12. (3.25 points)

An insurer writes Homeowners and Private Passenger Auto insurance. The following information is from the insurer's 2017 Annual Statement and Insurance Expense Exhibit:

- Net Investment Gain Ratio (all lines of business) for 2017 is 4%
- Prepaid Expense Ratio (all lines of business) for 2017 is 20%

The following values relate only to Homeowners (all figures are in thousands of dollars):

	2017	**2016**
Net Loss Reserves	2,400	2,500
Net Loss Adjustment Expense Reserves	225	192
Net Unearned Premium Reserves	4,500	4,400
Ceded Reinsurance Premiums Payable	30	10
Agents' Balances	1,000	2,000
Policyholders' Surplus	2,600	2,800
Prepaid Expenses	1,125	

a. (2.5 points)

Calculate the following 2017 Annual Statement items for Homeowners:

i. Net investment gain (loss)

ii. Investment gain (loss) attributable to insurance transactions

b. (0.75 point)

Fully explain a concern with the way in which the Insurance Expense Exhibit allocates surplus to the Homeowners insurance line of business.

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SAMPLE ANSWERS AND EXAMINER'S REPORT

SPRING 2019 EXAM 6US, QUESTION 12	
TOTAL POINT VALUE: 3.25	**LEARNING OBJECTIVE: C1**
SAMPLE ANSWERS	

Part a: 2.5 points

Sample responses for part (i):

Net investment gain uses the basic formula:
(Net Investment Gain Ratio) x [(Net Loss Reserves) + (Net Loss Adjustment Expense Reserves) + (Net Unearned Premium Reserves) + (Ceded Reinsurance Premiums Payable) - (Agents' Balances) + (Policyholder Surplus)]

Sample 1

+ 2450 loss rsv
+ 208.5 LAE rsv
+ 4450 UEP rsv
+ 20 Ceded reins prem
+ 2700 Surplus
- 1500 Agent bal

8328.5 or 8329 when 208.5 was rounded to 209
X .04

333.14 or 333.16 when 208.5 was rounded to 209 … or either rounded to 333

Sample 2

0.04 x [(2400+2500)/2 + (225+192)/2 + (4500+4400)/2 + (30+10)/2 – (1000+2000)/2 + (2600+2800)/2] => 333.14 … or rounded to 333

Sample 3

0.04 = (Net Investment Gain) / [(2400+2500)/2 + (225+192)/2 + (4500+4400)/2 + (30+10)/2 – (1000+2000)/2 + (2600+2800)/2]

And then solving for (Net Investment Gain) gives same answer of 333.14 … or rounded to 333

Sample responses for part (ii):

Investment gain attributable to insurance transactions uses the basic formula:

(Net Investment Gain Ratio) x [(Net Loss Reserves) + (Net Loss Adjustment Expense Reserves) + (Net Unearned Premium Reserves) x (1 – (Prepaid Expense Ratio)) + (Ceded Reinsurance Premiums Payable) - (Agents' Balances)]

OR

(Net Investment Gain Ratio) x [(Net Loss Reserves) + (Net Loss Adjustment Expense Reserves) + (Net Unearned Premium Reserves) + (Ceded Reinsurance Premiums Payable) - (Agents' Balances) - (Prepaid Expense in the Unearned Premium Reserves)]

SAMPLE ANSWERS AND EXAMINER'S REPORT

Sample 1
+ 2450 loss rsv
+ 208.5 LAE rsv
+ 4450 UEP rsv
+ 20 Ceded reins prem
- 890 via 4450 x .2
- 1500 Agent bal

4738.5 or 4739 when 208.5 was rounded to 209
X .04

189.54 or 189.56 when 208.5 was rounded to 209 … or either rounded to 190

Sample 2
+ 2450 loss rsv
+ 208.5 LAE rsv
+ 3560 UEP rsv less prepaid expense or 4450 x (1-.2)
+ 20 Ceded reins prem
- 1500 Agent bal

4738.5 or 4739 when 208.5 was rounded to 209
X .04

189.54 or 189.56 when 208.5 was rounded to 209 … or either rounded to 190

Sample 3
+ 2450 loss rsv
+ 208.5 LAE rsv
+ 4450 UEP rsv
+ 20 Ceded reins prem
- 1112.5 via 4450 x .25 … or … 4450 x (1125 / 4500)
- 1500 Agent bal

4516
X .04

180.64 … or rounded to 181

Sample 4
+ 2450 loss rsv
+ 208.5 LAE rsv
+ 4450 UEP rsv
+ 20 Ceded reins prem
- 1125 prepaid expenses
- 1500 Agent bal

4503.5 or 4504 when 208.5 was rounded to 209
X .04

180.14 or 180.16 when 208.5 was rounded to 209 … or either rounded to 180

Sample 5
+ 8328.5 initial balance from "i" calculation
- 2700 surplus
- 890 via 4450 x .2

4738.5 or 4739 when 208.5 was rounded to 209
X .04

189.54 or 189.56 when 208.5 was rounded to 209 … or either rounded to 190

Sample 6
+ 8328.5 initial balance from "i" calculation
- 2700 surplus
- 1112.5 via 4450 x .25 … or … 4450 x (1125 / 4500)

4516
X .04

180.64 … or rounded to 181

Sample 7
+ 8328.5 initial balance from "i" calculation
- 2700 surplus
- 1125 prepaid expenses

4503.5
X .04

180.14 … or 180.16 when 4503.5 is rounded to 4504 … or rounded to 180

Sample 8
+ 2450 loss rsv
+ 208.5 LAE rsv
+ 4450 UEP rsv
+ 20 Ceded reins prem
- 1002.5 prepaid expenses = (1125 + 4400 x .2) / 2
- 1500 Agent bal

4626
X .04

185.04

Sample 9
+ 333.14 investment income from "i" calculation
- 108.00 surplus effect = 0.04 x 2700
- 35.60 prepaid expense effect = 0.04 x 4450 x .2

189.54

Sample 10
+ 333.14 investment income from "i" calculation
- 108.00 surplus effect = 0.04 x 2700
- 45.00 prepaid expense effect = 0.04 x 1125

180.14

Sample 11
+ 333.14 investment income from "i" calculation
- 108.00 surplus effect = 0.04 x 2700
- 44.50 prepaid expense effect = 0.04 x 1112.5 = .04 x (1125 + 4400 x (1125 / 4500)) / 2

180.64

Part b: 0.75 point

Any one of the following:

- There are risks inherent specifically to homeowners that should warrant more surplus, such as CAT exposures, flood, etc. that should warrant greater percent of surplus being allocated to it
- IEE surplus allocation does not take into account inherent risks of each line of business. It is purely formulaic based on reserve amounts & EP. Some lines of business that are more exposed to certain risks (like homeowners exposed to catastrophe risks) should have more of a cushion with their surplus allocation to account for variability.
- IEE allocates surplus to HO by weighted sum mean of Loss 7 LAE Reserve, UEPR, and current year EP. However, this is retrospective calculation, it won't incorporate change on business strategy. Also, homeowners has catastrophic exposure, but IEE surplus allocation doesn't consider this inherent risk.
- It's strictly formulaic and uses same criteria as other lines of business. Homeowners is prone to catastrophes and should carry more surplus because of it. Should use tVar to put more weight on the tail scenarios.
- The Insurance Expense Exhibit allocates surplus in a somewhat arbitrary manner because it is based upon the average net loss and loss adjustment expense reserves, the UEPR average and the earned premium for the current year. Summed and proportional to the total amount of those pieces for all lines of business. However, since homeowners is subject to risks such as catastrophes from natural disasters more so than private passenger auto, you can argue it should require a greater allocation of surplus than the

formula would proportion out to it.

- The allocation is formulaic and therefore does not include any insight from company management that may be gleaned from internal capital modeling / allocation. Particularly for homeowners, there is a risk of catastrophe that may require holding more capital relative to premium & losses than other LOBs. This additional capital need is not reflected in the IEE.
- One concern is that IEE allocates surplus retrospectively. Only based on existing losses, premium, etc. It does not incorporate potential catastrophe exposure for HO line, so surplus allocated could be less than optimal.
- The IEE allocates surplus based on an entirely retrospective approach. This will not account for things like catastrophe exposure or changes to mix of business. The risk of catastrophe is especially relevant to Homeowners, where potential hurricane, tornado, earthquake, etc. losses may not be in the historical data, in which case not enough surplus would be allocated to the line under this approach.

EXAMINER'S REPORT

Candidates were expected to understand and calculate Annual Statement and IEE items including Net Investment Gain and Investment Gain Attributed to Insurance Transactions. Candidates were also expected to evaluate a concern with how IEE allocates surplus for a line like Homeowners.

Part a

Candidates were expected to calculate the net investment gain/(loss) and investment gain/(loss) attributable to insurance transactions.

Common mistakes included:

- Part (i):
    - Not using average surplus, using 2600 which is the year-end 2017 value
    - Subtracting, not adding, ceded reinsurance premium payable
    - Adding, not subtracting, agents' balances
    - Including loss reserves but not including LAE reserves
    - Not using the average value for any item
- Part (ii):
    - Including surplus
    - Subtracting, not adding, ceded reinsurance premium payable
    - Adding, not subtracting, agents' balances
    - Including loss reserves but not including LAE reserves
    - Not using the average value for any item
    - Not subtracting our prepaid expense or not applying the (1 – expense ratio) factor to the UEPR
    - Removing prepaid expense twice, once via using the expense ratio and then also subtracting the 1125 value
    - Not including Ceded Reinsurance Premiums

Part b

Candidates were expected explain shortfalls in how the IEE allocates surplus to lines of business.

Common mistakes include:

- Not connecting the concern and explanation specifically to homeowners
- Only recognizing the issue but fail to explain why the issue mentioned is a concern
- Not explaining how the allocation method works and why that would cause a problem for the homeowner line specifically

SPRING 2019 EXAM 6US, QUESTION 13

TOTAL POINT VALUE: 3.25	**LEARNING OBJECTIVE: C2**

SAMPLE ANSWERS

Part a: 0.75 point

Since the RBC ratio is between 150% and 200%, it is subject to the Company Action Level. Insurer must submit a plan to the commissioner indicating how it will increase its capital or reduce its risks. The regulator has no required action at this level.

Part b: 0.5 point

Sample 1

10% of the Loss + LAE Reserves = 10% * (60,000 + 24,000 + 36,000) = 12,000

Note: other percentages (5%, 15%, 20%, etc.) were also accepted

Sample 2

10% of capital = 10% * 14,000 = 1.4M

Note: other percentages (5%, 15%, 20%, etc.) were also accepted

Sample 3

The company should use a materiality standard corresponding to the decrease in total adjusted capital that would subject the company to the next RBC regulatory level, Regulatory Action Level. Materiality = 14M - 14M * (1.5 / 1.55) = 0.4516 million

Sample 4

Amount that would trigger Authorized Control Level (RBC = 100%). ACL level would be triggered if capital falls below 14K * 100% / 155% = 9.03K. Therefore I select 14K - 9.03K = 4.97K as my materiality standard.

Sample 5

I would choose a materiality standard that would bring the RBC ratio to below 150%, the Regulatory Action Level, which would authorize the state to take corrective action, limiting the ability of the company to do business.