

## Finance 1 for Business

### Question 1

If you buy shares of Coca-Cola on the primary market:

- A) Coca-Cola receives the money because the company has issued new shares.
- B) you buy the shares from another investor who decided to sell the shares.
- C) you buy the shares from a Stock Exchange.
- D) you buy the shares from the government.

Answer: A

Explanation: When a corporation itself issues new shares of stock and sells them to investors, it does so on the primary market. After this initial transaction between the corporation and investors, the shares continue to trade in a secondary market between investors without the involvement of the corporation. Because firms only occasionally issue new shares, secondary market trading accounts for the vast majority of trading in the stock market.

### Question 2

In early 2011, Eiffel Corp. had a book value of equity of \$215 billion, 10.5 billion shares outstanding, and a market price of \$39.90 per share. Eiffel also had cash of \$20 billion and total interest-bearing debt of \$132 billion. Three years later, in early 2014, Eiffel had an enterprise value of \$712.35 billion, 12.5 billion shares outstanding and a market price of \$45.90 per share. It also had \$50 billion is cash. What was Eiffel's Total debt in 2014?

- A) \$188.6 billion
- B) \$88.6 billion
- C) \$243.4 billion
- D) None of the above.

Answer: A

Explanation:

Enterprise Value = Market capitalization + Total interest-bearing debt – Cash  
 $\$712.35 = 12.5 * \$45.90 + \text{Total interest-bearing debt} - \$50$   
→ Total interest-bearing debt = \$188.6 billion

### Question 3

Suppose a risk-free investment offers \$1250 in two years. You can buy this risk-free investment today at a price of \$1030. What is the risk-free rate? Round to 2 decimals.

- A) Can't be determined.
- B) 21.35%
- C) 10.16%
- D) 13.42%

$$\text{Answer C: } (1 + r_f)^2 = \frac{\$1250}{\$1030} \rightarrow r_f = \sqrt{\frac{\$1250}{\$1030}} - 1 = 10.16\%$$

PV = \$1030 FV= \$1250 Number of periods, n = 2

$$PV = FV/(1+r)^n$$

$$\$1030 = \$1250/(1+r)^2$$

$$(1+r)^2 = \$1250/\$1030$$

Taking the square root of both sides of the equation gives:

$$1+r = 1.1016, \text{ thus, } r = 1.1016-1 = 0.1016 \text{ or } 10.16\%$$

### Question 4

Which of the following statement(s) is/are correct?

- A) In a normal situation, the yield curve depicts that short-term interest rates are higher than long-term interest rates.
- B) An inverted yield curve could be an indication that investors fear a recession.
- C) If interest rates are expected to fall in the future, there will be an inverted yield curve.
- D) B and C are correct.

Answer: D

Explanation:

Normal → upward-sloping; long-term yields are higher than short-term yields

Inverted → downward-sloping; long-term yields are lower than short-term yields

### Question 5

Consider the following two statements about the present value of €100 received in one year:

1. it is lower with daily compounding than with monthly compounding.
2. it becomes lower when the interest rate becomes higher

- A) Statement 1 is correct, statement 2 is incorrect
- B) Statement 1 is incorrect, statement 2 is correct
- C) Both statements are incorrect
- D) Both statements are correct

Answer: D

Explanation: (1) If a rate is expressed annually, but compounded more frequently, then the effective rate is higher than the stated rate; (2) For a given time period – the higher the interest rate, the smaller the present value; and,

### Question 6

A firm wants to finance a fixed asset that has a purchasing price of \$500,000 with a fairly priced 5-year loan. The loan has an APR of 8% with monthly compounding and makes end-of-month payments. What is the monthly payment for this loan closest to?

- A) \$10,000.
- B) \$11,000.
- C) \$12,000.
- D) \$13,000.

Answer: A

Explanation: The key here is to recognize that the monthly loan payment represents an annuity; therefore, we can apply the present value of annuity formula and plug in what we do know in order to solve for what we don't know; namely, the month payment amount. First, convert the APR of 8% to a monthly rate:  $0,08/12 = 0,006667\%$  per month and calculate the number of monthly compounding periods: 12 months for five years  $\rightarrow 12*5 = 60$  monthly compounding periods. Next, calculate the present value annuity factor, Annuity Factor  $= 1/0.006667*(1-1/(1+0.006667)^{60}) = 49.318$

Using the factor you've just calculated, you can now solve for the monthly payment amount using the present value of an annuity formula,

$$\$500,000 = C * AF \rightarrow C = 500,000 / 49.318 = \$10,138$$

### OPEN QUESTIONS

#### Question 1

Yarnham, a woolen sweater manufacturer is fully equity financed. The equity beta of Yarnham is 1.5. Its book value of equity is equal to \$400 million and it has a market capitalization of \$600 million. The market risk premium is 5%, while the risk-free rate is 2.5%.

A. What is Yarnham's required return on equity?

Yarnham is considering producing a line of sleepwear: Dreamies pajamas. This will require an upfront investment in equipment of \$25 million, which will be depreciated using the straight line method over its useful life of five years to a book value of zero. One set of pajamas costs \$10 to manufacture and will sell for \$20 each. Yarnham expects that it will be able to sell 4 million sets per year over five years. Incremental annual operating expenses, excluding depreciation, are expected to be \$30 million. The project will not affect the firm's net working capital. Assume that Yarnham is incorporated in Bermuda and does not pay taxes.

B. If the Dreamies sleepwear line is as risky as Yarnham's existing business, what is the net present value of the project? Should Yarnham invest in this project?

Explanations:

A. This is an application of the CAPM

$$r_e = r_f + \beta(E(R_m) - r_f) = .025 + 1.5 * .05 = 10\%$$

B. This requires you to calculate the project's incremental cash flows and NPV

Year	0	1	2	3	4	5
Revenues		\$ 80.000.000	\$ 80.000.000	\$ 80.000.000	\$ 80.000.000	\$ 80.000.000
Cost of Goods Sold		40.000.000	40.000.000	40.000.000	40.000.000	40.000.000
Operating Expenses		30.000.000	30.000.000	30.000.000	30.000.000	30.000.000
Depreciation Expense		5.000.000	5.000.000	5.000.000	5.000.000	5.000.000
Net Income		\$ 5.000.000	\$ 5.000.000	\$ 5.000.000	\$ 5.000.000	\$ 5.000.000
Capital Expenditures	-€ 25.000.000					
Operating Cash Flows		€ 10.000.000	€ 10.000.000	€ 10.000.000	€ 10.000.000	€ 10.000.000
Discounted Cash Flows	-€ 25.000.000	€ 9.090.909	€ 8.264.463	€ 7.513.148	€ 6.830.135	€ 6.209.213
<b>NPV</b>	<b>€ 12.907.868</b>					

### Question 2

Consider the following statement: If the efficient market hypothesis holds, all securities are fairly priced and therefore all securities offer the same return.

A. Briefly explain the efficient market hypothesis.

B. Indicate whether the statement is true or false and motivate your answer.

Answer:

A. The idea that competition among investors works to eliminate all positive-NPV trading opportunities. It implies securities will be fairly priced, based on their future cash flow, given all information that is available to investors.

B. False: The efficient markets hypothesis implies that securities with *equivalent risk* should have the same *expected return*.