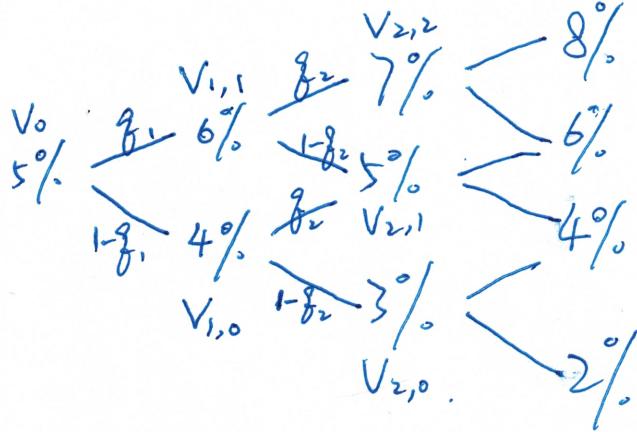


4.1



$$6\text{-month: } \frac{100}{1 + \frac{5\%}{2}} = 97.5610$$

$$1\text{-year: } V_{1,1} = \frac{100}{1 + \frac{5\%}{2}} = 97.0874$$

$$V_{1,0} = \frac{100}{1 + \frac{4\%}{2}} = 98.0392$$

$$V_0 = \frac{97.0874 \cdot f_1 + 98.0392 \cdot (1 - f_1)}{1 + \frac{5\%}{2}} = 95.0908$$

$$f_1 = 60\%$$

$$1.5\text{-year: } V_{2,2} = \frac{100}{1 + \frac{2\%}{2}} = 96.6184$$

$$V_{2,1} = \frac{100}{1 + \frac{5\%}{2}} = 97.5610$$

$$V_{2,0} = \frac{100}{1 + \frac{3\%}{2}} = 98.5222$$

$$\left\{ \begin{array}{l} V_{1,1} = \frac{96.6184 \cdot f_2 + 97.5610 \cdot (1 - f_2)}{1 + 0.03} \end{array} \right.$$

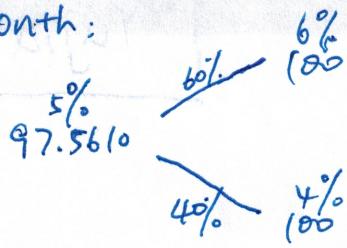
$$\left. \begin{array}{l} V_{1,0} = \frac{97.5610 \cdot f_2 + 98.5222 \cdot (1 - f_2)}{1 + 0.02} \end{array} \right.$$

$$V_0 = \frac{60\% \cdot V_{1,1} + 40\% \cdot V_{1,0}}{1 + \frac{5\%}{2}} = 92.5069$$

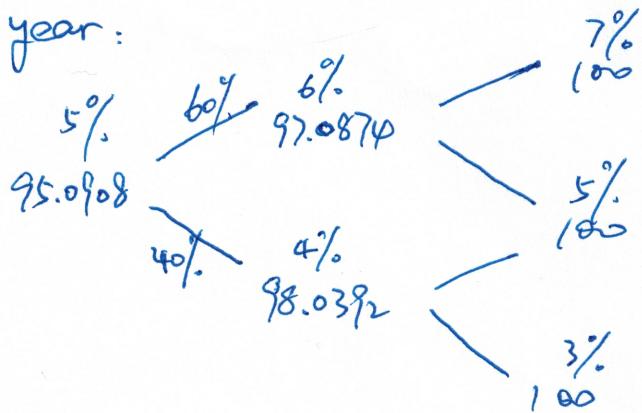
$$\Rightarrow f_2 = 70\%$$

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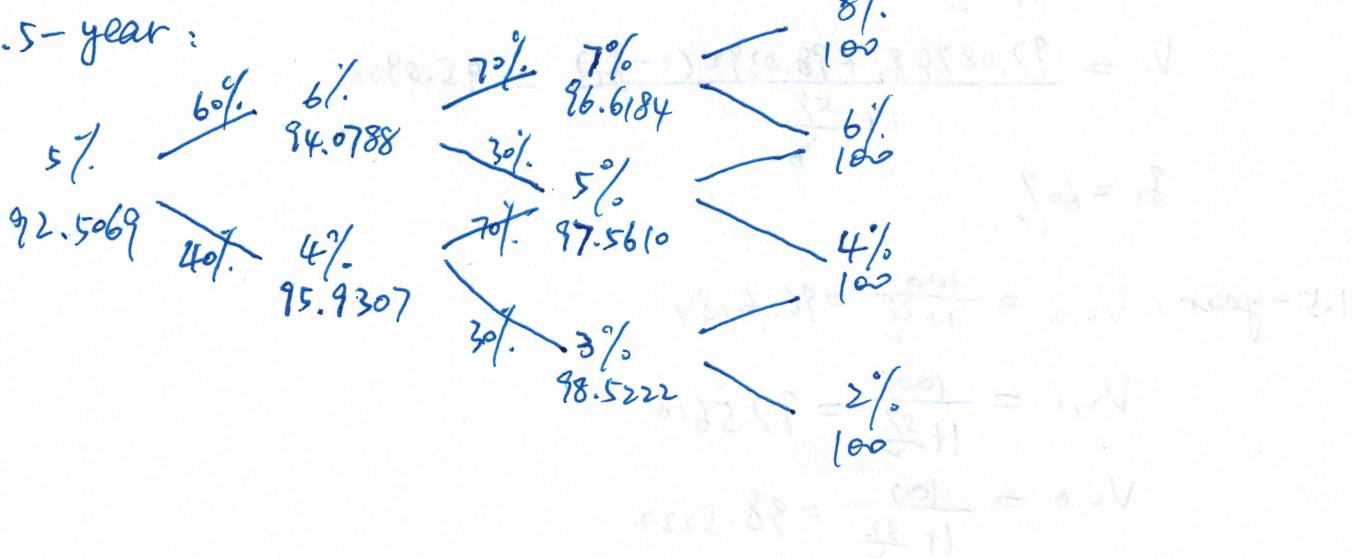
6-month:



1-year:



1.5-year:



$$\left(\frac{1.05}{1.04} + \frac{1.04}{1.05} \right) = 2.01 = 0.01$$

$$\left(\frac{1.07}{1.06} + \frac{1.06}{1.07} \right) = 2.01 = 0.01$$

$$\left(\frac{1.07}{1.06} + \frac{1.06}{1.07} \right) = 2.01 = 0.01$$