

Assignment 2 / Solution

a. Your prior probabilities include all information you have up to just prior to analyzing the High Hopes Ltd. financial statements. They could include information based on an analysis of High Hopes's past financial statements, plus other news to date about the company from media, websites, speeches by company officials, analyst forecasts, etc. They could also include the results of a study of the current market price of High Hopes shares. If share price is low, this would indicate an unfavourable market evaluation High Hopes's future prospects, and vice versa. These probabilities are subjective, since they must be assessed by the decision maker.

b. The information system probabilities are objective. They are determined by largely the informativeness (i.e., quality) of the information system, that is, of current GAAP. Note that the information system probabilities may vary from firm to firm because of differences in innate firm characteristics (for example, the extent of investment in internally generated intangible assets). Also, a management's choice of accounting policies and the quality of its MD&A disclosure could affect the information system probabilities.

c. By Bayes' theorem, the posterior probability of the high state, based on GN in earnings, is:

$$\begin{aligned}
 P(\text{High} / \text{GN}) &= \frac{P(\text{High})P(\text{GN} / \text{High})}{P(\text{GN} / \text{High})P(\text{High}) + P(\text{GN} / \text{Low})P(\text{Low})} \\
 &= \frac{0.7 \times 0.8}{0.7 \times 0.8 + 0.3 \times 0.1} = \frac{0.56}{0.56 + 0.03} = \frac{56}{59} \\
 &= 0.95
 \end{aligned}$$

$$P(\text{Low} / \text{GN}) = (1 - 0.95) = 0.05$$

Then,

$$\begin{aligned}
 EU(a_2) &= 0.95 \times \sqrt{100} + 0.05 \times \sqrt{36} \\
 &= 0.95 \times 10 + 0.05 \times 6 \\
 &= 9.5 + .3 = 9.8
 \end{aligned}$$

$$EU(a_1) = \sqrt{81} = 9$$

The decision is to hold.