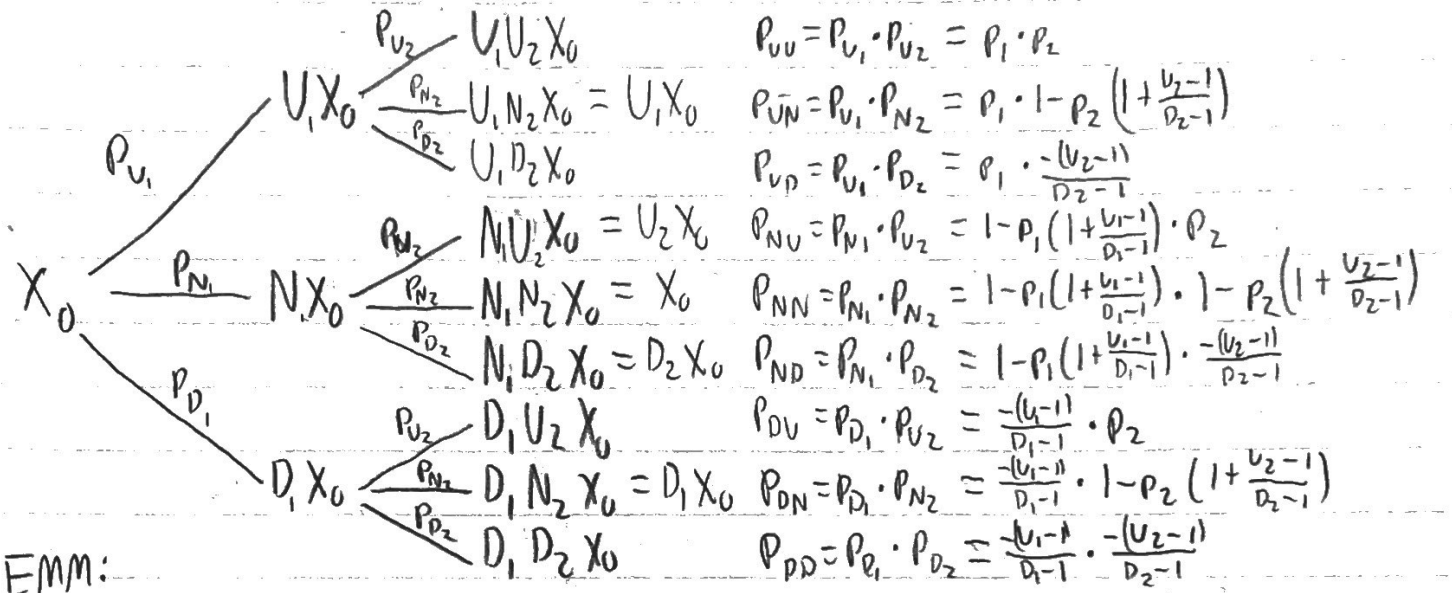
assuming: martingale property
$2 > 0 \quad N = 1$

$$Z_n = \begin{cases} U_n & P = P_U \\ 1 & P = P_N \\ D_n & P = P_D \end{cases}$$

$D < N < U$



EMM:

$$P = \left\{ P^* = \left(P, 1 - P\left(1 + \frac{U-1}{D-1}\right), \frac{-(U-1)}{D-1}\right) : 0 < P < \frac{1-D}{U-D} \right\} \leftarrow \text{general}$$

$$P_1 = \left\{ P_1^* = \left(P_1, 1 - P_1\left(1 + \frac{U_1 - 1}{D_1 - 1}\right), \frac{-(U_1 - 1)}{(D_1 - 1)}\right) : 0 < P_1 < \frac{1 - D_1}{U_1 - D_1} \right\} \leftarrow \text{first split}$$

$$P_2 = \left\{ P^* = \left(P_2, 1 - P_2\left(1 + \frac{U_2 - 1}{D_2 - 1}\right), \frac{-(U_2 - 1)}{(D_2 - 1)} : 0 < P_2 < \frac{1 - D_2}{U_2 - D_2} \right\} \leftarrow \text{second split}$$