AF 325: Theory of Corporate Finance

Final Exam

**General Instructions**

1. Write your name below.

2. Time Allowed: 2 hours

3. Closed Book, Closed Notes. No Smart phone and No Laptop. You can use a calculator.

4. Total Number of Points: 100+5 (Bonus)

5. **You must show calculations to receive full credit for questions requiring a numeric answer. No work=no points. No Exceptions.**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Professor: H. Zafer Yuksel

Q1) Consider a project to supply 6,080,000 postage stamps to the U.S. Postal Service for the next 5 years. You have an idle parcel of land available that cost $760,000 five years ago; if the land were sold today, it would net you $912,000, aftertax. The land can be sold for $1,500,000 after taxes in 5 years. You will need to install $2,356,000 in new manufacturing plant and equipment to actually produce the stamps; this plant and equipment will be depreciated straight-line to zero over the project's 5-year life. The equipment can be sold for $456,000 at the end of the project. You will also need $469,000 in initial net working capital for the project. All net working capital will be recovered when the project ends. The price of the stamp is $0.45 and the production costs are $0.38 per stamp, and you have fixed costs of $608,000 per year. Your tax rate is 30 percent and your required return on this project is 11 percent.

1. What is the gross profit of this project for the next 5 years? (years 1-5) **(2 pts)**

Answer= -182,400

1. What is the depreciation of the project for the next 5 years? (years 1-5) **(2 pts)**

Answer= 471,000

1. What is the OCF of the project for the next 5 years? (years1-5) (Hint: Do not forget to include change in WC over the five years) **(2 pts)**

Answer= 13,680

1. What is the NPV of this project? **(10 pts)**

Answer= -2,328,504

Q2) A 4-year project has an initial asset investment of $306,600, and initial net working capital investment of $29,200, and an annual net income of -$46,720. The fixed asset is fully depreciated over the life of the project and has no salvage value. The net working capital will be recovered when the project ends. The required return is 15 percent. What is the project's equivalent annual cost, or EAC?  **(10 pts)**

Answer=-81,864

Q3) Wayco Industrial Supply has 220,000 shares of common stock outstanding at a market price of $27 a share. There are 25,000 shares of preferred stock outstanding at a market price of $41 a share. The firm currently has bond issued with a face value of $550,000 and a market quote of 110.2 (110.2% of the face value of the bond). The company's tax rate is 30 percent.

1. What is the cost of equity of Wayco Industrial Supply if its current Beta is 1.6? **(2 pts)**

|  |  |
| --- | --- |
| Average Market Premium | 10% |
| Geometric Market Premium | 9% |
| 30-year Bond | 4% |
| 10-year Bond | 2% |
| T-bill | 0.5% |

Answer=20%

1. What is the cost of debt, if they issued 5% coupon bonds (annual payments) with year to maturity is 30 years? **(2 pts)**

Answer=4.38%

1. What is the cost of preferred stock, Wayco Industrial Supply pays annual dividend of $3.69 for each preferred stock? **(1 pts)**

Answer=9%

1. What is the WACC for Wayco Industrial Supply? **(4 pts)**

Answer=17.27%

1. Wayco Industrial Supply’s target capital structure is as follows: 50% equity, 40% debt, and 10% preferred stocks. What would be the firm’s WACC based on its target ratios? (Let’s assume cost of debt and cost of preferred stock do not change under the new capital structure) (Ramada Equation: **βL=βUx(1+(1-T)x(D/E)**) **(10 pts)**

Answer= 15.8%

Q5) What are the factors affecting Target D/E Ratio? **(5 pts)**

Q6) (Bonus Question) Justice, Inc. has a capital structure which is based on 30 percent debt, 5 percent preferred stock, and 65 percent common stock. The flotation costs are 11 percent for common stock, 10 percent for preferred stock, and 7 percent for debt. The corporate tax rate is 37 percent. What is the weighted average flotation cost? **(5 pts)**

Q7) AF325 Corporation is currently an all equity firm that has 10,000 shares of stock outstanding at a market price of $25 a share. The firm’s management has decided to issue debt and use the funds to repurchase shares of outstanding stock. Face value of 30-year bond is $322,615.10. Annual interest paid is $2,500 with YTM of 9%. What are the earnings per share at the break-even level of earnings before interest and taxes? Tax rate is 30% **(10 pts)**

Q8) ABC Corp is all equity financed firm with beta of 1.25. It has expected EBIT of $1,500,000 forever. ABC corporation is planning to change its capital structure by issuing 7,500 bonds (30 year, semi-annual payments with coupon rate of 10%). YTM of this bond is expected to be 12%. If risk free rate and expected market return is 5% and 15% respectively, what is the WACC of ABC Corporation after changing its capital structure? Tax Rate is 30%. (MM II with Taxes: $R\_{E}^{L}=R\_{E}^{U}+\frac{D}{E}(R\_{E}^{U}-R\_{D})(1-T)$ and $V\_{L}=V\_{U}+T\_{C}×D$) **(10 pts)**

Q9) AF 325 Corp. has 300,000 shares outstanding at a market price $30 a share. The firm has **just** paid dividend of $2.00 a share. The dividend growth is 3%. The firm also has 6,000 bonds outstanding with a face value of $1,000 per bond. The bonds carry a 7% coupon, pay interest semiannually, and mature in 8 years. The bonds are selling at 92% of face value. The company’s tax rate is 30%. What is the firm’s WACC? **(10 pts)**

Answer= 8.36%

Q9) What is pecking order hypothesis? Please briefly explain. **(5 pts)**

Q10) What are the agency costs between shareholders and debt holders of a company in distress? **(5 pts)**

Q11) According to signaling theory, investors view debt as a signal of firm value. Thus, firms with low anticipated profits will take on a low level of debt. On the other hand firms with high anticipated profits will take on high levels of debt. Please explain why? **(5 pts)**

Q12) What are the stand-alone risk and portfolio basis risk? What is the relation between those? Please explain. **(5 pts)**

**Formula Sheet:**

Perpetuity:

$$PV=\frac{CF}{r}$$

Growing Perpetuity:

$$PV=\frac{CF}{r-g}$$

Annuity:

$$PV=\frac{CF}{r}\left[1-\frac{1}{(1+r)^{T}}\right]$$

Growing Annuity:

$$PV=\frac{CF}{r-g}\left[1-\left(\frac{1+g}{1+r}\right)^{T}\right]$$