SOLUTIONS TO PRACTICE EXERCISES LECTURE 3

Long-Term Financing and Financial Markets

Solution Q1:

Private companies can raise equity capital from angel investors, venture capitalists, institutional investors, or corporate investors. Some of the more novel types of financing include accelerators and equity crowdfunding.

Solution Q2:

The two main advantages of going public are liquidity and access to capital. One of the major disadvantages of an IPO is that once a company becomes a public company, it must satisfy all of the requirements of being a public company such as SEC filings and listing requirements of the securities exchanges.

Bond Valuation

Solution Q3:

(These questions relate to zero-coupon bond, yield curve)

a. $P = 100 / (1.0478)^3 = \$86.93$

b. $P = 100 / (1.0499)^4 = \$82.30$

Solution Q4:

(Annual coupon bond) FV = \$1,000, P = \$990, YTM = 6%, coupon rate = ?

Use the formula of coupon bond in slide 21, Lecture 3.

$$C = 990 = \frac{990 - \frac{1{,}000}{1.06^5}}{\frac{1}{0.06}\left(1 - \frac{1}{1.06^5}\right)} = \$57.626$$

Thus, the coupon rate is \$57.626/\$1,000 = 5.76%.

Solution Q5:

a. When it was issued, the price of the bond was

$$P = \frac{110}{(1+0.05)} + \frac{110}{(1+0.05)^2} + \cdots + \frac{110+1,000}{(1+0.05)^{10}} = \$1,463.30.$$

a. Before the first coupon payment, the price of the bond is

$$P = 110 + \frac{110}{1.05} + \frac{110}{1.05^2} + \cdots + \frac{110+1000}{1.05^9} = \$1{,}530.02$$

c. After the first coupon payment, the price of the bond will be

$$P = \frac{110}{1.05} + \frac{110}{1.05^2} + \cdots + \frac{110+1000}{1.05^9} = \$1{,}420.02$$

Solution Q6:

a. Purchase price = $100 / 1.04^{30} = 30.83$. Sale price = $100 / 1.03^{25} = 47.76$. Return = $(47.76 / 30.83)^{1/5} - 1 = 9.15\%$. I.e., since YTM falls, IRR > initial YTM.

b. No, it is not risk free because even without default, if you sell prior to maturity, you are exposed to the risk that the YTM may change.

Solution Q7:

a. $$P = \frac{8.4/2}{(1+0.075/2)} + \cdots + \frac{8.4/2+100}{(1+0.075/2)^{10}} = \$103.70$$

b. $$P = \frac{8.4/2}{(1+0.09/2)} + \cdots + \frac{8.4/2+100}{(1+0.09/2)^{10}} = \$97.63$$