

Premium Reserving



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Premium Reserving

Insurers earn the premium paid for an insurance policy over the life of the policy. In other words, one-twelfth of an annual premium is earned each month. An unearned premium reserve is maintained on an insurer's balance sheet to reflect the unearned premiums that would be returned to policyholders if all policies were canceled on the date the balance sheet was prepared.

Gross written premium :

The total premiums written by the insurance company before any deductions for reinsurance.

Earned premium : is what the insured party has paid for a portion of time in which the insurance policy was in effect, but has since expired.

Unearned premium : is the premium corresponding to the time period remaining on an insurance policy. These are proportionate to the unexpired portion of the insurance and appear as a liability on the insurer's balance sheet, since they may be paid back upon cancellation of the policy.

More over, in Premium Reserving :

Every insurance company, other than life, shall maintain a reserve for unearned premiums on its policies in force, which shall be charged as a liability in any determination of its financial condition. And to calculate the Earned Premium we know that the it's the difference between the Gross written premium and the Unearned Premium.

UPR Methods

- Flat-rate method
- Pro rata temporis method
- fractional value method
 - i. $1/8^{\text{th}}$ method
 - ii. $1/12^{\text{th}}$ method
 - iii. $1/24^{\text{th}}$ method
 - iv. $1/365$ method

Fractional Value Method:

$$\text{EPR} = \frac{\textit{Valuation date} - \textit{Date From}}{\textit{Day to} - \textit{Day From}} \quad (\text{Daily Bases}) \quad \text{UPR} = \frac{\textit{Date to} - \textit{Valuation date}}{\textit{Day to} - \textit{Day From}}$$

Fractional Value Method:

1/24th Method:-

It is a method that enables us to know what is the monthly earned premium by having the gross written premiums, this method helps us in case of data deficiency on the start times of the contracts, so it's based on our assumptions whether the contracts start from the first of the month or half of the month ...

Practical Example I :

Suppose we have 3 months aggregate GWP and we want to calculate the earned premium we got each month :

Month	Jan	Feb	March
GWP	5000	3000	5000

Monthly Eraned Premum 2018						
GWP	Jan	Feb	March	Apr	May	
Jan	5,000	1,722	1,556	1,722		
Feb	3,000		933	1,033	1,033	
Mar	4,000			1,378	1,378	1,244
Accumelative EP		4,133	3,733	4,133	2,411	1,244

Calculations of each cell :

$$= \frac{GWP}{Duration} * Month\ Days$$

$$\text{For first cell} = \frac{5000}{31+28+31} * 31$$

The accumulative EP as our aim in this method.

It will be more effective in case one year

Practical Example II :

Suppose we have a premium has the following data:

- GWP = 540
- Date From = January 2019
- Date to = January 2020
- Valuation date = February 2019

And we want to calculate EPR and the UPR for this premium?

Calculations :

$$\text{EPR} = \frac{31}{365} * 540 = 45.86$$

$$\text{UPR} = \frac{334}{365} * 540 = 494.14$$

To verify GWP = EPR + UPR

Now

Lets practice using big data



Thanks for listening



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