

### Questions from the 2007 Exam:

13. (1.5 points) With respect to an insurance company's overall results, the following calendar year ratios tend to be related to one other:
- Premium to Surplus (P/S)
  - Investment Gain to Assets (I/A)
  - Underwriting Profit to Premium (U/P)
- a. (0.5 points) Explain the effect that a change in P/S will have on I/A.  
b. (0.5 points) Explain the effect that a change in P/S will have on U/P.  
c. (0.5 points) Explain the effect that a change in U/P will have on I/A.

### Supporting materials. Our solution to question 19 from the 1999 Exam

### Questions from the 1999 Exam:

19. According to Balcarek in his review of Ferrarri, "The Relationship of Underwriting, Investment, Leverage and Exposure to Total Return on Owners' Equity," which of the following are true?
1. As the premium to surplus ratio increases, the investment gain on assets will tend to increase.
  2. Insurance exposure (as defined by Ferrari) will move in the same direction as underwriting profit.
  3. As the rate of underwriting profit increases, the investment gain on assets tends to decrease.
- A. 1      B. 2      C. 1, 2      D. 1, 3      E. 2, 3

### Solutions to the Questions from the 1999 Exam:

On page 59, Balcarek states that "other, more powerful relationships, assuming the need to keep the risk to owners' equity unchanged" are:

- As P/S increases, I/A will tend to decrease, since:
  - (a) the % of uninvested assets from insurance operations (cash and agents' balances) will tend to rise.
  - (b) Risk to owner's equity becomes greater, which would be compensated by a more conservative investment policy.
- P/S moves in the same direction as U/P, since an insurer can write a larger premium volume if underwriting results are favorable.
- I/A moves in the same direction as U/P, since an insurer can be more aggressive in its investment policy if underwriting results are favorable.

Therefore,

1. **F.** As P/S increases, I/A will tend to decrease.
2. **T.** P/S moves in the same direction as U/P, since an insurer can write a larger premium volume if underwriting results are favorable.
3. **F.** I/A moves in the same direction as U/P, since an insurer can be more aggressive in its investment policy if underwriting results are favorable. **Answer B.**

### Supporting materials. An excerpt from our online note cards

Balcarek comments on Ferrari's formulas

- As P/S increases, I/A will tend to decrease, since:
  - (a) the % of uninvested assets from insurance operations (cash and agents' balances) will tend to rise.
  - (b) Risk to owner's equity becomes greater, which would be compensated by a more conservative investment policy.
- P/S moves in the same direction as U/P, since an insurer can write a larger premium volume if underwriting results are favorable.
- I/A moves in the same direction as U/P, since an insurer can be more aggressive in its investment policy if underwriting results are favorable