

EXAM 6 – UNITED STATES, FALL 2013

15. (3 points)

a. (1 point)

Fully describe how surplus is allocated by line of business in the Insurance Expense Exhibit (IEE).

b. (0.5 point)

Construct an argument against this method of allocation.

c. (0.75 point)

Propose and justify a method for allocating surplus that would address the argument from part b. above.

d. (0.75 point)

Briefly describe how the IEE might be used by the following stakeholders of an insurance company:

- Actuaries
- Investors
- Competitors

Advantages

- Assessment on all insurers operating in the state
- Pre-funding can build a catastrophe fund
- GF can invest funds so smaller assessments
- Even, small and regular payments will need to put in. This allows for insurers to plan for assessments
- Motivates insurers to accurately make rates to avoid insolvency
- Less delay in paying claims affected insureds because funds available
- Insured's (Public) peace of mind that fund is present

Disadvantages

- Requires insurers to fund when there may not be a need. They could be investing those funds.
- Assessments may be passed on to policyholders and the fund might never be used.
- If not enough funds, may be exhausted and still have to assess more.
- It is difficult to estimate cost ahead of time so could be over/under assessing

14. Examiner's Report

Part a is straightforward, while Part b is somewhat less straightforward especially since the pre-funded approach is discussed only briefly in the syllabus readings. Nevertheless, candidates could provide logical responses that evaluated the advantages and disadvantages.

Common errors included:

- In part a, some candidates didn't list both the positive and negative effects and only opined on whether it was positive or negative overall.
- In part b, some candidates confused the pre and post funding attributes and answered the parts in reverse.
- Some confused the effects of insureds with insurers and vice versa.
- Some candidates incorrectly mentioned that guaranty funds apply to reinsurers.
- Some candidates repeated answers, for example, reporting the same answer for all stakeholders in part a, "Increases the cost of insurance." For part b, some candidates stated that an advantage of pre-funded assessment was the speed of claims payments (quicker) while a disadvantage of the post-insolvency assessment was the speed of claims payments (slower).

15. Sample Answers

a.

Sample 1

Surplus is allocated according to following formula:
$$\text{total mean surplus} \times (\text{mean loss reserve} + \text{mean UPR} + \text{EP during the year of the line of business}) / (\text{total mean loss reserve} + \text{total mean UPR} + \text{total EP during the year})$$

Sample 2

$$\text{avg PHS} / \text{Total}[\text{avg L\&LAE RSV} + \text{avg UEPR} + \text{cur EP}] * \text{LOB}[\text{avg L\&LAE RSV} + \text{avg UEPR} + \text{cur EP}]$$

Sample 3

allocated by the lines proportion of the insurers "A: mean net loss and LAE reserves, mean net unearned premium reserves, and calendar year earned premium" where net means net of

reinsurance (direct + assumed – ceded) and mean is the average of the latest two years, e.g.
Surplus of line = Surplus Total x A (line) / A (total)

Sample 4

For all lines: Surplus Ratio (A) = Mean PHS / [Mean loss & LAE + Mean UEPR + Earned Premium (current year only)] aggregate all lines. For each line A x [Mean Loss & LAE + Mean UEPR + Earned (current year only)] = Surplus allocated to LOB

b.

Sample 1

Does not consider the amount of risk inherent in a LOB. Eg: home & per. Auto -> auto may have more reserves but if home is exposed to Hurricane risk, we'd need to consider that in our surplus allocation.

Sample 2

This method used retrospective reserves to allocate surplus which may not be directly proportional to the amount of risk inherent in each LOB, e.g. HO usually short tailed so this method would allocate little surplus as well but HO is subject to CAT risk, should allocate more. This method is not appropriate for pricing.

Sample 3

Retrospective approach. Not account for rapid growth in premium, and changes in mix of business.

Sample 4

The surplus is allocated based on premiums, reserves, but not based on the inherent risk of a LOB.

Sample 5

Surplus is not actually allocated to each line. When one line has a deficit, surplus from another line can still be used to offset this deficit.

Sample 6

Some lines of business will have more volatile results & therefore should require more surplus e.g. low frequency, high severity lines.

c.

Sample 1

Allocate surplus based on internal model; incorporates CAT & operation risk as well as the risks that RBC includes; incorporates investment & assets risk as well as underwriting risk (reserve & WP)

Sample 2

Should use TVaR approach to allocate surplus as it considers the risk profile of the new business (prospective of each LOB and is better indicator than IEE method i.e. allocate more surplus to HO due to CAT risk which is tail event captured by TVaR)

Sample 3

Formulaically allocate the company's RBC requirement by line based on the above allocation method and allow the company to judgmentally allocate any additional surplus if they deem appropriate. RBC already indicates a minimum capital requirement and is formulaically

derived and allows the company to reflect its operation and business strategies to better indicate its lines of business profitability.

Sample 4

Surplus could be allocated based on leverage ratios. This would allow surplus to be applied by the relative risk of each line of business. Higher leverage ratios/more risky may need more surplus to support that line and lower leverage ratios/less risky may need less surplus.

Sample 5

Look at TVaR of each LOB and allocate it that way. This will give more surplus to a cat exposed LOB.

Sample 6

Using prospective pricing models to assess riskiness & cost of capital. This better reflects risk than just using premium & reserves.

Sample 7

Calculate a risk premium per line and add to the mean loss & LAE reserves to allocate surplus. Surplus allocation would then better match the relative risks of each line of business.

d.

Actuaries (any one of the following):

- For benchmarking data: premium, loss, trend etc.
- Identify LOB/segments that have been more/less profitable -> decide where growth or product innovation may be possible
- Can use the IEE when doing rate filings or comparisons to competitor results by LOB since the information is audited and publically available.
- Determine if there is subsidization between each line and also determine rate adequacy of each line
- Pricing can use for selecting/assessing expense loads

Investors (any one of the following):

- Help decide which insurers to invest in based on results
- Analyze insurer historical profitability to determine investment strategy
- Can see if the company is making good use of the capital they have
- Determine if a given LOB is providing an acceptable return on capital. If the insurer is proposing to grow in a line that is not producing an acceptable return, the investor may pull his investment.

Competitors (any one of the following):

- Competitors can use IEE to see how expenses are allocated and how their expenses compare
- Compare investment income, expenses, UW income, etc. to determine how competitive they are in the market
- Gauge profitability of company vs. themselves -> if comp is profitable in HO but competitor is not, perhaps competitor is pricing in accurately or being adversely selected
- May use to see if a certain line of business is particularly profitable so the competitor can potentially grow in that LOB to earn more profit and compete with the insurer

15. Examiner's Report

Parts a and d were straightforward questions. Parts b and c asked candidates to critically evaluate the allocation method and justify an improved method.

- a. The common errors were confusing the surplus allocation with the investible assets or the funds attributable to insurance transactions. In addition, some candidates confused which metrics were averages while others only provided the components without explaining how they are used to allocate to line.
- b. While the majority got full credit for their argument, some candidates failed to construct a complete argument against the current methodology. In some cases, candidates commented on short-tail and long-tail lines of business but didn't provide any detail, such as how cat risk leads to more surplus needed in some short-tail lines.
- c. Many candidates did not provide an answer, while in other cases candidates would propose a method without any justification. Numerous candidates were able to tie in material from other parts of the syllabus or draw from their own experiences.
- d. The vast majority received credit for their descriptions.

16. Sample Answers

- a.
Ratio = (Reinsurance recoverables over 90 days overdue)/(total recoverable on paid loss & LAE + recovery in last 90 days)
 $3/(3+10+4) = 17.65\%$ which is less than 20%. Reinsurer is not slow-paying.
- b.
Provision = 20% * amount > 90 days overdue (include dispute)
 $20\%*(3+2+1) = 1.2M$
- c.
Provision = unsecured recoverables + 20% amount > 90 day late + 20% dispute
 $[1+2+3+10-3]+20\%[3]+20\%[1+2]= 14.2M$
- d. Any two of the following:
 - It could disclose contract terms. The largest threat to solvency is inadequate reinsurance and it would help identify gaps in coverage.
 - Schedule F could be supplemented by management's best estimate of uncollectibility, which would give an insight into how management views the reinsurer's stability and ability to pay.
 - Provide analysis of reinsurer financial stability in an adverse situation. If a major catastrophe happens, this would ensure the reinsurer has the funds to handle all its obligations.
 - Focus on reinsurer's ratings, since credit risk should vary based on this. Schedule F does not do this at all right now.
 - Redefine arbitrary "20% slowpaying" threshold and focus on reasons for being slowpaying which may be more indicative of credit risk.