

EXAM 6 – UNITED STATES, SPRING 2017

11. (3.5 points)

Given the following information from an insurance company's 2014 and 2015 Insurance Expense Exhibits and Annual Statements:

	2014		2015	
	Homeowners	All Lines	Homeowners	All Lines
Policyholders' surplus		18,000		19,000
Net loss reserve	2,450	9,550	2,550	10,000
Net loss adjustment expense reserve	250	1,250	300	1,450
Net unearned premium reserve	3,500	7,900	3,700	8,150
Net earned premium	6,900	15,850	7,350	16,350
Ceded reinsurance premium payable	900	1,050	950	1,150
Agents' balances	2,100		2,250	

- The net investment gain ratio for all lines in 2015 is 3.5%.

a. (2.5 points)

Calculate the 2015 total investment gain for the Homeowners line of business.

b. (1 point)

In 2016, company management plans to shift a large portion of its Homeowners book from inland properties to coastal properties. Explain how the allocation of surplus to Homeowners in 2016 may change in each of the following:

- i. The company's Insurance Expense Exhibit
- ii. The company's internal capital allocation methodology

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QUESTION 11	
TOTAL POINT VALUE: 3.5	LEARNING OBJECTIVE(S): C1
SAMPLE ANSWERS	
Part a: 2.5 points	
Part a:	
Surplus Ratio (example on p. 218)	
Mean Policyholder's Surplus = [18,000+19,000]/2 =	18,500
Mean Total Net Loss Reserve = [9,550+10,000]/2 =	9,775
Mean Total Net LAE Reserve = [1,250+1,450]/2 =	1,350
Mean Total Net UEP Reserve = [7,900+8,150]/2 =	8,025
Mean Policyholder's Surplus	18,500
/ [Mean Total Net Loss Reserve	9,775
+ Mean Total Net LAE Reserve	1,350
+ Mean Total Net UEP Reserve	8,025
<u>+ 2015 Total Net Earned Premium]</u>	<u>16,350</u>
= Surplus Ratio	52.1%
Surplus Allocable to Homeowners (HO) (example on p. 219)	
Mean HO Net Loss Reserve = [2,450+2,550]/2 =	2,500
Mean HO Net LAE Reserve = [250+300]/2 =	275
Mean HO Net UEP Reserve = [3,500+3,700]/2 =	3,600
Surplus Ratio	52.1%
* [Mean HO Net Loss Reserve	2,500
+ Mean HO Net LAE Reserve	275
+ Mean HO Net UEP Reserve	3,600
<u>+ 2015 HO Net Earned Premium]</u>	<u>7,350</u>
= Surplus Allocable to HO	7,152
Investable Funds for HO (p. 216)	
Mean HO Ceded Reins. Prem. = [900+950]/2 =	925
Mean HO Agent's Balances = [2,100+2,250]/2 =	2,175
Mean HO Net Loss Reserve	2,500
+ Mean HO Net LAE Reserve	275
+ Mean HO Net UEP Reserve	3,600
+ Mean HO Ceded Reins. Prem.	925
- Mean HO Agent's Balances	2,175
<u>+ Surplus Allocable to HO</u>	<u>7,152</u>
Investable Funds for HO	12,277
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* Net Inv. Gain Ratio	<u>3.5%</u>
Investment Gain for HO	430
Part b: 1 point	
Sample Answers for IEE	
<ul style="list-style-type: none">• Because there will be no change to loss reserves (or alternatively premium, accepting UEP, written premium, earned premium or just premium), there will be no change to the surplus allocated to Homeowners in the IEE.• Because coastal policies are riskier than inland policies the company will charge a higher premium in 2016 for HO policies. This will increase the surplus allocated to the line in the IEE.• If a hurricane occurs in 2016 this will likely increase the mean Loss and LAE reserves (or alternatively premium, accepting UEP, written premium, earned premium or just premium) for Homeowner line, which will in turn increase the surplus allocation.• If no hurricanes occur in 2016, the average Loss and LAE reserves for home could be lower in comparison to past years. All else being equal, this would lower the allocated surplus to the homeowners' line.• There would be an increase in premium (accepted UEP, written premium, earned premium, or just premium) or loss reserves but not a lot since it is based on an average using retrospective figures so the increase in surplus is slow to react.	
Sample Answers for Capital Allocation Model	
<ul style="list-style-type: none">• Shift to coastal policies increases risk, and the result of the increased risk is an increase to surplus.• The shift results in an increased exposure to catastrophes or losses, which will increase the surplus allocation.	
EXAMINER'S REPORT	
Candidates were expected to know how to allocate surplus by line of business, and the differences between methods of doing so.	
Part a	
Candidates were expected to demonstrate the allocation to surplus algorithm per the IEE and its use in calculating the investment return for a particular line of business.	
Common errors include:	
<ul style="list-style-type: none">• Not correctly including the current year figure vs. the two-year average (in particular,	

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candidates often used the current year surplus to calculate surplus ratio rather than the average).

- Excluding an IEE component from the calculation, particularly either the mean agents' balance or ceded reinsurance premiums payable from the HO investable funds calculation.

Part b

Candidates were expected to understand the difference between a retrospective model that relies on historical data such as obtained from the IEE vs. a prospective model that relies on inputs to the model.

Common errors include:

- Not indicating the direction of surplus change.
- Not including an actual example with an IEE metric and the associated effect on surplus.
- Not tying the increase in risk of the shifted booked of business to the increase in surplus allocated to Homeowners.