Quantitative Risk Analysis

Exercise

Formulas:

* Asset Value (**AV**) – How much is the asset worth?
* Exposure factor (**EF**) – Percentage of Asset Value that was lost?
* Single Loss Expectancy (**SLE**) – (**AV** x **EF**) – What does it cost if it happens once?
* Annual Rate of Occurrence (**ARO**) – How often will this happen each year?
* Annualized Loss Expectancy (**ALE**) – This is what it cost per year if we do nothing

**Exercise #1.** You are concerned about the risk that an avalanche poses to your $3 million shipping facility. Based on expert opinion, you determine that there is a 5 percent chance that an avalanche will occur each year. Experts advise you that an avalanche would completely destroy your building and require you to rebuild on the same land. Ninety percent of the $3 million value of the facility is attributed to the building, and 10 percent is attributed to the land itself.

Based on the description of the above situation, answer the following questions and indicate why. B 3\*.9 = 2.7

**Q1.** What is the single loss expectancy of your shipping facility to avalanches?

A. $3,000,000 C. $270,000

B. $2,700,000 D. $135,000

**Q2.** what is the annualized loss expectancy? 2.7 \* 0.05 = .135 = D

A. $3,000,000 C. $270,000

B. $2,700,000 D. $135,000

**Exercise #2.** You are concerned about the risk that a hurricane poses to your corporate headquarters in South Florida. The building itself is valued at $15 million. After consulting with the National Weather Service, you determine that there is a 10 percent likelihood that a hurricane will strike over the course of a year. You hired a team of architects and engineers who determined that the average hurricane would destroy approximately 50 percent of the building.

**Q1.** What is the annualized loss expectancy (ALE)? C 15\*.5 = 7.5 \* .1 = .75 A

A. $750,000 C. $7.5 million

B. $1.5 million D. $15 million

**Exercise #3.** Lighter Than Air Industries expects that it would lose $10 million if a tornado struck its aircraft operations facility. It expects that a tornado might strike the facility once every 100 years.

**Q1.** What is the single loss expectancy for this scenario? B

A. 0.01 C. $100,000

B. $10,000,000 D. 0.10

**Q2.** what is the annualized loss expectancy? 1\*.01 = .01 C

A. 0.01 C. $100,000

B. $10,000,000 D. 0.10