PGSS: Math Finance HW 4

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1. (a) Because the bond makes payments of \$125 it can be represented as 5 payments of \$25

$$P = 5(P_0^A) = 5(97.67)$$
$$P = \$448.35$$

(b)

$$P = 10(P_0^Z) = 10(957)$$
$$P = \$9570$$

(c) Represented as ZCBs, payments should be at $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1$.

$$c = F \cdot \frac{q}{m}$$
$$c = 10000 \cdot \frac{0.05}{4}$$
$$c = 125$$

The ZCB payments should be \$125 plus the face value at the end.

$$F = \sum_{i=1}^{4} \frac{125}{(1 + \frac{0.05}{4})^{12/i}} + \frac{10000}{(1 + \frac{0.05}{4})^{12}}$$
$$F = 463.09 + 8615.09$$
$$F = 9078.18$$

2.

$$P = \frac{500}{(1 + \frac{.03}{12})^3} + \frac{500}{(1 + \frac{.04}{12})^6} + \frac{500}{(1 + \frac{.045}{12})^9} + \frac{500}{(1 + \frac{.0475}{12})^{12}}$$
$$P = 1946.67$$