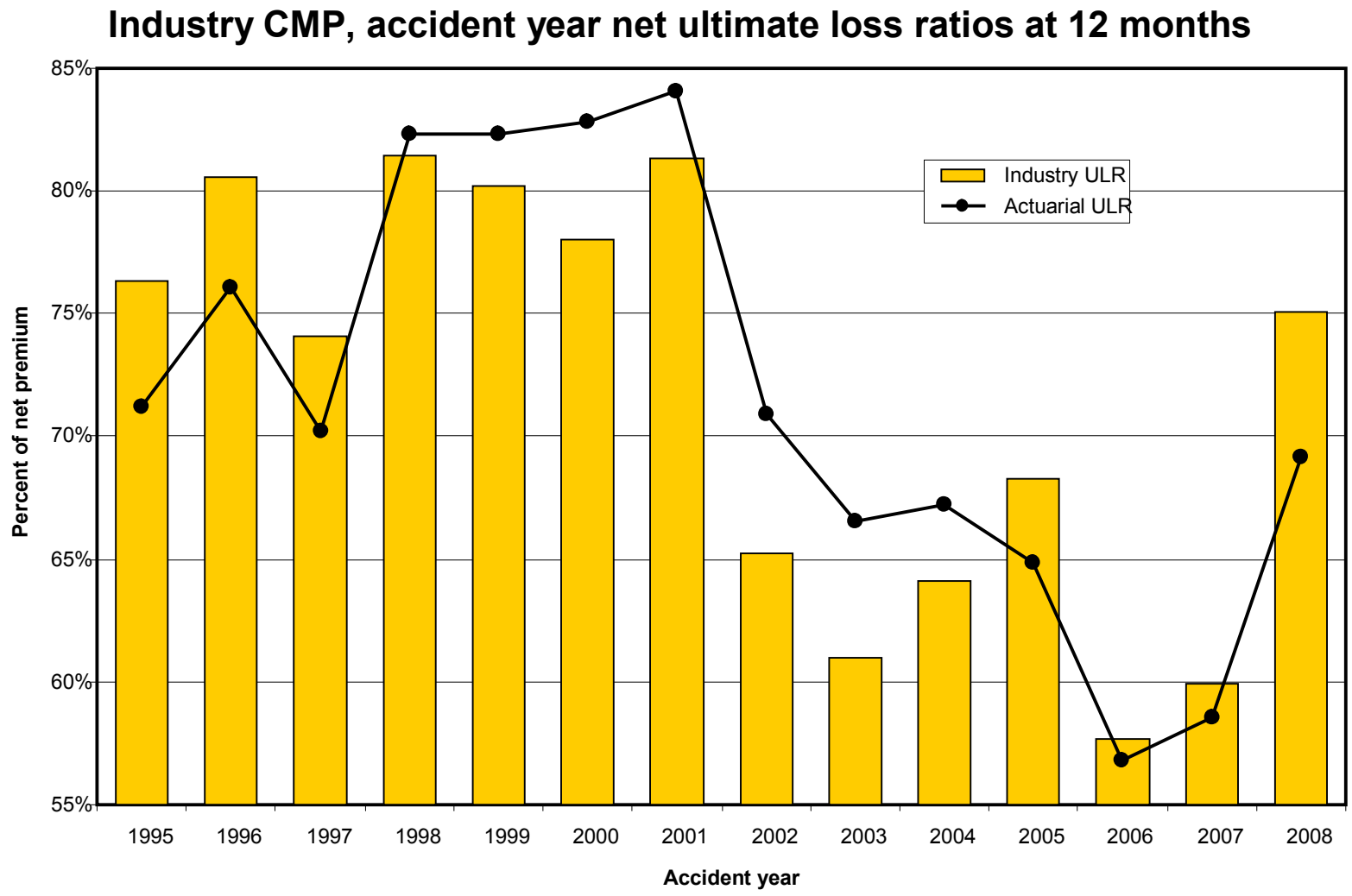


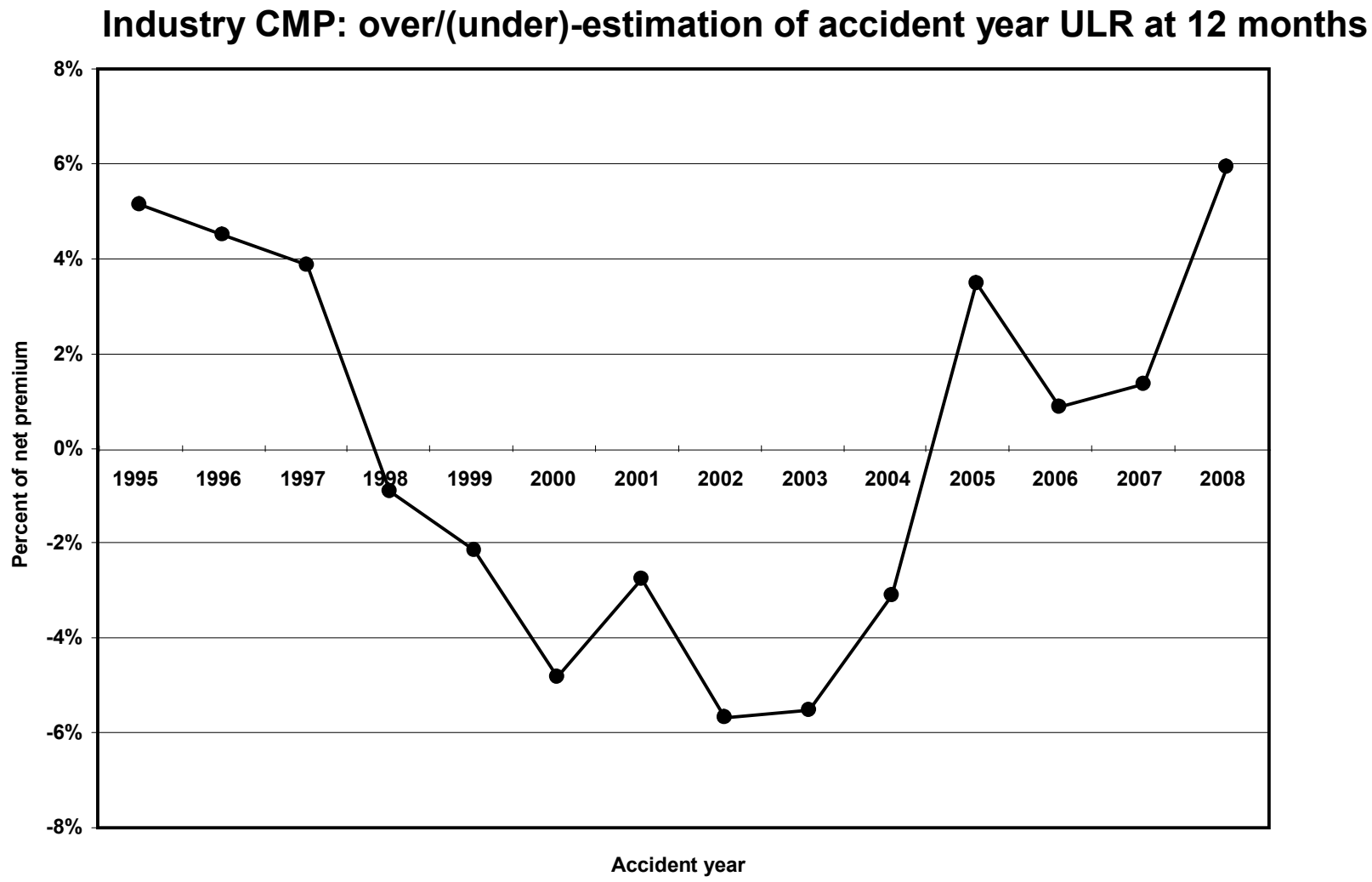
Commercial multi-peril (1) — total liability gap



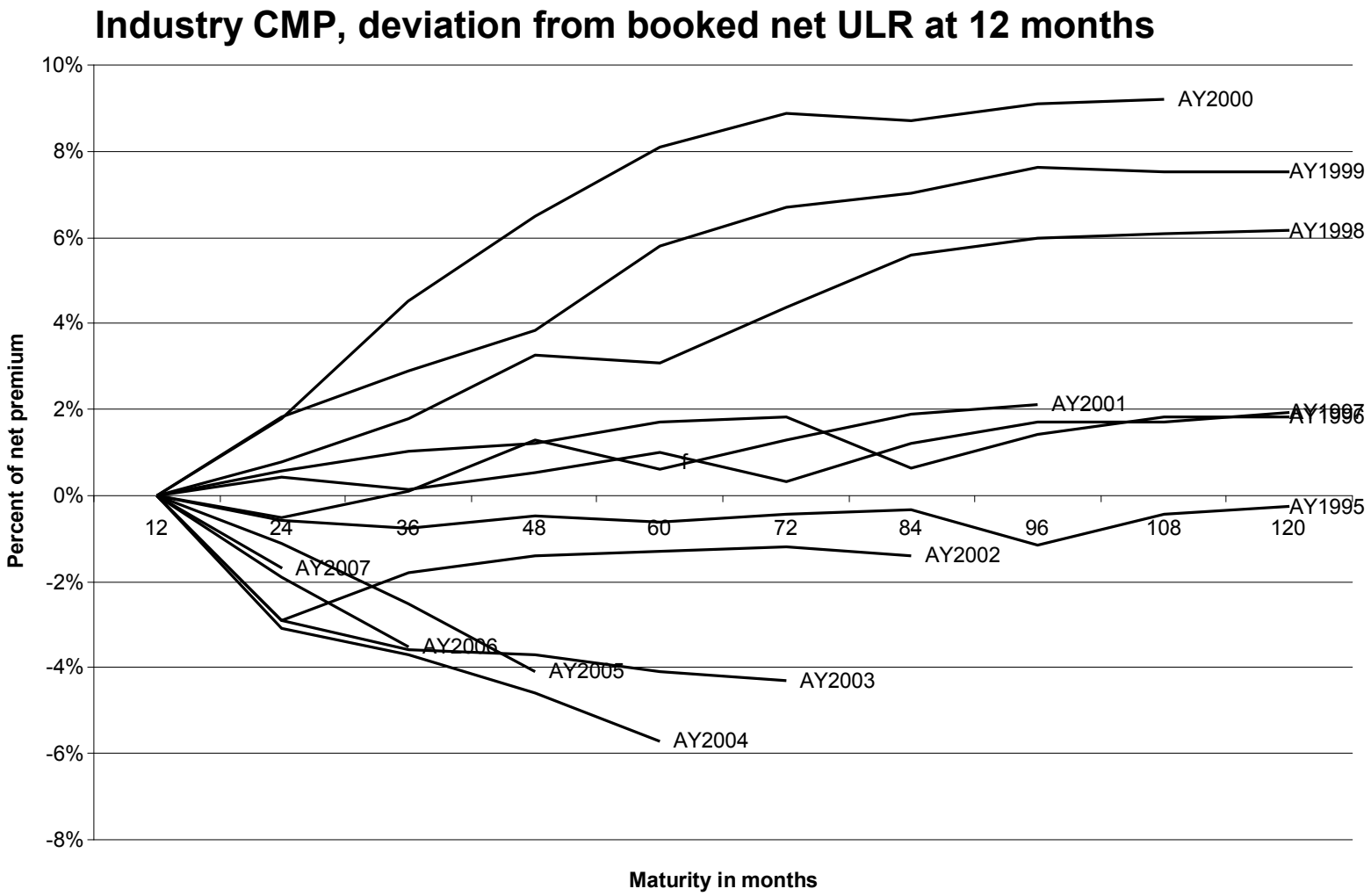
Commercial multi-peril (2) — AY gap



Commercial multi-peril (3) — AY gap



Commercial multi-peril (4) — *net* hindsight



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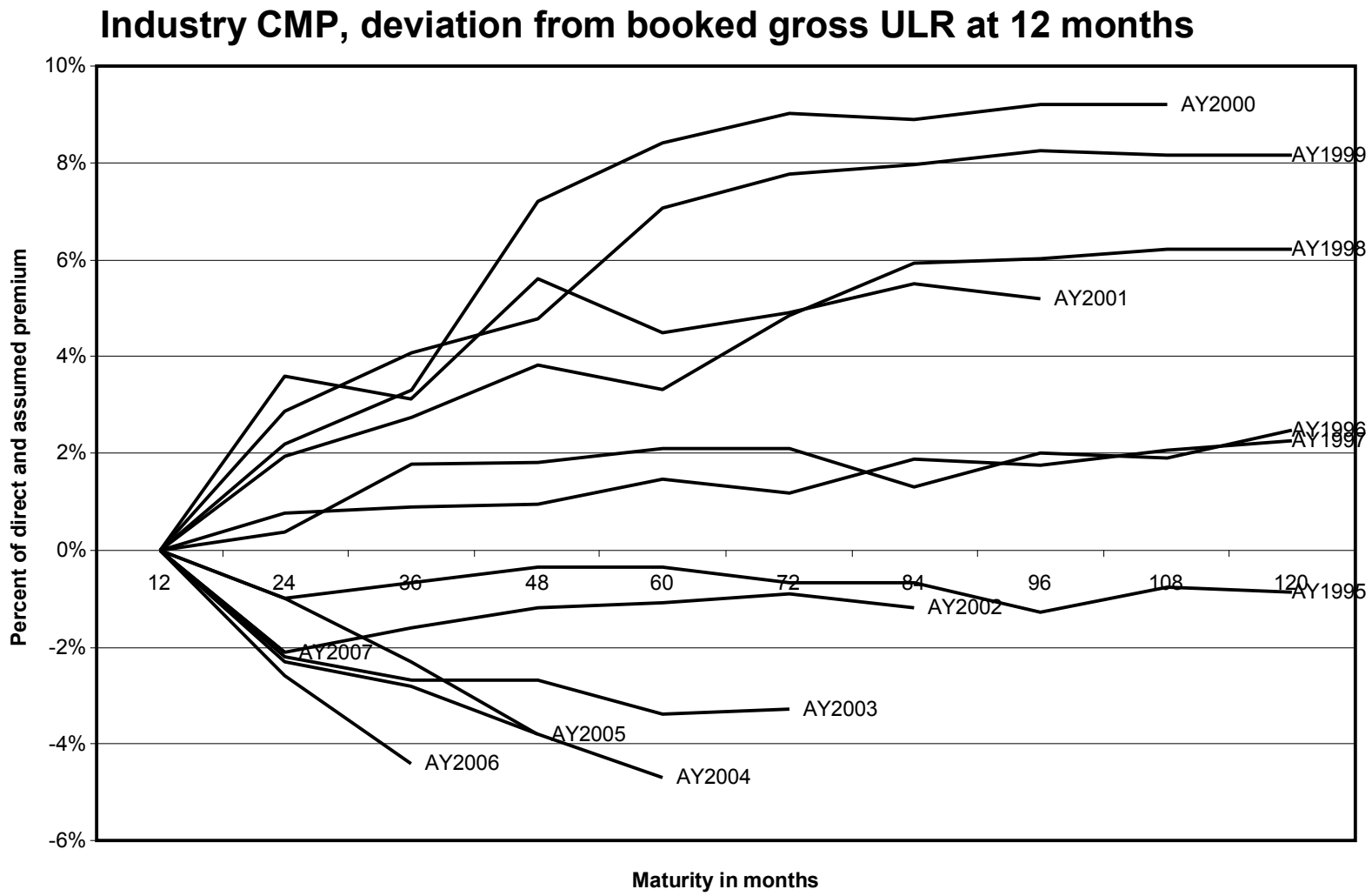

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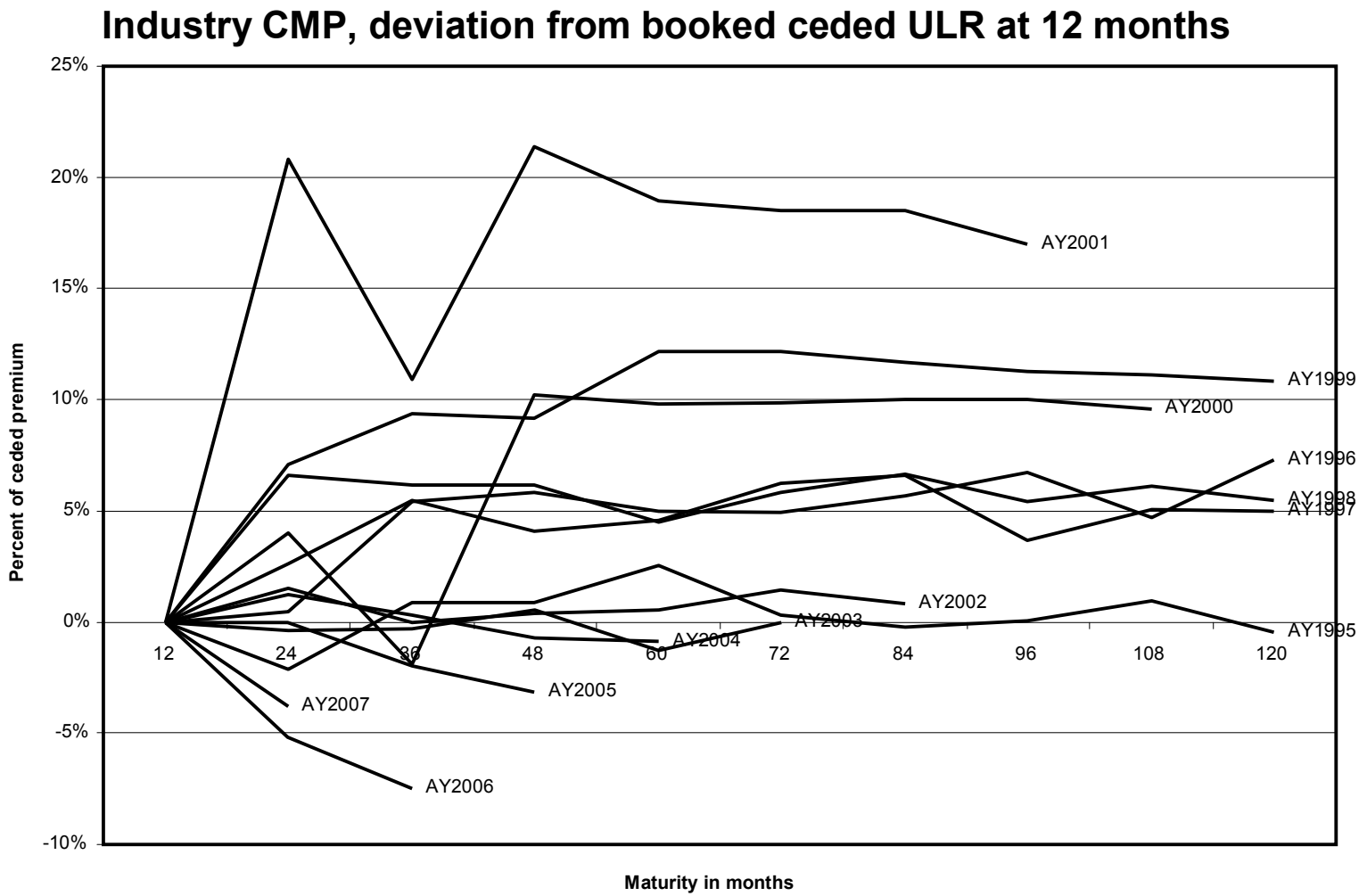
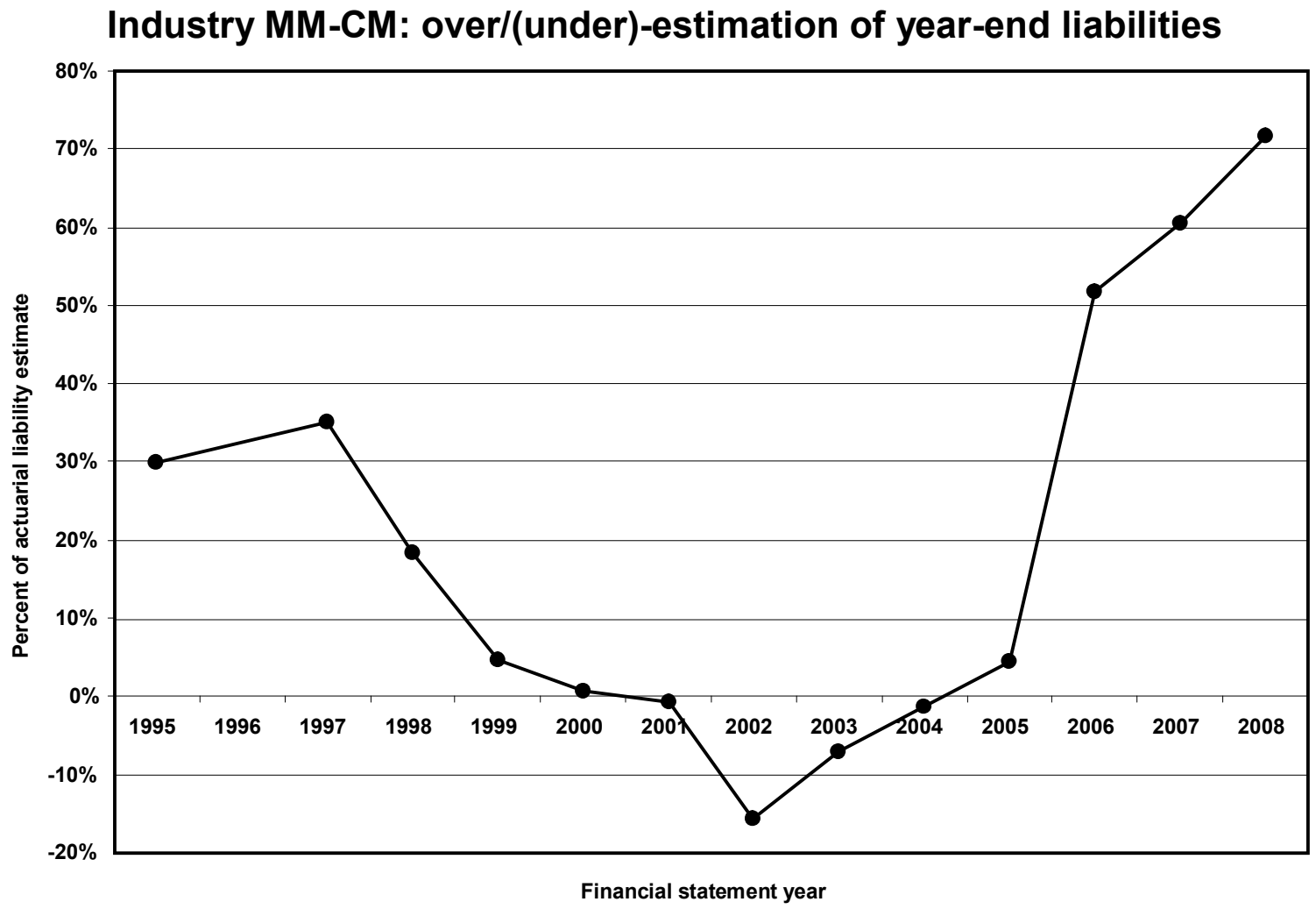
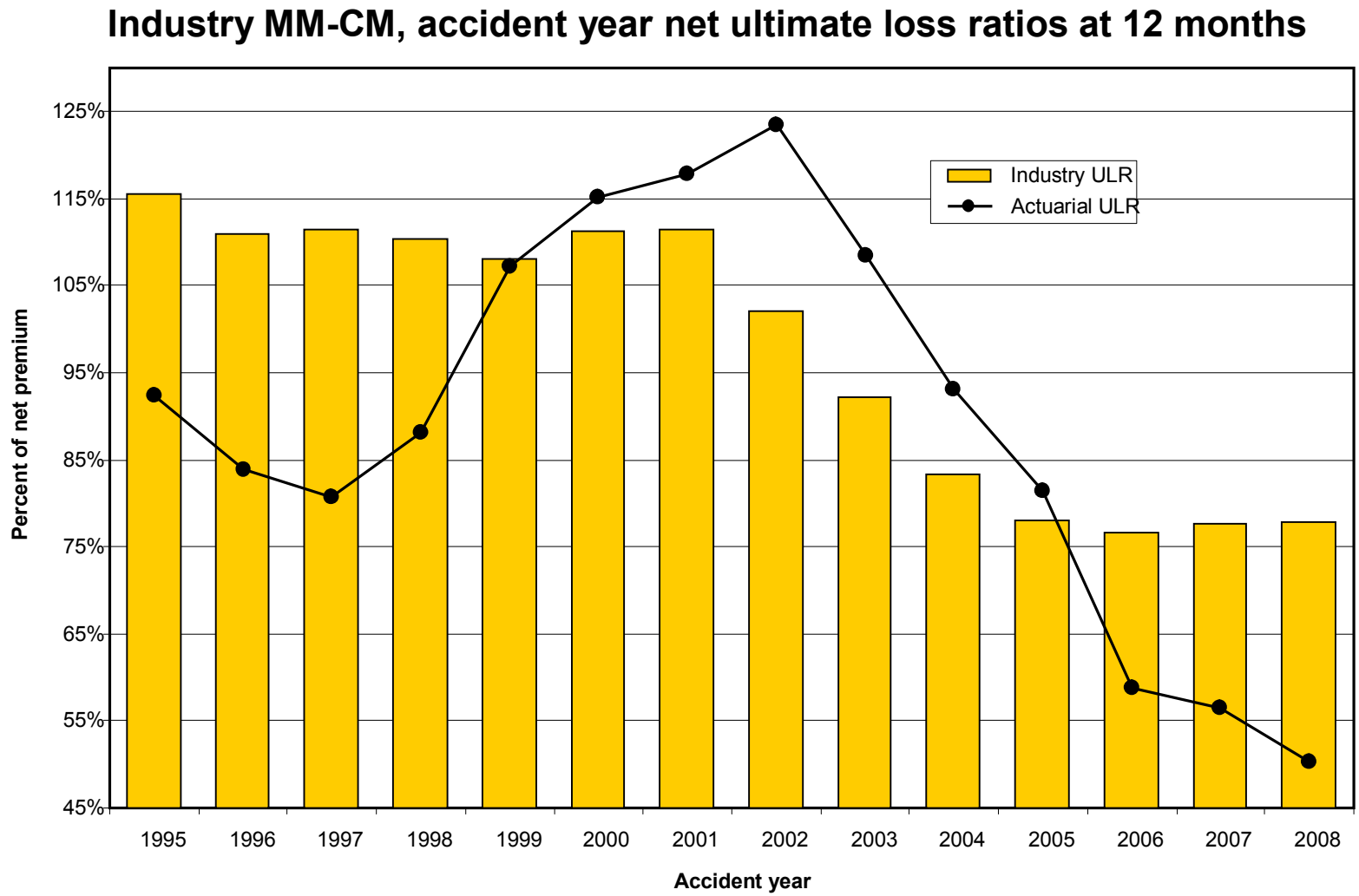


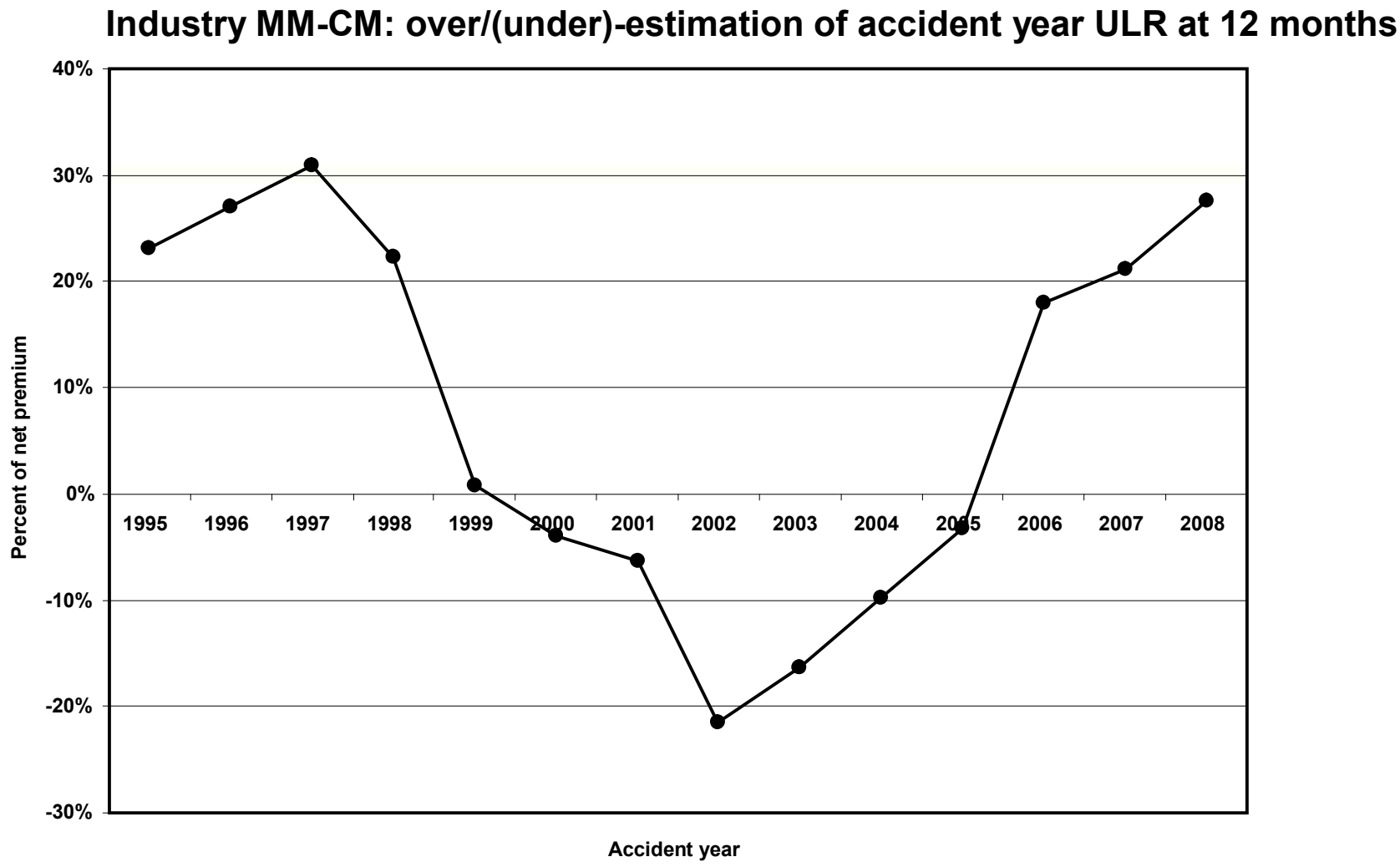
Medical malpractice, claims-made (1) — total liability gap



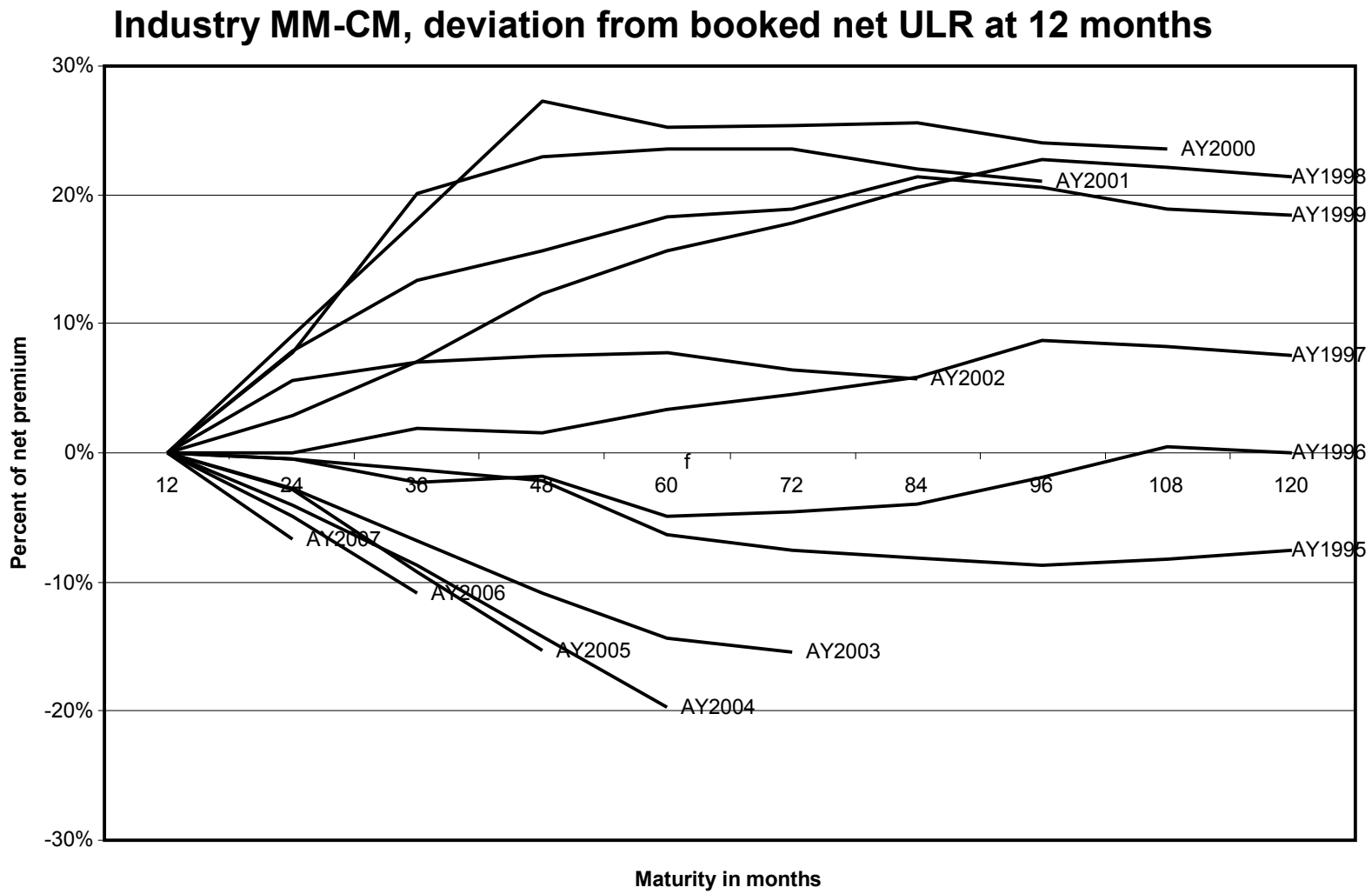
Medical malpractice, claims-made (2) — AY gap



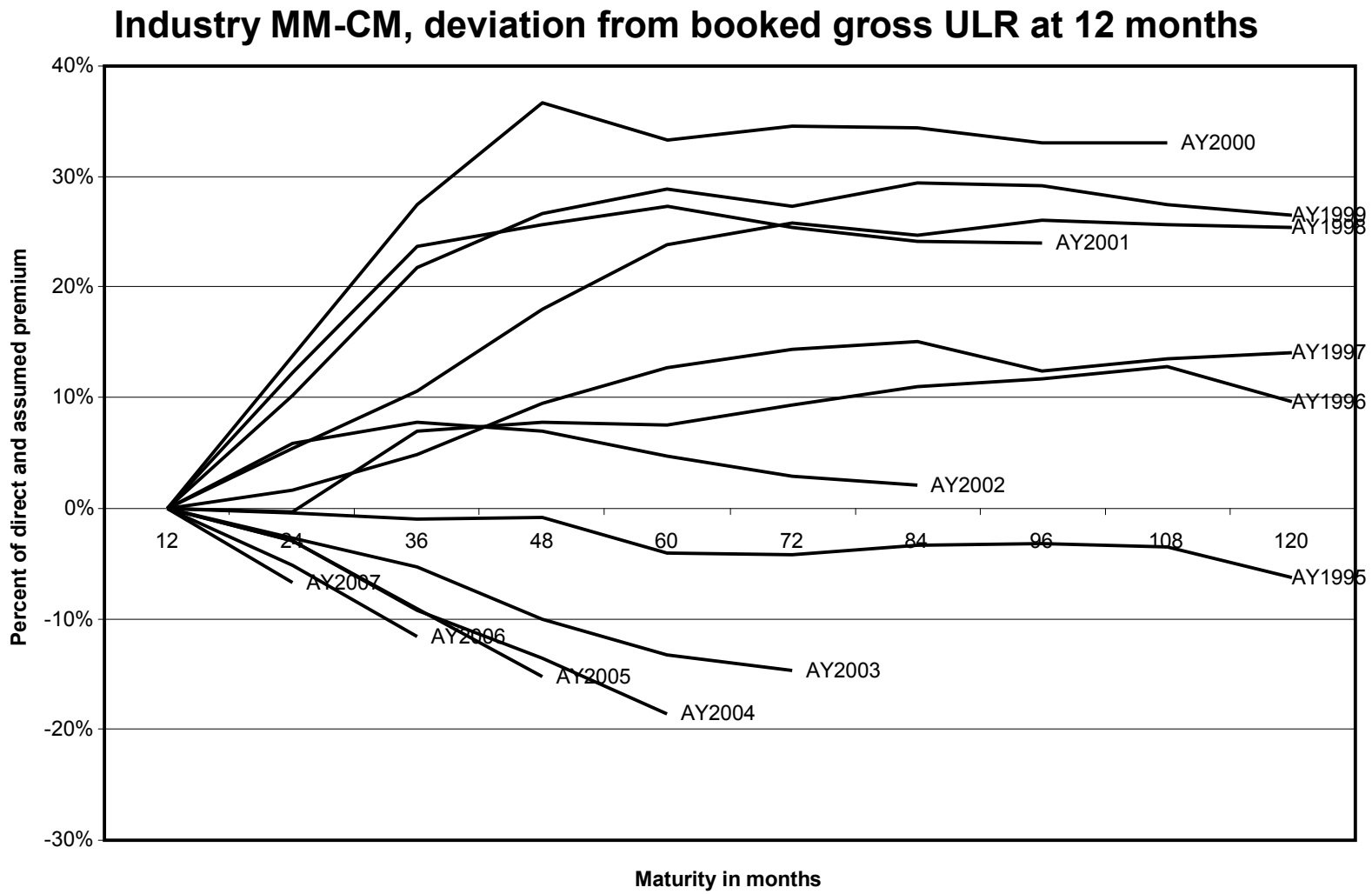
Medical malpractice, claims-made (3) — AY gap



Medical malpractice, claims-made (4) — *net* hindsight



Medical malpractice, claims-made (5) — *gross* hindsight



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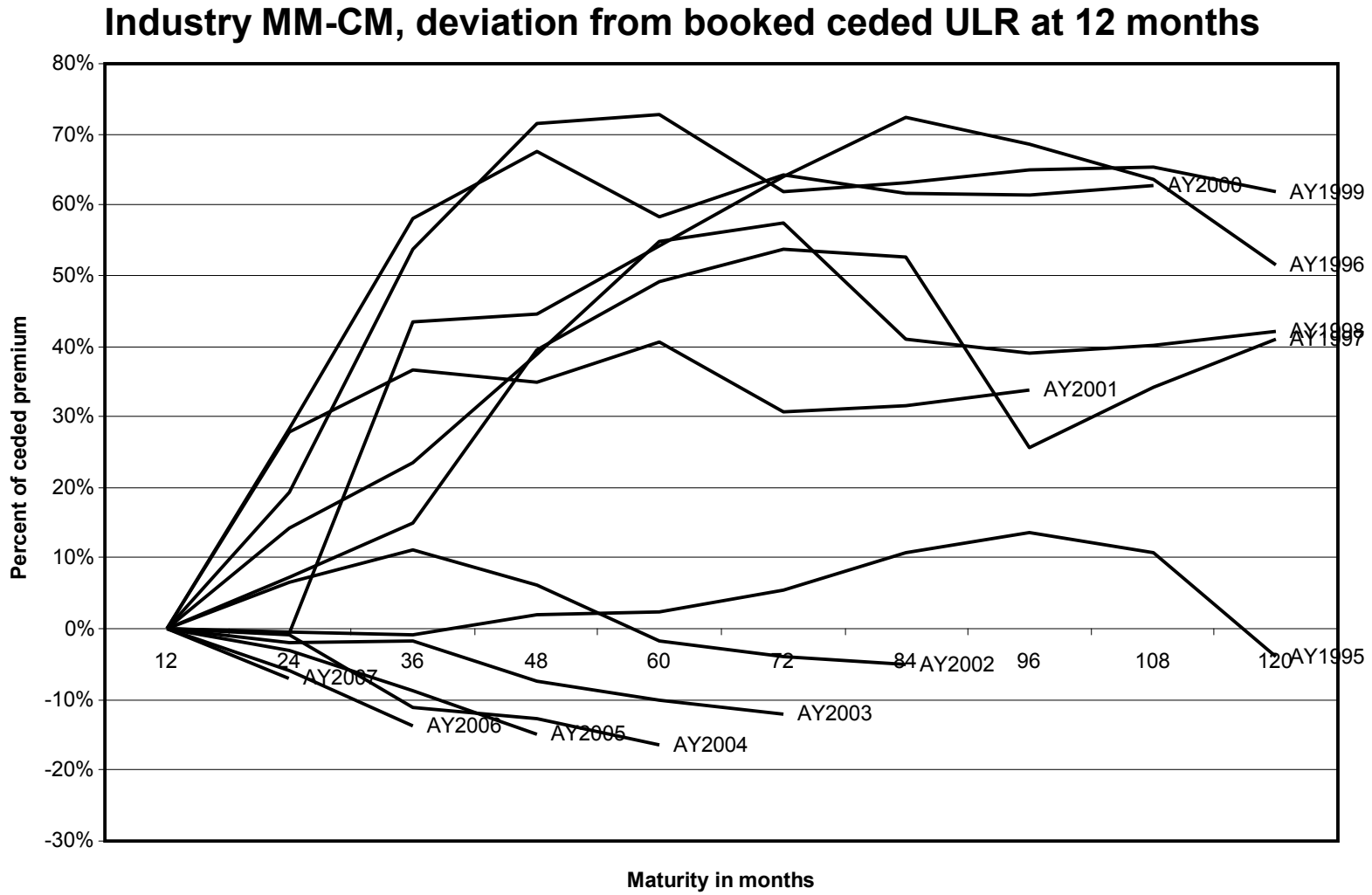
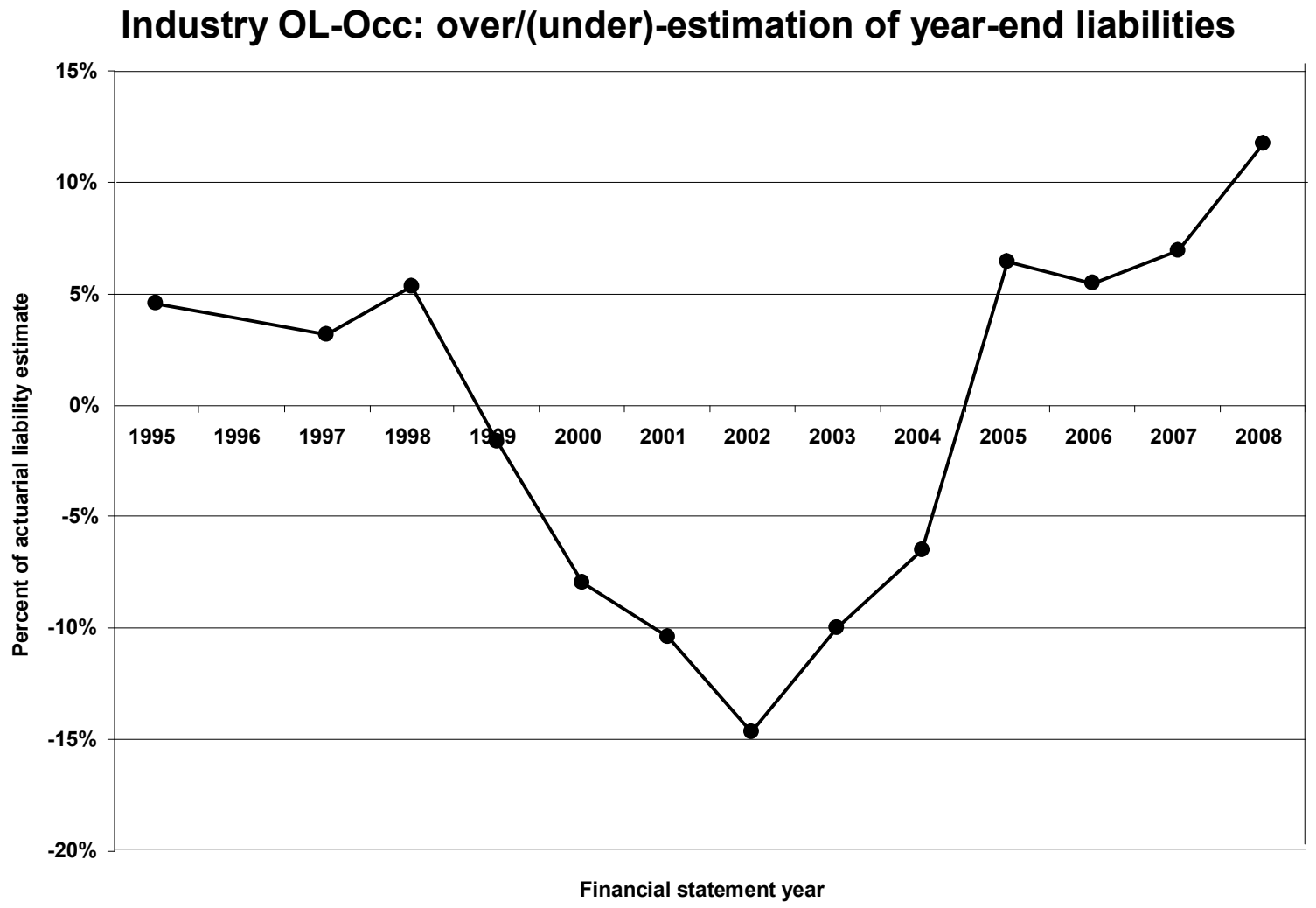
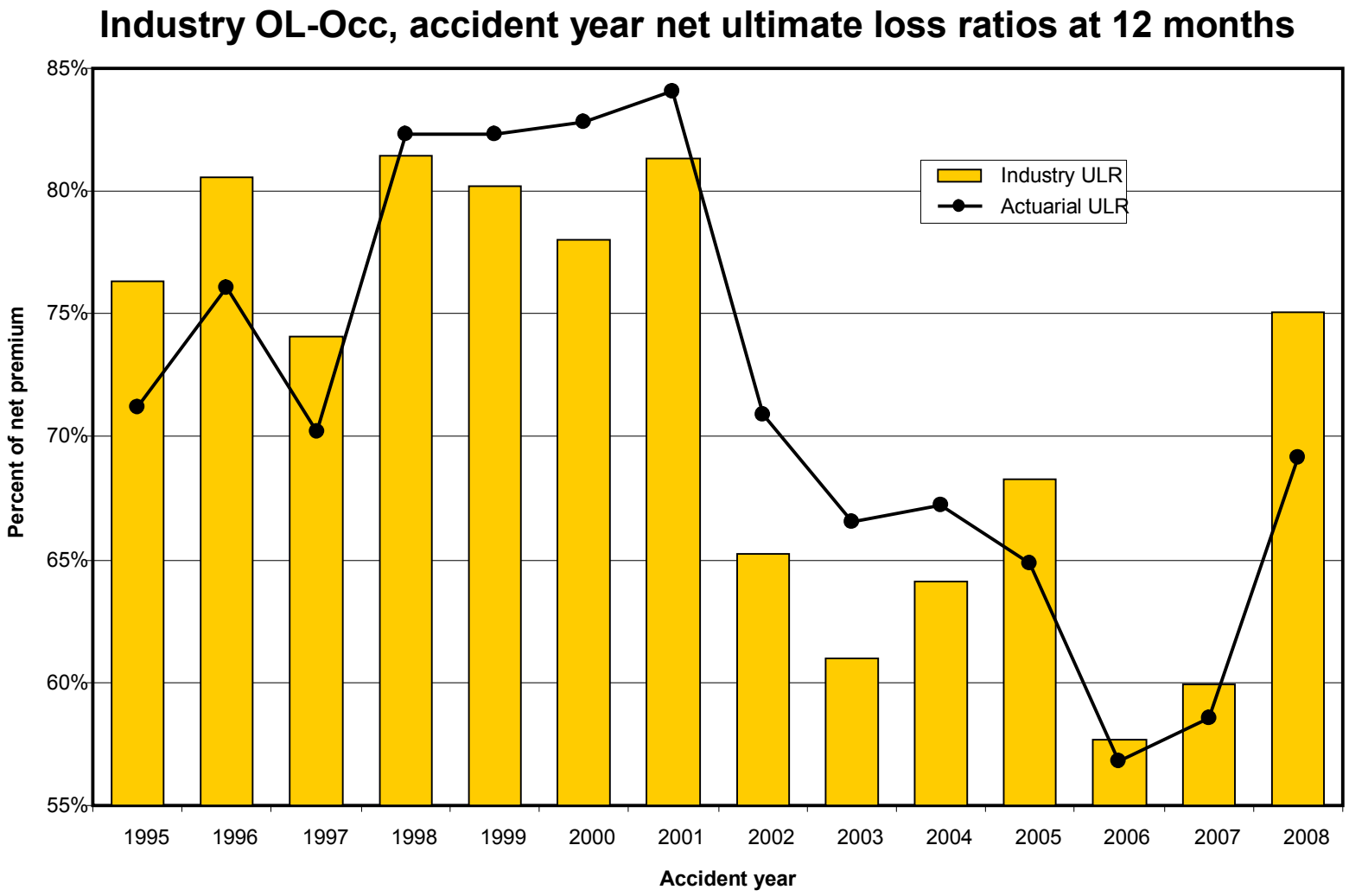


Other liability, occurrence (1) — total liability gap



Other liability, occurrence (2) — AY gap



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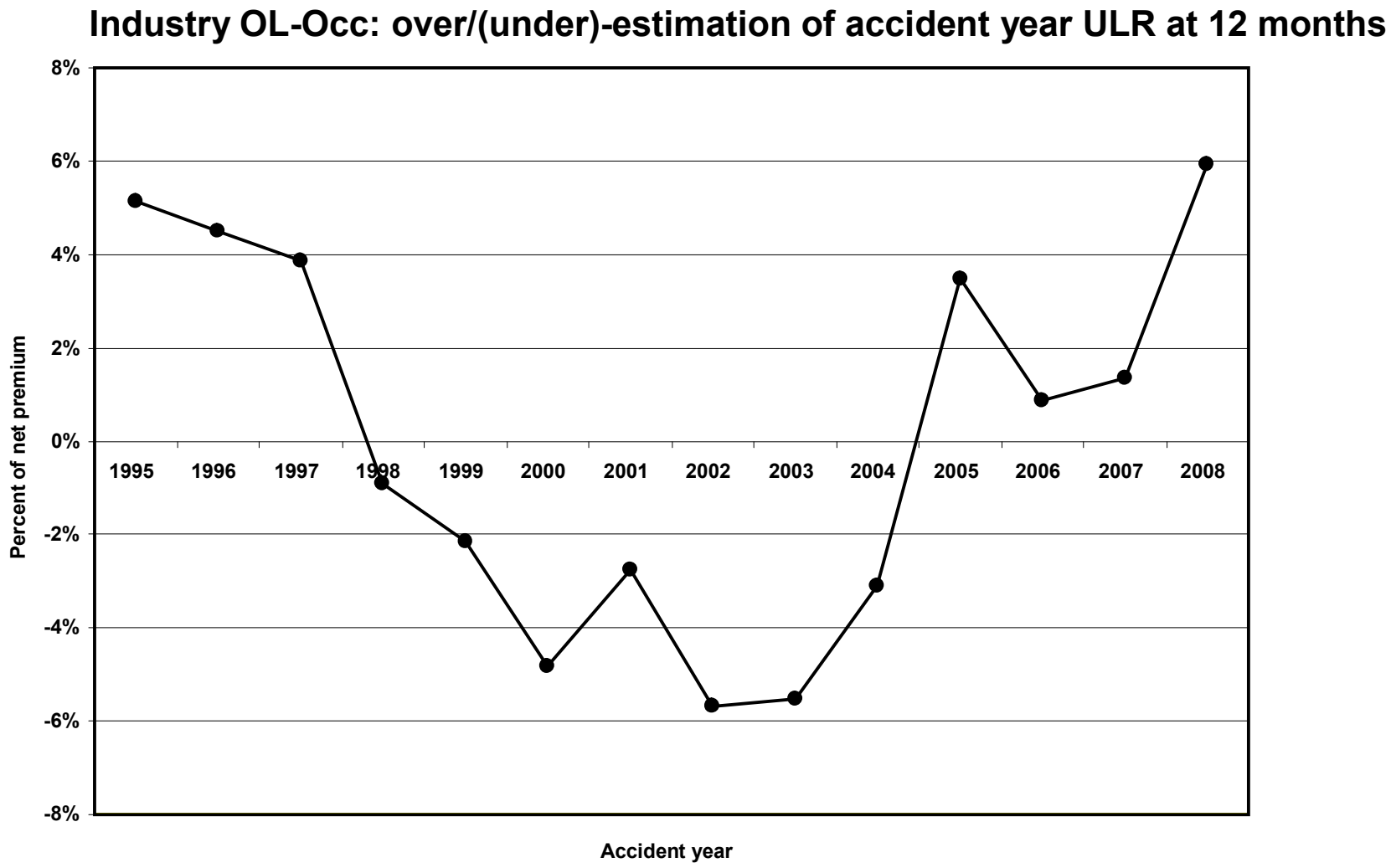
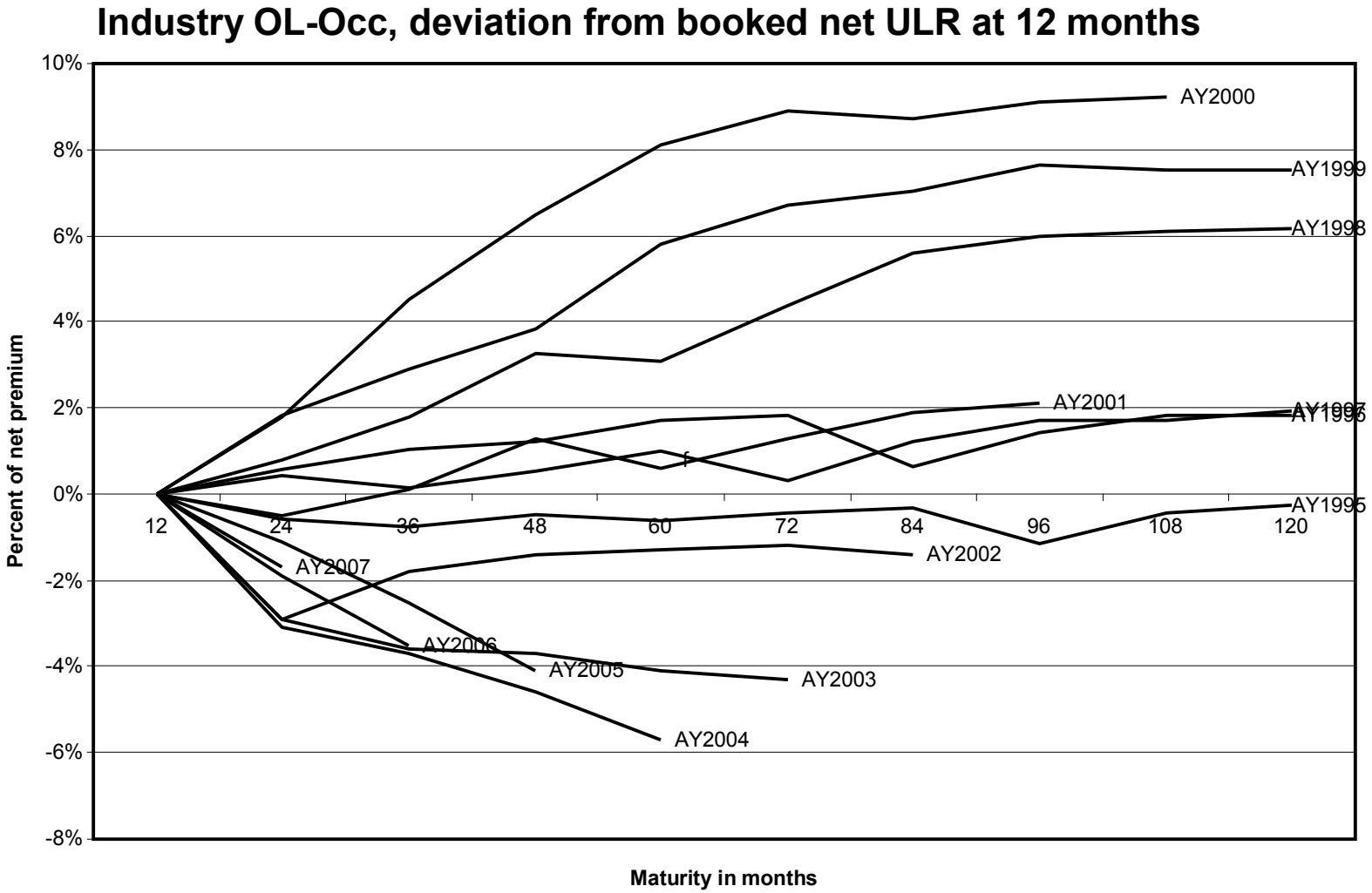


Other liability, occurrence (4) — *net* hindsight



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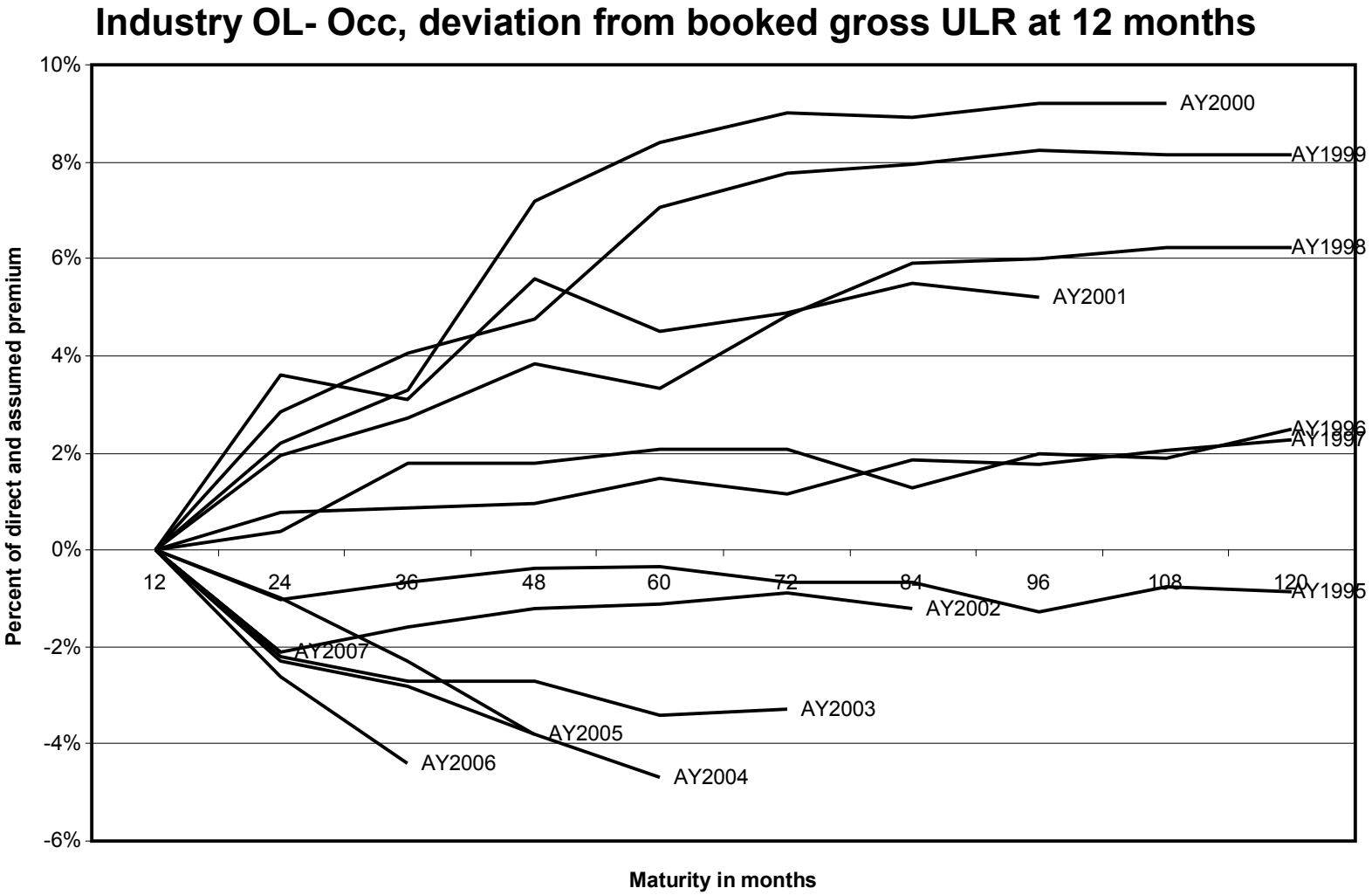

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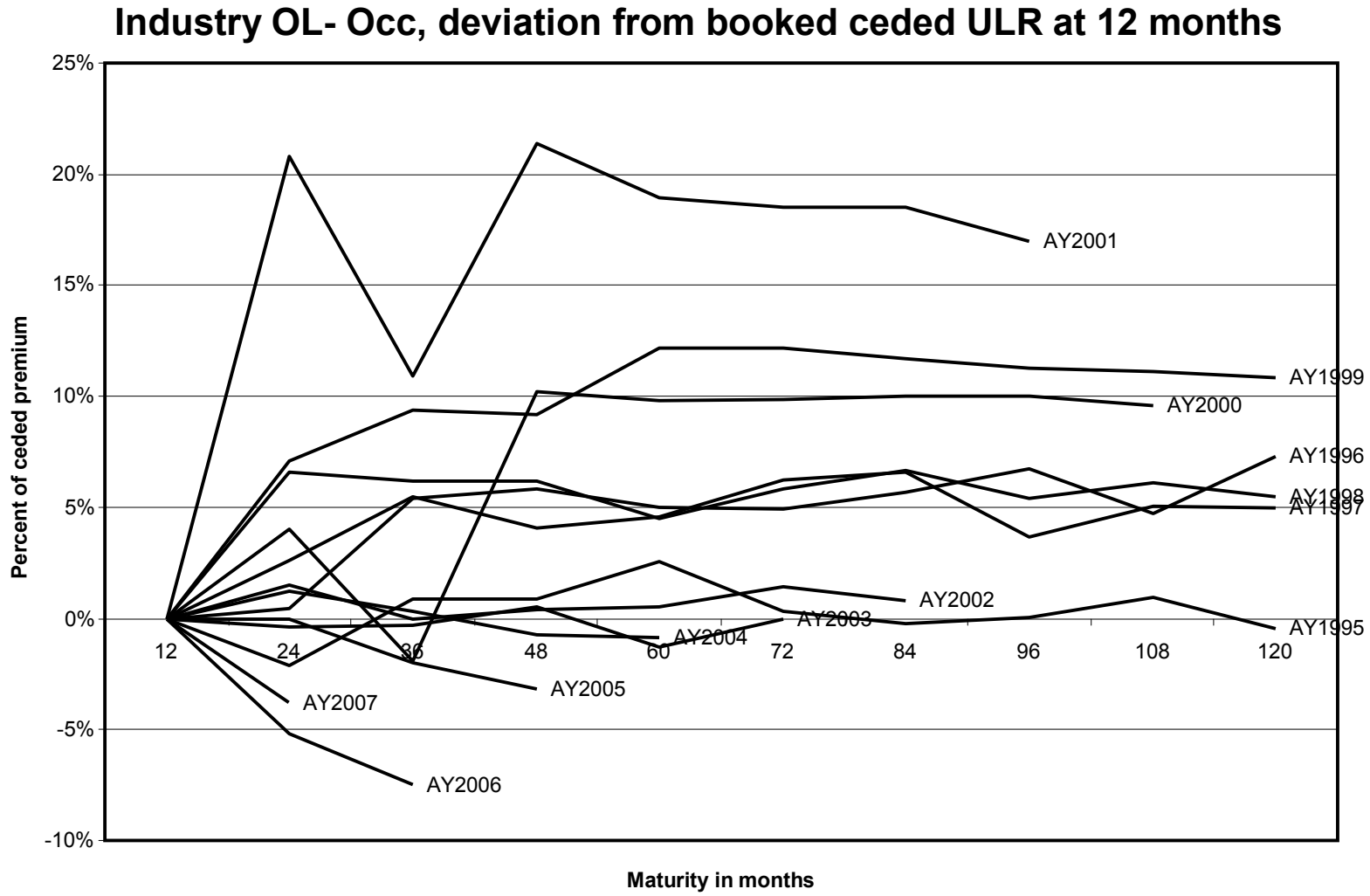
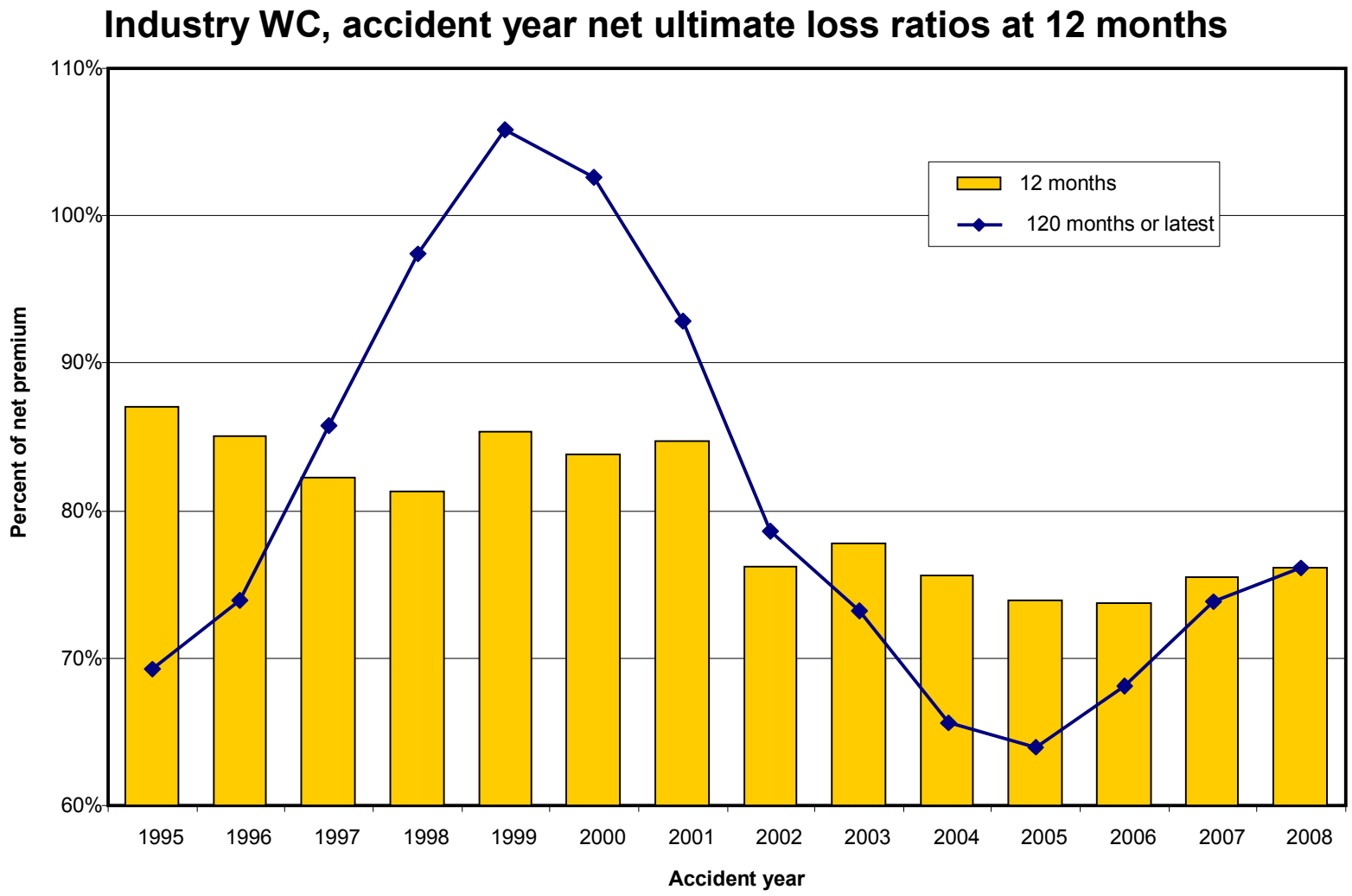
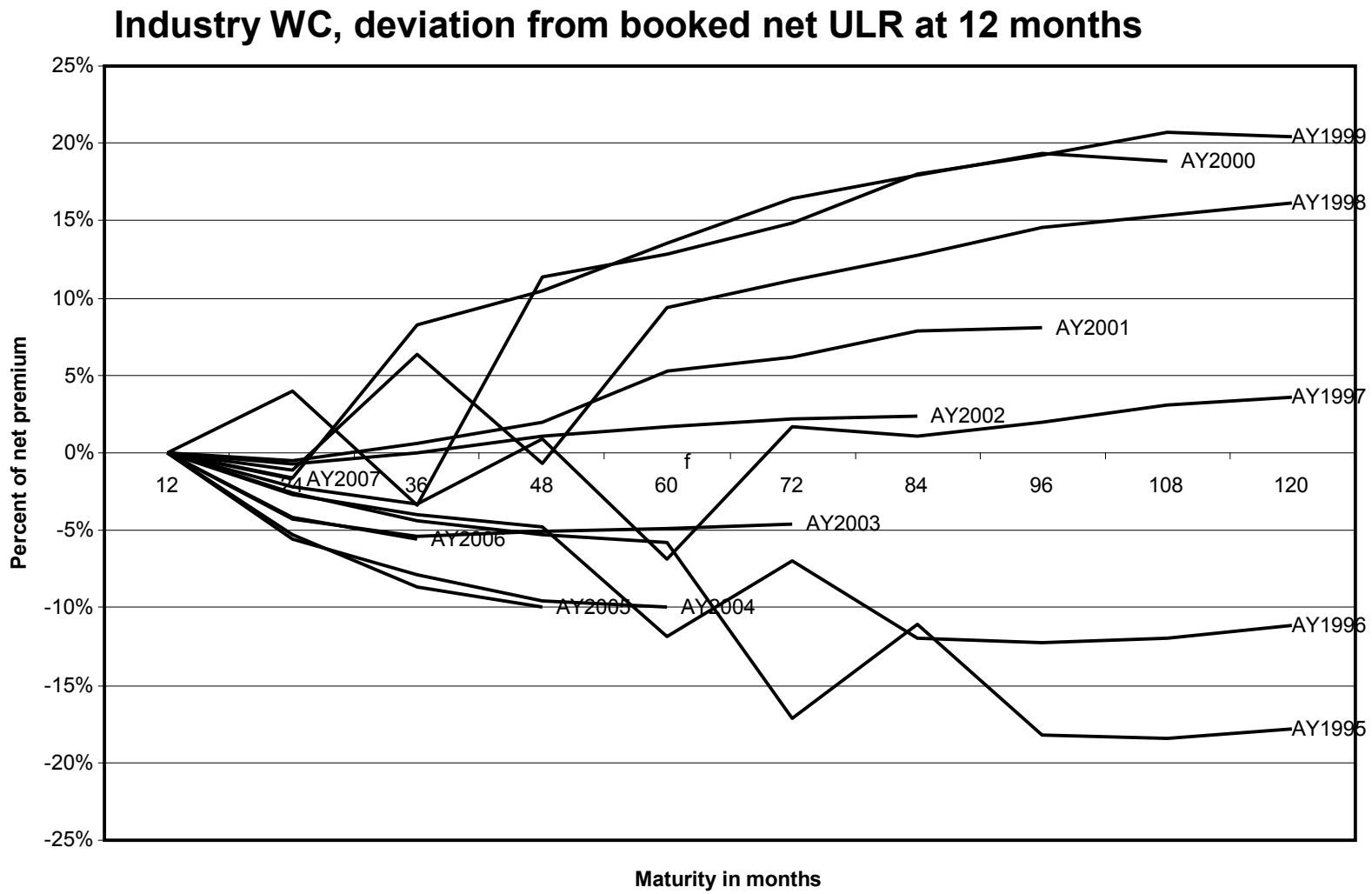


Workers compensation (1) — AY ULR development from 12 months



Workers compensation (2) — *net* hindsight



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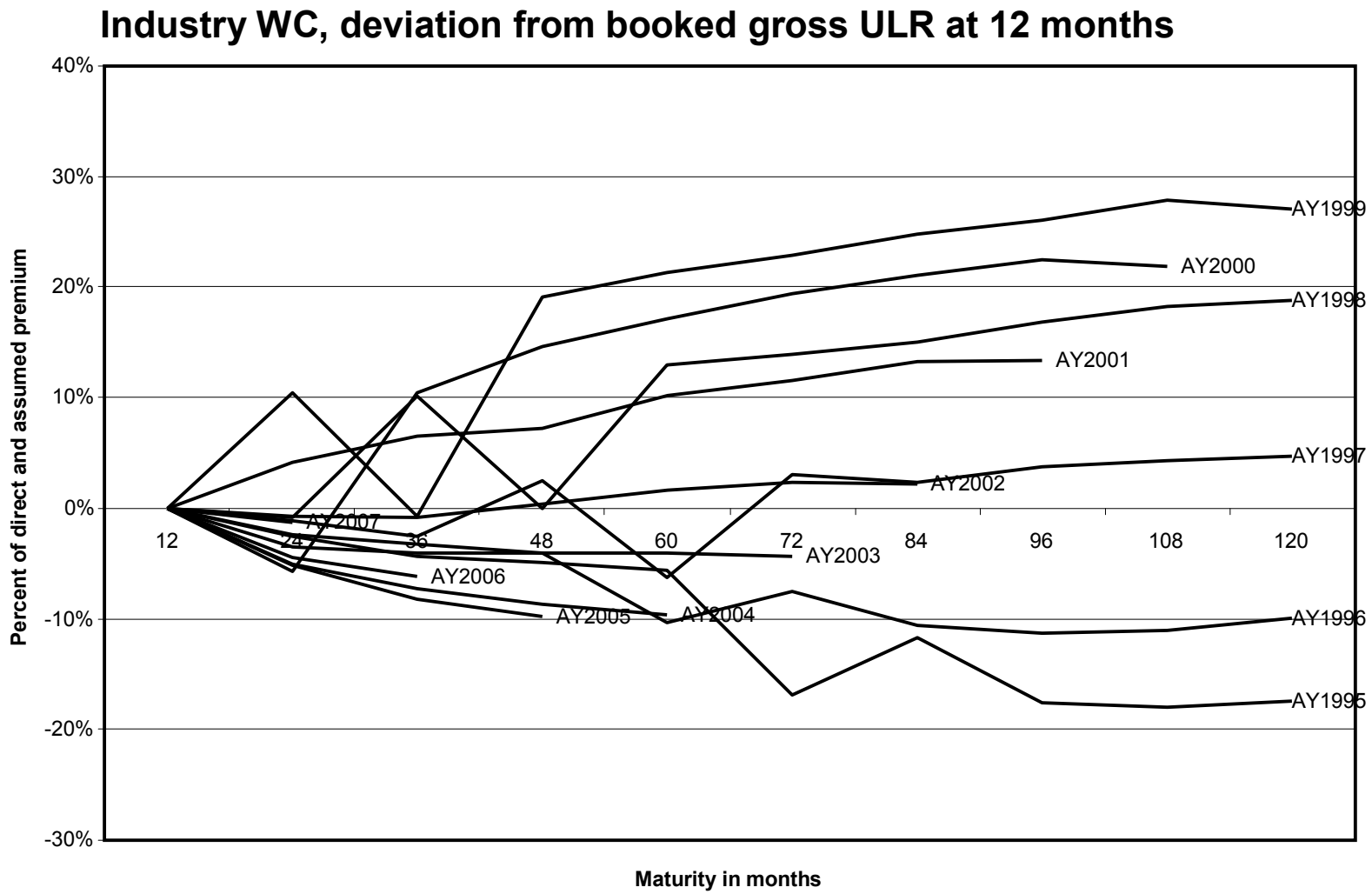
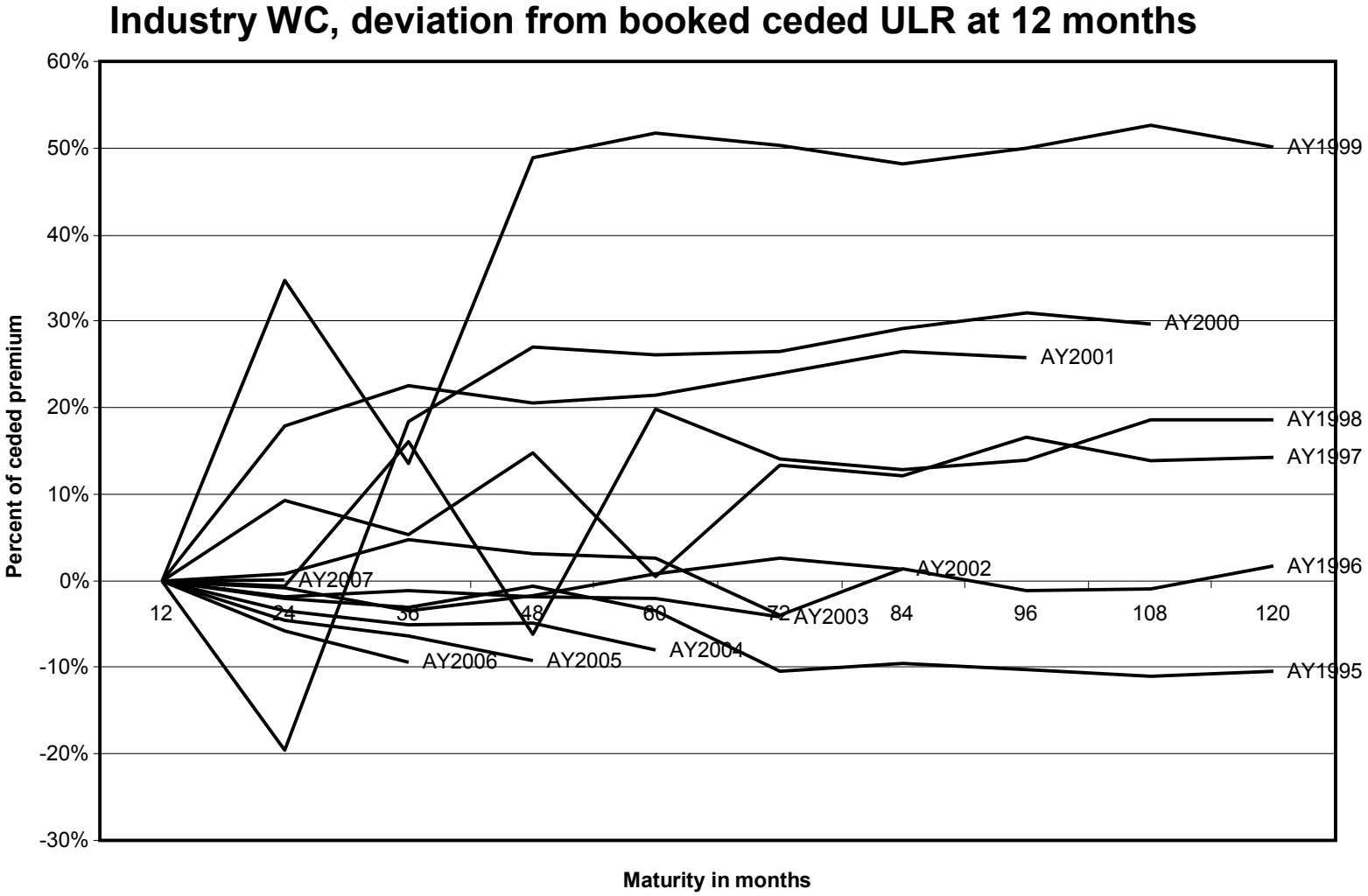
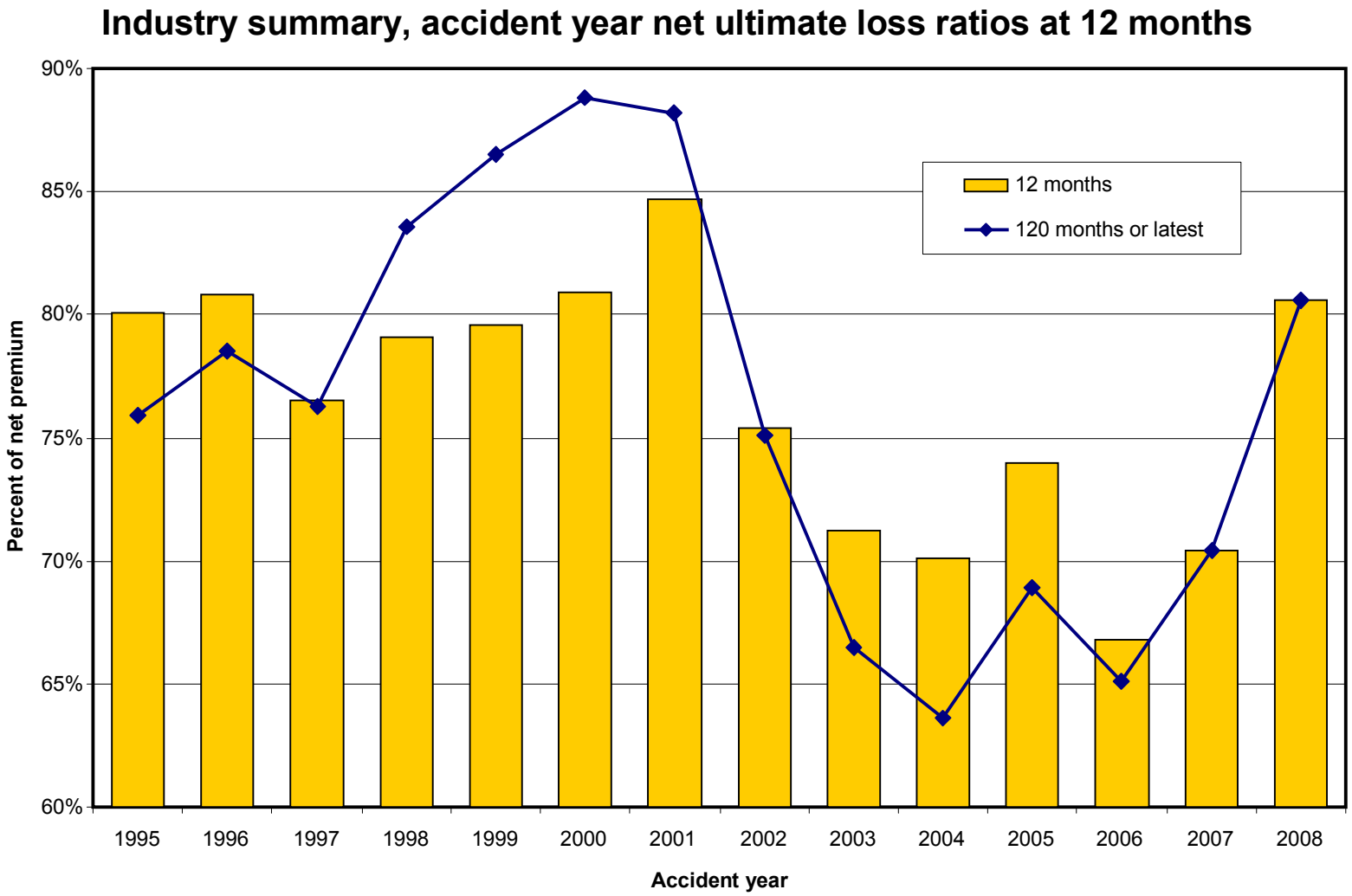


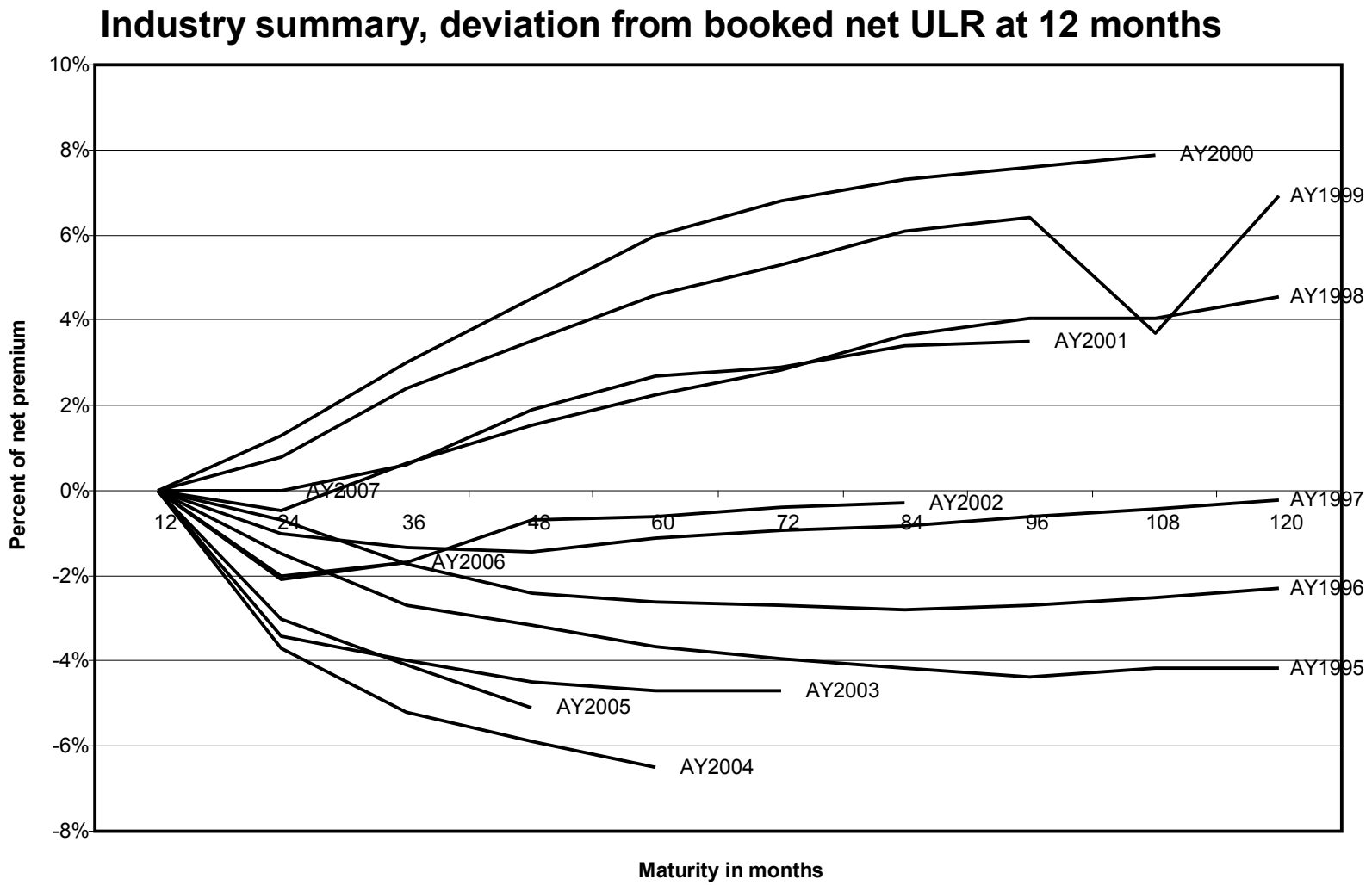
Workers compensation (4) — *ceded* hindsight



All lines (1) — AY ULR development from 12 months



All lines (2) — *net* hindsight



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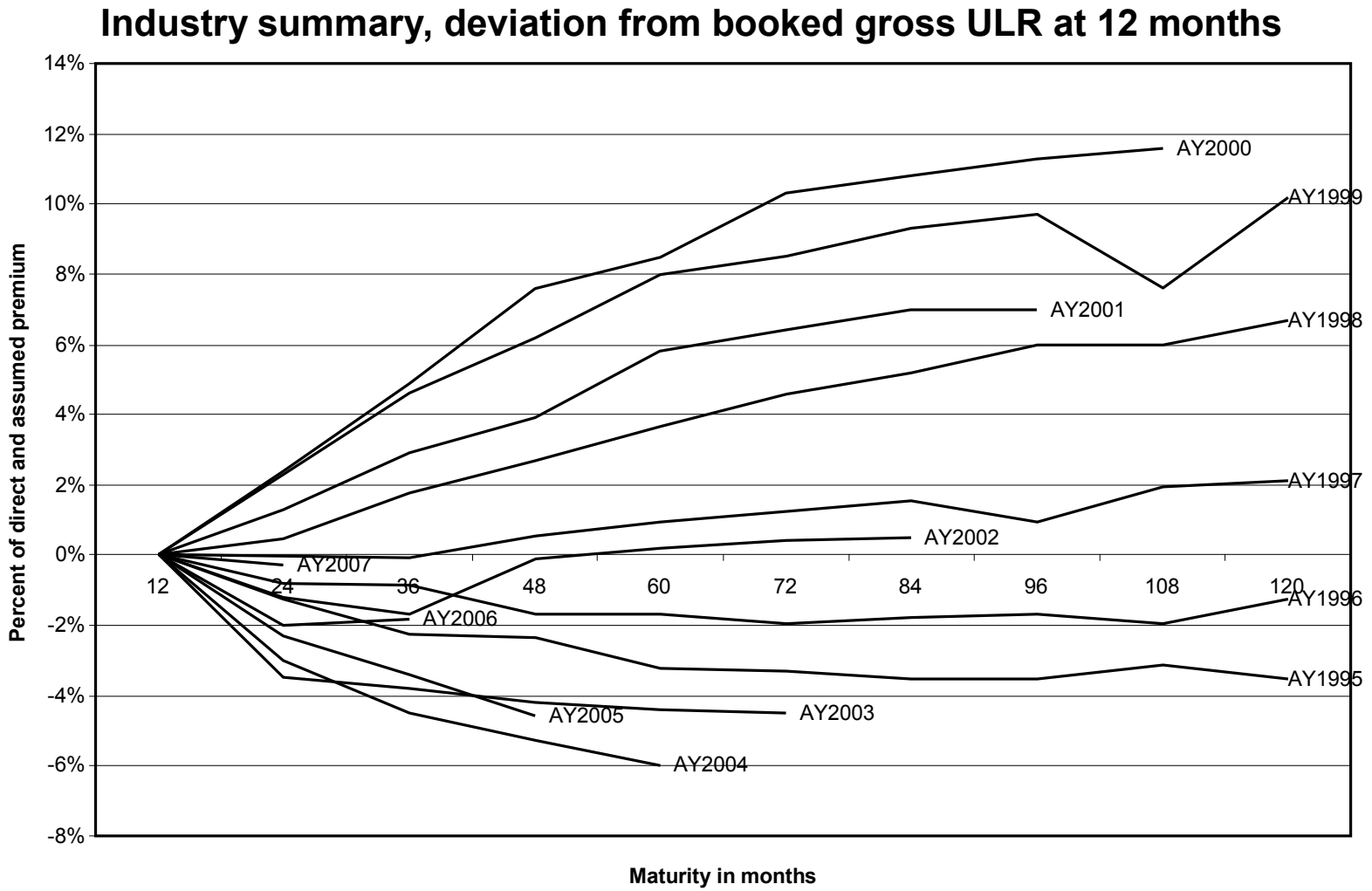

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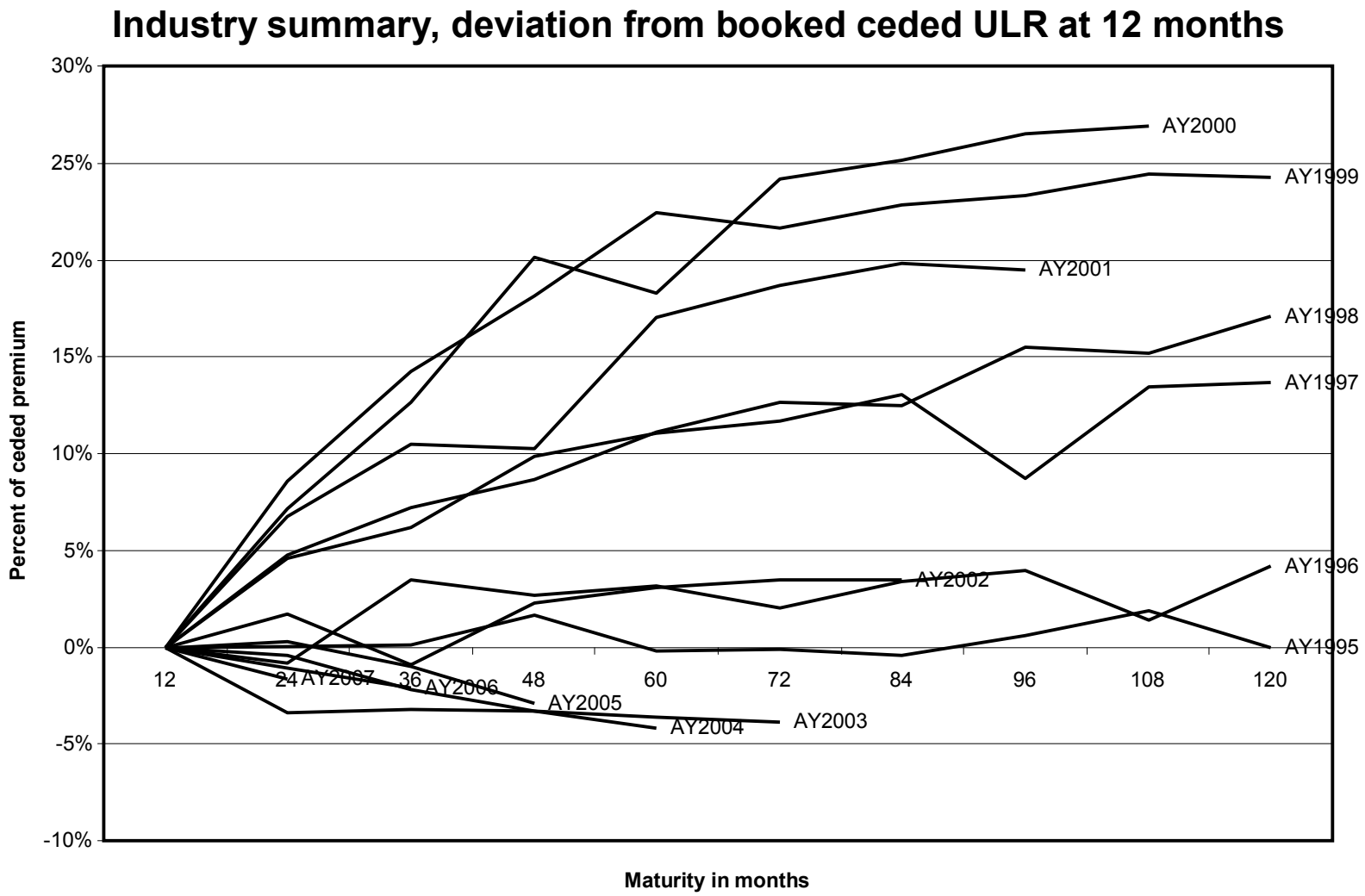

Summary

The industry in the aggregate reserved inadequately when prices were known to be low, and conversely, over-reserved when prices were high.

A mechanical liability estimation approach usually came closer to the later-known ultimate loss ratios than the booked loss ratios (compare slides 1 & 3 for each line).