

ABSTRACT

Future events are unpredictable and can cause losses, especially in financial terms. One way to reduce financial risk is through life insurance. One type of life insurance product is joint life endowment insurance, which covers at least two insured persons under a single policy and provides benefits either when one of the insured persons dies or when both are still alive at the end of the contract period. The premium amount is determined by interest rates. In reality, interest rates are not constant but fluctuate, requiring a stochastic model, one of which is Cox-Ingersoll-Ross (CIR), which is mean reversion and does not have a negative value. This study aims to estimate the CIR model parameters using the Ordinary Least Squares method, compare joint life endowment life insurance premiums with constant interest rates and CIR, and analyze the effect of the age difference between husband and wife on the premium value. This study uses CIR interest rates and obtains estimates of the CIR model parameters, are $\hat{\alpha} = 0,017$, $\hat{\mu} = 0,047$, and $\hat{\sigma} = 0,008$. Furthermore, the premium value with the CIR model is lower compared to a constant interest rate, and the premium value becomes smaller if the insurance starts at a younger age.

Keywords: joint life endowment insurance, interest rates, insurance premium, constant, Cox-Ingersoll-Ross