13. (4.25 points)

Given the following information for an insurance company (all figures are in thousands of dollars):

	2012	2013
Net Investment Earned	1,785	3,000
Net Realized Capital Gains	15,000	18,000
Total Policyholder's Surplus	133,000	157,000
Homeowners Total Investment Gain	10,000	10,530

	Homeowners		Total	
	2012	2013	2012	2013
Commission	13,600	14,000	26,400	28,000
Taxes, Licenses, and Fees	1,360	1,400	2,640	2,800
Other Acquistion Expenses	3,400	3,500	6,600	7,000
General Expenses	4,760	5,520	10,320	10,800
Written Premium	68,000	70,000	132,000	140,000
Earned Premium	59,500	69,000	129,000	135,000
Loss and LAE Reserves	23,800	27,600	51,600	54,000
Unearned Premium Reserves	28,560	29,400	55,440	58,800
Agents' Balances	6,800	7,000	13,200	14,000
Net Loss and LAE Incurred	40,800	42,000	79,200	84,000
Finance Charges not included in Premium	2,040	2,100	3,960	4,200
Fines & Penalties of Regulatory Authorities	600	690	1,290	1,350

a. (3.75 points)

Calculate the 2013 total pre-tax profit (or loss) as a percentage of allocated policyholders' surplus for homeowners. Assume that both the surplus and the investment gain are allocated using the NAIC's prescribed method for Insurance Expense Exhibit (IEE) purposes.

b. (0.5 point)

Explain why the NAIC's prescribed method of allocating surplus in the IEE may not be appropriate for all lines of business.

CONTINUED ON NEXT PAGE

- Schedule F, Part 3: Decreased usage of reinsurance compared to prior years since reserves are recorded net of reinsurance
- Schedule F, Part 1: Increased assumption (and retention) of reinsurance over the calendar year since reserves are recorded net of reinsurance
- Schedule P, Part 2: If there was minimal development of incurred (ultimate) losses and loss adjustment expense in prior years, this would support the actuary's assertion
- Schedule P: If ultimate losses remained unchanged but loss payments slowed down in CY 2013, then reserves would increase for reasons other than reserve inadequacy. Payment patterns in particular could be evaluated through Schedule P, Part 3.
- Other areas of the annual statement that were used to support an increase of reserves in the current year included
  - Schedule T
  - IEE
  - Underwriting & Investment Exhibit
  - Page 14 (state pages)

EXAMINER'S REPORT (BY PART, AS APPLICABLE)

Candidates generally received at least partial credit on part a. but many did not perform well on part b.

Part a

Candidates were expected to solve for the net income as presented in the Capital and Surplus Account section of the Income Statement. Based on the information given in the problem (e.g. not underwriting income, investment income, etc.), they were expected to recognize that the change in surplus and related direct charges to surplus should be used.

Common errors included incorrectly including extra components in the formula, incorrectly omitting components, and/or using the wrong signs for the direct charges to surplus.

Part b

Candidates generally performed poorly on part b). Many candidates that were able to identify acceptable parts of the annual statement were not able to describe how those parts could be used to support the actuary's assumption. Common errors included:

- Identifying items not found in the annual statement sections described in the question
- Describing items that would support an increase in prior accident year reserves which would contradict the actuary's assertion
- Specifically many responses addressed average case reserves or suggested independently calculating incurred (ultimate) loss and loss adjustment expenses. These responses were given no credit when they were used to conclude that the total loss and loss adjustment expense reserves (including IBNR) were inadequate.
- Failing to describe how the identified part of the annual statement would support the actuary's assertion

QUESTION 13	
TOTAL POINT VALUE: 4.25	**LEARNING OBJECTIVE: C1**
SAMPLE ANSWERS (BY PART, AS APPLICABLE)	

Part a: 3.75 points

The following provide examples of responses having the necessary components to demonstrate knowledge of the topic and obtain full credit:

Sample 1

Allocated Surplus = Average Surplus × Surplus Ratio
= 0.5 x (133,000+157,000) x 123,680/244,920
= 145,000 x 0.505 = **73,225**

Home: Earned Premium + Average Loss Reserve + Average UEPR
=69,000 + 0.5 × (23,800+27,600) + 0.5 × (28,560 + 29,400) = 123,680
Total: Earned Premium + Average Loss Reserve + Average UEPR
=135,000 + 0.5 × (51,600+54,000) + 0.5 × (55,440 + 58,800) = 244,920

Pretax Profit = (UW income + Allocated Investment Income + Other Income)
=[(EP – IncLoss – Comm – TLF – Other Acq – General Exp) +(Homeowners Investment Gain)+ (Finance Charges not included in Premium – Fines and Penalties)]
=[(69,000-42,000,14,000-1,400-3,500-5,520) +(10,530) + (2100-690)]
=(2,580+10,530+1,410) = **14,520**

Pretax Return = Pretax Profit / Allocated Surplus = 14,520/73,225 = $\boxed{\textbf{19.8\%}}$

Sample 2

Allocated Surplus = Total Surplus Ratio × Homeowners Surplus
= 0.5 × (133,000+157,000)/244,920 × 123,680
= 0.592 × 123,680 = **73,218** (difference from sample 1 due to rounding)

Home: Earned Premium + Average Loss Reserve + Average UEPR
=69,000 + 0.5 × (23,800+27,600) + 0.5 × (28,560 + 29,400) = 123,680
Total: Earned Premium + Average Loss Reserve + Average UEPR
=135,000 + 0.5 × (51,600+54,000) + 0.5 × (55,440 + 58,800) = 244,920
======
Homeowners Investment Gain *(while given some can be calculated from given information)*
Net Inv Gain Ratio = (Net Inv Earned + Net Realized Cap Gains)/Total Investable Asset
= (3,000 + 18,000)/ 241,320 = 8.7%

Total Investable Asset = Mean of Total Loss and LAE Reserves + Mean Total UEPR + Mean Total Policy Surplus – Mean Total Agent Balance
= 0.5 × (51,600+54,000+55,440+58,800+133,000+157,000-13,200-14,000) = 241,320

Net Investment Gain for Homeowners = Net Inv Gain Ratio × [(Mean HO Loss &LAE + Mean HO UEPR – Mean HO Agent Balance) + HO Allocated Surplus]
= 0.087 × [0.5 × (23,800+27,600+28,560,+29,400-6,800-7,000)+73,218] = 10,527
(Given was 10,530)
=======

Pretax Profit = (UW income + Allocated Investment Income + Other Income) =
[(EP – IncLoss – Comm – TLF – Other Acq – General Exp) +(Homeowners Investment Gain)+ (Finance Charges not included in Premium – Fines and Penalties)]
=[(69,000-42,000,14,000-1,400-3,500-5,520) +(10,527) + (2100-690)]
=(2,580+10,527+1,410) = **14,517**

Pretax Return = Pretax Profit / Allocated Surplus = 14,517/73,225 = $\boxed{\textbf{19.8\%}}$

Part b: 0.5 points

The following provide examples of responses having the necessary components to demonstrate knowledge of the topic and obtain full credit; any two of the following were accepted, providing two thoughts is consistent with a response for an "explain" question:

- There is no adjustment for the inherent risk of certain lines
- Method is formulaic and does not account for differences in risk
- Example: Catastrophe exposure in Homeowners
- Method is retrospective rather than prospective
- Does not account for changes in mix of business
- Same treatment despite differences between short-tailed and long-tailed lines
- Does not account for premium growth

EXAMINER'S REPORT (BY PART, AS APPLICABLE)

Part a

Generally candidates scored well on part a. Common errors included:

- Failing to use average values for surplus, UEPR, & loss reserves
- Including agent balances in allocated surplus calculation and/or the Underwriting Income
- Only including half of the General Expenses when calculating the Underwriting Income
- Incorrectly calculating Other Income by adding Fines and Penalties to Finance Charges
- Incorrectly subtracting Other Income rather than adding to Pre-Tax Profit
- Not recognizing that Homeowners Investment Gain was given and making calculation errors when calculating from the other provided information *(see Sample Answer 2 for calculation from provided information)*
- Correctly calculating Pretax Profit and Allocated Surplus but failing to calculate the Pretax return as a percentage of the Surplus

Part b

Generally candidates scored well on part b., with majority of candidates receiving half or full credit. The question has the key word "explain" and is worth 0.5 points. Candidates were expected to provide two reasons NAIC's prescribed method of allocating surplus in the IEE may not be appropriate for all lines of business. Candidates who did not achieve full credit generally only provided one valid reason.