MTH9886 Emerging Markets and Inflation, Fall 2017

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1 Nominal Yield and Real Yield

Derive relationship between Nominal and Real yield of a simple semi-annual B/360 bond. Discuss definition of a break-even inflation based on Inflation Adjustment differential.
Solution: *Break-Even Inflation* is level of inflation required for an inflation-linked bond (CIB) to be of equal value to its Nominal equivalent. According to Lecture #5, Page #23,

$$Z_R(t,t_i) \triangleq \text{InflAdj}(t_i) \cdot Z_N(t,t_i) \Rightarrow e^{-y_R(t_i-t)} = \frac{\text{CPI}(t_i - \text{lag})}{\text{CPI}(t-\text{lag})} e^{-y_N(t_i-t)}.$$

Thus,

$$y_R = y_N - \frac{1}{t_i - t} \log \frac{\text{CPI}(t_i - \text{lag})}{\text{CPI}(t-\text{lag})}.$$

For a simple semi-annual B/360 bond, $t_i - t = 1/2$. Or written in terms of simple interest rate

$$(1+y_R)^{-(t_i-t)} = (1+b)^{(t_i-t)}(1+y_N)^{-(t_i-t)} \Rightarrow (1+y_N) = (1+y_R)(1+b),$$

where b is the break-even inflation.