

FIN 3210

Fall 2015

Name Answer Key

NOTE: Type your name in cell G1

Multiple Choice

- | | |
|----|----------|
| 1 | B |
| 2 | D |
| 3 | D |
| 4 | D |
| 5 | A |
| 6 | E |
| 7 | B |
| 8 | E |
| 9 | A |
| 10 | |
| 11 | E |
| 12 | C |
| 13 | B |
| 14 | E |
| 15 | C |
| 16 | B |
| 17 | C |
| 18 | B |

Answer Key

Problem #1 (12 points)

Calculate the WACC for the following firm:

Debt: 45,000 bonds with a 9% coupon rate and a current price of 106.25. The bond has 18 years to maturity. The bonds have a par value of \$1,000.

Common Stock: 1,800,000 shares of common stock. The dividends have a growth rate of 7%, the current price is \$65 and the dividend next year will \$3.40. The beta of the stock is 1.1.

Market: The corporate tax rate is 35%, the expected return on the market is 12.5% and the risk free rate is 5.8%.

<i>Debt:</i>	
Number of bonds	45,000
Par value (% of par)	100
Coupon rate	9.00%
Quoted price	106.250
Settlement date	1/1/2000
Maturity date	1/1/2018
Coupons per year	2
Par value (\$)	\$ 1,000
<i>Common stock</i>	
Number of shares	1,800,000
Price	\$ 65
Dividend growth rate	7.00%
Dividend next year	\$ 3.40
Beta	1.10
<i>Market</i>	
Market expected return	12.5%
Risk-free rate	5.8%
Tax rate	35%

<i>Debt</i>	
YTM	8.32%
Aftertax cost	5.41%

<i>Equity</i>	
CAPM	13.17%
DDM	12.23%
Average	12.70%

	Market value	Weight	Weight times cost
Bond	\$ 47,812,500	0.2901	0.01570
Equity	117,000,000	0.7099	0.09016
Total	\$ 164,812,500	1.00	

WACC = **10.59%**

Answer Key

Problem #2 (9 points)

A bond with a par value of \$10,000 and a semiannual coupon rate of 4.9 percent has a yield to maturity of 5.1 percent. If the bond has 21 years to maturity, what is the dollar price of the bond?

Par value (% of par)	100
Coupon rate	5.30%
Yield to maturity	4.80%
Settlement date	1/1/2000
Maturity date	1/1/2021
Coupons per year	2
Par value (\$)	\$ 10,000

Price (percent of par) 106.570

Dollar price **\$ 10,656.96**

Answer Key

Problem #3 (10 points)

increase the dividend by 25% per year for the next two years and 15% per year for the following two years. After that, the company expects the dividend to grow at 4% per year forever. If the required return is 13%, how much should you pay for this stock?

Dividend just paid	\$	2.00
Growth rate for 2 years		30%
Second growth rate		18%
Perpetual growth rate		4%
Required return		13%

Year 1 dividend	\$	2.60
Year 2 dividend	\$	3.38
Year 3 dividend	\$	3.99
Year 4 dividend	\$	4.71
Year 5 dividend	\$	4.89

Price at Year 4	\$	54.38
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Cash flows

Year 1	\$	2.60
Year 2	\$	3.38
Year 3	\$	3.99
Year 4	\$	59.09

Price today	<input type="text" value="\$43.95"/>
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Answer Key

Problem #4 (12 points)

What is the expected return and standard deviation for the following stock?

<i>State of economy</i>	<i>Probability</i>	<i>Return</i>
Boom	0.15	34%
Good	0.40	15%
OK	0.30	8%
Recession		-20%

<i>State of economy</i>	<i>Probability</i>	<i>Return</i>	P x R	R - E.(R)	squared P(R-E(R))	P(R-E(R))
Boom	0.15	34%	0.051	0.2350	0.0552250	0.00828375
Good	0.40	15%	0.06	0.0450	0.0020250	0.00081000
OK	0.30	8%	0.024	-0.0250	0.0006250	0.00018750
Recession	0.15	-20%	-0.03	-0.3050	0.0930250	0.01395375
			E(R) =	10.50%	Variance =	0.023235

Standard deviation 15.24%

Answer Key

Problem #5 (5 points)

If a portfolio has a positive investment in every asset, can the standard deviation on the portfolio be less than that on every asset in the portfolio? What about the portfolio beta? Why?

Yes, the standard deviation can be less than that of every asset in the portfolio if the correlation is low enough. However, β cannot be less than the smallest beta because β_p is a weighted average of the individual asset betas.