

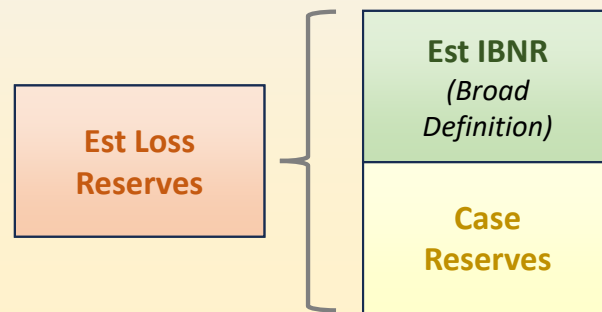
Dependency of IBNR on Case Reserves

For P&C Insurance

Components of Loss Reserves

Estimates of unpaid loss, often called **loss reserves**, can be defined as the sum of **case reserves** and **IBNR**. For purposes of this discussion, **IBNR** is defined broadly and includes a provision for development on known claims as well as unpaid loss related to late reported claims. It can be summarized by the following formula:

$$\text{Estimated loss reserves} = \text{case reserves} + \text{estimated IBNR.}$$



A “Trick” Question

Consider a P&C insurer that reports estimated loss reserves of \$10M, comprised of \$6M of case reserves and \$4M of estimated IBNR.

Suppose the company discovers an error in its data processing that yielded a \$1M understatement of case reserves. Consequently, the correct case reserves are \$7M (not \$6M). Given this information, what is the company’s corrected estimate of loss reserve?

- a) \$10M
- b) \$11M
- c) \$12M
- d) Insufficient information provided

Answer

It is tempting to conclude that estimated loss reserves equal \$11M. After all, substituting the revised case reserve amount into the formula above yields the following:

$$\text{Estimated loss reserves} = \$7\text{M} + \$4\text{M} = \$11\text{M} \quad (\text{this is incorrect except in special cases})$$

The flaw in this calculation is the implicit assumption that IBNR is independent of case reserves. In practice, estimates of IBNR are often highly dependent on case reserves.

Consequently, the correct answer to the question is d), since there is insufficient information presented to estimate the revised IBNR. In a situation like this one, the actuarial reserve analysis would need to be revised to contemplate the effects of the corrected case reserves. The resulting IBNR estimate may be lower, higher, or equal to the original IBNR depending on many other variables.

Takeaway: IBNR estimates are dependent on case reserves.

Although total loss reserves equal the sum of case reserves and IBNR, it is important to not overlook that IBNR itself is derived from case reserves.