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**Chapter 5 Interest Rates**

5.1 Interest Rate Quotes and Adjustments

3) The effective annual rate (EAR) for a loan with a stated APR of 8% compounded monthly is closest to:

A) 7.72%

B) 8.00%

C) 8.30%

D) 8.66%

4) The effective annual rate (EAR) for a loan with a stated APR of 10% compounded quarterly is closest to:

A) 9.65%

B) 10.00%

C) 10.38%

D) 12.50%

5) The effective annual rate (EAR) for a savings account with a stated APR of 4% compounded daily (use 365 day year) is closest to:

A) 3.92%

B) 4.00%

C) 4.08%

D) 14.60%

Answer: C

Explanation: C) *EAR* = (1 + *APR/k*)*k* - 1 = (1 + .04/365)365 - 1 = .04088 or 4 .08%

Diff: 1

Section: 5.1 Interest Rate Quotes and Adjustments

Skill: Analytical

*Use the table for the question(s) below.*

Consider the following investment alternatives:

|  |  |  |
| --- | --- | --- |
| **Investment** | **Rate** | **Compounding** |
| A | 6.25% | Annual |
| B | 6.10% | Daily |
| C | 6.125 | Quarterly |
| D | 6.120 | Monthly |

6) Which alternative offers you the highest effective rate of return?

A) Investment A

B) Investment B

C) Investment C

D) Investment D

7) Which alternative offers you the lowest effective rate of return?

A) Investment A

B) Investment B

C) Investment C

D) Investment D

11) The effective annual rate for a credit card that charges a 19.9% APR compounded daily is closest to:

A) 18.15%

B) 19.9%

C) 22.0%

D) 24.2%

12) The effective annual rate for a certificate of deposit that pays 3.9% APR compounded monthly is closest to:

A) 3.83%

B) 3.90%

C) 3.97%

D) 4.04%

13) Wesley Mouch's auto loan requires monthly payments and has an effective annual rate of 6.43%. The APR on this auto loan is closest to:

A) 6.00%

B) 6.25%

C) 6.50%

D) 6.62%

14) Interest on James Taggart's credit card balances are compounded daily at an effect annual rate of 14.91%. The APR on his credit card is closest to:

A) 13.90%

B) 13.95%

C) 14.91%

D) 16.08%

Answer: A

6) Floyd Ferris invested $3000 into an account five years ago. Today his account has grown to have a balance of $3927.50. Given that his account offered monthly compounding of interest, the APR on this account is closest to:

A) 5.00%

B) 5.25%

C) 5.40%

D) 5.54%

5.3 The Determinants of Interest Rates

1) Which of the following statements is FALSE?

A) The interest rates that banks offer on investments or charge on loans depends on the horizon of the investment or loan.

B) The Federal Reserve determines very short-term interest rates through its influence on the federal funds rate.

C) The interest rates that are quoted by banks and other financial institutions are nominal interest rates.

D) Fundamentally, interest rates are determined by the Federal Reserve.

2) Which of the following statements is FALSE?

A) The relationship between the investment term and the interest rate is called the term structure of interest rates.

B) Real interest rates indicate the rate at which your money will grow if invested for a certain period.

C) The yield curve is a potential leading indicator of future economic growth.

D) The shape of the yield curve will be strongly influenced by interest rate expectations.

3) Which of the following statements is FALSE?

A) The yield curve changes over time.

B) The formulas for computing present values of annuities and perpetuities cannot be used in situations in which cash flows need to be discounted at different rates.

C) We can use the term structure to compute the present and future values of a risk-free cash flow over different investment horizons.

D) The yield curve tends to be inverted as the economy comes out of a recession.

4) Which of the following statements is FALSE?

A) The plot of the relationship between the investment risk and the interest rate is call the yield curve.

B) Each of the last six recessions in the United States was preceded by a period with an inverted yield curve.

C) The nominal interest rate does not represent the increase in purchasing power that will result from investing.

D) A risk-free cash flow received in two years should be discounted at the two-year interest rate.

5) Which of the following statements is FALSE?

A) An inverted yield curve generally signals an expected decline in future interest rates.

B) An inverted yield curve is often interpreted as a positive forecast for economic growth.

C) All the formulas for computing present values of annuities and perpetuities are based upon discounting all of the cash flows at the same rate.

D) The rate of growth of your purchasing power is determined by the real interest rate.

7) If the current inflation rate is 4.2% and you are earning a real rate of return on an investment of 3.8%, then the nominal rate on this investment is closest to:

A) 3.8%

B) 4.2%

C) 8.0%

D) 8.2%

8) If an investment providing a nominal return of 12.25% only offers a real rate of return of 5.70%, then the inflation rate is closest to:

A) 5.70%

B) 6.20%

C) 6.55%

D) 12.25%

9) If the current inflation rate is 5%, then the nominal rate necessary for you to earn an 8% real interest rate on your investment is closest to:

A) 13.0%

B) 13.4%

C) 4.9%

D) 3.0%

10) If the current inflation rate is 4% and you have an investment opportunity that pays 10%, then the real rate of interest on your investment is closest to:

A) 10.0%

B) 14.0%

C) 6.0%

D) 5.8%

*Use the table for the question(s) below.*

Suppose the term structure of interest rates is shown below:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Term** | **1 year** | **2 years** | **3 years** | **5 years** | **10 years** | **20 years** |
| Rate (EAR%) | 5.00% | 4.80% | 4.60% | 4.50% | 4.25% | 4.15% |

16) What is the NPV of an investment that costs $2500 and pays $1000 certain at the end of one, three, and five years?

5.4 Risk and Taxes

*Use the following information to answer the question(s) below:*

Suppose the term structure of risk-free interest rates is given as:

Term 1 year 2 years 3 years 5 years 10 years

Rate 2.25% 2.80% 3.20% 4.10% 6.30%

6) The present value of an investment that pays $2000 in one year and $3000 in three years for certain is closest to:

A) $4707

B) $4685

C) $4729

D) $5000

7) The present value of an investment that pays $1000 in two years and $5000 in ten years for certain is closest to:

A) $3660

B) $3687

C) $3707

D) $4292

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**Chapter 6 Valuing Bonds**

6.1 Bond Cash Flows, Prices, and Yields

1) Which of the following statements is FALSE?

A) Bonds are a securities sold by governments and corporations to raise money from investors today in exchange for promised future payments.

B) By convention the coupon rate is expressed as an effective annual rate.

C) Bonds typically make two types of payments to their holders.

D) The time remaining until the repayment date is known as the term of the bond.

3) Which of the following statements is FALSE?

A) The bond certificate typically specifies that the coupons will be paid periodically until the maturity date of the bond.

B) The bond certificate indicates the amounts and dates of all payments to be made.

C) The only cash payments the investor will receive from a zero coupon bond are the interest payments that are paid up until the maturity date.

D) Usually the face value of a bond is repaid at maturity.

4) Which of the following statements is FALSE?

A) The amount of each coupon payment is determined by the coupon rate of the bond.

B) Prior to its maturity date, the price of a zero-coupon bond is always greater than its face value.

C) The simplest type of bond is a zero-coupon bond.

D) Treasury bills are U.S. government bonds with a maturity of up to one year.

*Use the following information to answer the question(s) below.*

Suppose the current zero-coupon yield curve for risk-free bonds is as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Maturity (years) | 1 | 2 | 3 | 4 | 5 |
| YTM | 3.25% | 3.50% | 3.90% | 4.25% | 4.40% |

10) The price per $100 face value of a three-year, zero-coupon, risk-free bond is closest to:

A) $93.80

B) $90.06

C) $89.16

D) $86.39

11) The price per $100 face value of a four-year, zero-coupon, risk-free bond is closest to:

A) $90.06

B) $89.16

C) $86.39

D) $84.66

*Use the information for the question(s) below.*

The Sisyphean Company has a bond outstanding with a face value of $1000 that reaches maturity in 15 years. The bond certificate indicates that the stated coupon rate for this bond is 8% and that the coupon payments are to be made semiannually.

18) How much will each semiannual coupon payment be?

A) $60

B) $40

C) $120

D) $80

20) Assuming the appropriate YTM on the Sisyphean bond is 7.5%, then this bond will trade at

A) par.

B) a discount.

C) a premium.

D) None of the above

22) Assuming the appropriate YTM on the Sisyphean bond is 9%, then this bond will trade at

A) a premium.

B) a discount.

C) par.

D) None of the above

28) What is the relationship between a bond's price and its yield to maturity?

6.2 Dynamic Behavior of Bond Prices

1) Which of the following statements is FALSE?

A) If the bond trades at a discount, and investor who buys the bond will earn a return both from receiving the coupons and from receiving a face value that exceeds the price paid for the bond.

B) Most coupon bond issuers choose a coupon rate so that the bonds will initially trade at, or very near to, par.

C) Coupon bonds always trade for a discount.

D) At any point in time, changes in market interest rates affect a bond's yield to maturity and its price.

5) Which of the following statements is FALSE?

A) If a bond trades at a premium, its yield to maturity will exceed its coupon rate.

B) A bond that trades at a premium is said to trade above par.

C) When a coupon-paying bond is trading at a premium, an investor's return from the coupons is diminished by receiving a face value less than the price paid for the bond.

D) Holding fixed the bond's yield to maturity, for a bond not trading at par, the present value of the bond's remaining cash flows changes as the time to maturity decreases.

8) Which of the following statements is TRUE?

A) Prices of bonds with lower durations are more sensitive to interest rate changes.

B) If a bond's yield to maturity exceeds its coupon rate, the bond trades at a premium.

C) Bonds with higher coupon rates are more sensitive to interest rate changes.

D) If a bond's yield to maturity is less than its coupon rate, the bond trades at a premium.

9) If a bond is currently trading at its face (par) value, then it must be the case that:

A) the bond's yield to maturity is less than its coupon rate.

B) the bond's yield to maturity is equal to its coupon rate.

C) the bond's yield to maturity is greater than its coupon rate.

D) the bond is a zero-coupon bond.

*Use the following information to answer the question(s) below.*

Consider the following four corporate bonds that have semiannual compounding:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Bond | #1 | #2 | #3 | #4 |
| Price | $1000.00 | $932.05 | $1067.95 | $1098.96 |
| Coupon Rate | 8% | 7% | 9% | 9% |
| Years to Maturity | 5 | 10 | 10 | 20 |

11) Which of these bonds sells at a discount?

A) #1

B) #2

C) #3

D) #4

6.3 The Yield Curve and Bond Arbitrage

1) Which of the following statements is FALSE?

A) Given the spot interest rates, we can determine the price and yield of any other default-free bond.

B) As the coupon increases, earlier cash flows become relatively less important than later cash flows in the calculation of the present value.

C) When the yield curve is flat, all zero-coupon and coupon-paying bonds will have the same yield, independent of their maturities and coupon rates.

D) When U.S. bond traders refer to "the yield curve," they are often referring to the coupon-paying Treasury yield curve.

*Use the following information to answer the question(s) below.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Maturity (years) | 1 | 2 | 3 | 4 | 5 |
| Zero-Coupon YTM | 3.25% | 3.50% | 3.90% | 4.25% | 4.40% |

5) The price today of a two-year default-free security with a face value of $1000 and an annual coupon rate of 5% is closest to:

A) $1002.78

B) $1003.31

C) $1028.50

D) $1028.61

6) The price today of a three-year default-free security with a face value of $1000 and an annual coupon rate of 4% is closest to:

A) $1002.78

B) $1003.31

C) $1028.50

D) $1028.61

*Use the table for the question(s) below.*

Consider the following zero-coupon yields on default free securities:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Maturity (years)** | **1** | **2** | **3** | **4** | **5** |
| Zero-Coupon YTM | 5.80% | 5.50% | 5.20% | 5.00% | 4.80% |

10) The price today of a 3 year default free security with a face value of $1000 and an annual coupon rate of 6% is closest to:

A) $1000

B) $1021

C) $1013

D) $1005

14) The price today of a 4 year default free security with a face value of $1000 and an annual coupon rate of 5.25% is closest to:

A) $1000

B) $1003

C) $1008

D) $987

15) A 4 year default free security with a face value of $1000 and an annual coupon rate of 5.25% will trade:

A) at a premium.

B) at par.

C) at a discount.

D) There is insufficient information provided to answer this question.

17) What is the price today of a two-year, default-free security with a face value of $1000 and an annual coupon rate of 5.75%? Does this bond trade at a discount, premium, or at par?

6.4 Corporate Bonds

1) A corporate bond which receives a BBB rating from Standard and Poor's is considered:

A) a junk bond.

B) an investment grade bond.

C) a defaulted bond.

D) a high-yield bond.

4) Which of the following statements is FALSE?

A) The bond's expected return, which is equal to the firm's debt cost of capital, is less than the yield to maturity if there is a risk of default.

B) The two best-known bond-rating companies are Standard & Poor's and Dow Jones.

C) Bonds in the bottom five categories are often called speculative bonds, junk bonds, or high-yield bonds.

D) Bond ratings encourage widespread investor participation and relatively liquid markets.

6) Which of the following statements is FALSE?

A) Investors pay less for bonds with credit risk than they would for otherwise identical default-free bonds.

B) Credit spreads fluctuate as perceptions regarding the probability of default change.

C) Credit spreads are high for bonds with high ratings.

D) We refer to the difference between the yields of the corporate bonds and the Treasury yields as the default spread or credit spread.

*Use the following information to answer the question(s) below.*

|  |  |  |
| --- | --- | --- |
| Security | Term  (years) | Yield  (%) |
| Treasury | 20 | 5.5% |
| AAA Corporate | 20 | 7.0% |
| BBB Corporate | 20 | 8.0% |
| B Corporate | 20 | 9.6% |

8) The credit spread on AAA-rated corporate bonds is:

A) 1.0%

B) 1.5%

C) 2.6%

D) 4.1%

9) The credit spread on BBB-rated corporate bonds is:

A) 1.0%

B) 1.5%

C) 2.5%

D) 4.1%

10) The credit spread on B-rated corporate bonds is:

A) 1.0%

B) 1.5%

C) 2.6%

D) 4.1%

*Use the table for the question(s) below.*

Consider the following yields to maturity on various one-year zero-coupon securities:

|  |  |
| --- | --- |
| **Security** | **Yield (%)** |
| Treasury | 4.6 |
| AAA corporate | 4.8 |
| BBB corporate | 5.6 |
| B Corporate | 6.2 |

13) The price (expressed as a percentage of the face value) of a one-year, zero-coupon corporate bond with a BBB rating is closest to:

A) 95.60

B) 94.16

C) 95.42

D) 94.70

14) The price (expressed as a percentage of the face value) of a one-year, zero-coupon corporate bond with a AAA rating is closest to:

A) 94.70

B) 95.60

C) 94.16

D) 95.42

15) The credit spread of the BBB corporate bond is closest to:

A) 1.0%

B) 5.6%

C) 1.6%

D) 0.8%

16) The credit spread of the B corporate bond is closest to:

A) 1.6%

B) 0.8%

C) 1.0%

D) 1.4%

6.5 Sovereign Bonds

1) Sovereign debt is:

A) debt issued by national governments.

B) debt denominated in sovereigns.

C) always riskless.

D) debt issued by Greece.

5) The likely effect of a country printing additional currency to pay its debts is:

A) high inflation

B) devaluation of the currency

C) appreciation of the currency

D) A and B

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**Chapter 7 Investment Decision Rules**

7.1 NPV and Stand-Alone Projects

1) Which of the following statements is FALSE?

A) About 75% of firms surveyed used the NPV rule for making investment decisions.

B) If you are unsure of your cost of capital estimate, it is important to determine how sensitive your analysis is to errors in this estimate.

C) To decide whether to invest using the NPV rule, we need to know the cost of capital.

D) NPV is positive only for discount rates greater than the internal rate of return.

*Use the following information to answer the question(s) below.*

You are considering investing in a start up project at a cost of $100,000. You expect the project to return $500,000 to you in seven years. Given the risk of this project, your cost of capital is 20%.

4) The NPV for this project is closest to:

A) $29,200

B) $39,500

C) $129,200

D) $139,500

*Use the following information to answer the question(s) below.*

Sarah Palin reportedly was paid a $11 million advance to write her book *Going Rogue*. The book took one year to write. In the time she spent writing, Palin could have been paid to give speeches and appear on TV news as a political commentator. Given her popularity, assume that she could have earned $8 million over the year (paid at the end of the year) she spent writing the book.

7) Assuming that Palin's cost of capital is 10%, then the NPV of her book deal is closest to:

A) $2.00 million

B) $2.20 million

C) $3.00 million

D) $3.75 million

*Use the table for the question(s) below.*

Consider a project with the following cash flows:

|  |  |
| --- | --- |
| **Year** | **Cash Flow** |
| 0 | -10,000 |
| 1 | 4000 |
| 2 | 4000 |
| 3 | 4000 |
| 4 | 4000 |

9) If the appropriate discount rate for this project is 15%, then the NPV is closest to:

A) $6000

B) -$867

C) $1420

D) $867

*Use the table for the question(s) below.*

Consider the following two projects:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Project** | **Year 0**  **Cash Flow** | **Year 1**  **Cash Flow** | **Year 2**  **Cash Flow** | **Year 3**  **Cash Flow** | **Year 4**  **Cash Flow** | **Discount Rate** |
| A | -100 | 40 | 50 | 60 | N/A | .15 |
| B | -73 | 30 | 30 | 30 | 30 | .15 |

10) The NPV of project A is closest to:

A) 12.0

B) 12.6

C) 15.0

D) 42.9

11) The NPV of project B is closest to:

A) 12.6

B) 23.3

C) 12.0

D) 15.0

*Use the table for the question(s) below.*

Consider the following two projects:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project** | **Year 0**  **C/F** | **Year 1**  **C/F** | **Year 2**  **C/F** | **Year 3**  **C/F** | **Year 4**  **C/F** | **Year 5**  **C/F** | **Year 6**  **C/F** | **Year 7**  **C/F** | **Discount**  **Rate** |
| Alpha | -79 | 20 | 25 | 30 | 35 | 40 | N/A | N/A | 15% |
| Beta | -80 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 16% |

13) The NPV for project Alpha is closest to:

A) $20.96

B) $16.92

C) $24.01

D) $14.41

14) The NPV for project Beta is closest to:

A) $24.01

B) $16.92

C) $20.96

D) $14.41

*Use the information for the question(s) below.*

Larry the Cucumber has been offered $14 million to star in the lead role of the next three Larry Boy adventure movies. If Larry takes this offer, he will have to forgo acting in other Veggie movies that would pay him $5 million at the end of each of the next three years. Assume Larry's personal cost of capital is 10% per year.

15) The NPV of Larry's three movie Larry Boy offer is closest to:

A) 3.5 million

B) -1.6 million

C) 1.6 million

D) -1.0 million

7.2 The Internal Rate of Return Rule

6) Which of the following statements is FALSE?

A) The IRR investment rule will identify the correct decision in many, but not all, situations.

B) By setting the NPV equal to zero and solving for *r*, we find the IRR.

C) If you are unsure of your cost of capital estimate, it is important to determine how sensitive your analysis is to errors in this estimate.

D) The simplest investment rule is the NPV investment rule.

7.3 The Payback Rule

*Use the following information to answer the question(s) below.*

Rearden Metals is considering opening a strip mining operation to provide some of the raw materials needed in producing Rearden metal. The initial purchase of the land and the associated costs of opening up mining operations will cost $100 million today. The mine is expected to generate $16 million worth of ore per year for the next 12 years. At the end of the 12th year Rearden will need to spend $20 million to restore the land to its original pristine nature appearance.

1) The payback period for Rearden's mining operation is closest to:

A) 5.00 years

B) 6.00 years

C) 6.25 years

D) 6.50 years

3) Which of the following statements is FALSE?

A) The payback investment rule is based on the notion that an opportunity that pays back its initial investments quickly is a good idea.

B) An IRR will always exist for an investment opportunity.

C) A NPV will always exist for an investment opportunity.

D) In general, there can be as many IRRs as the number of times the project's cash flows change sign over time.

4) Which of the following statements is FALSE?

A) In general, the IRR rule works for a stand-alone project if all of the project's positive cash flows precede its negative cash flows.

B) There is no easy fix for the IRR rule when there are multiple IRRs.

C) The payback rule is primarily used because of its simplicity.

D) No investment rule that ignores the set of alternative investment alternatives can be optimal.

5) Which of the following statements is FALSE?

A) The payback rule is useful in cases where the cost of making an incorrect decision might not be large enough to justify the time required for calculating the NPV.

B) The payback rule is reliable because it considers the time value of money and depends on the cost of capital.

C) For most investment opportunities, expenses occur initially and cash is received later.

D) Fifty percent of firms surveyed reported using the payback rule for making decisions.

*Use the table for the question(s) below.*

Consider a project with the following cash flows:

|  |  |
| --- | --- |
| **Year** | **Cash Flow** |
| 0 | -10,000 |
| 1 | 4000 |
| 2 | 4000 |
| 3 | 4000 |
| 4 | 4000 |

6) Assume the appropriate discount rate for this project is 15%. The payback period for this project is closest to:

A) 3.0

B) 2.5

C) 2.0

D) 4.0

*Use the table for the question(s) below.*

Consider the following two projects:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Project** | **Year 0**  **Cash Flow** | **Year 1**  **Cash Flow** | **Year 2**  **Cash Flow** | **Year 3**  **Cash Flow** | **Year 4**  **Cash Flow** | **Discount Rate** |
| A | -100 | 40 | 50 | 60 | N/A | .15 |
| B | -73 | 30 | 30 | 30 | 30 | .15 |

7) The payback period for project A is closest to:

A) 2.0 years

B) 2.4 years

C) 2.5 years

D) 2.2 years

8) The payback period for project B is closest to:

A) 2.5 years

B) 2.0 years

C) 2.2 years

D) 2.4 years

*Use the table for the question(s) below.*

Consider the following two projects:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project** | **Year 0**  **C/F** | **Year 1**  **C/F** | **Year 2**  **C/F** | **Year 3**  **C/F** | **Year 4**  **C/F** | **Year 5**  **C/F** | **Year 6**  **C/F** | **Year 7**  **C/F** | **Discount**  **Rate** |
| Alpha | -79 | 20 | 25 | 30 | 35 | 40 | N/A | N/A | 15% |
| Beta | -80 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 16% |

9) The payback period for project Alpha is closest to:

A) 3.2 years

B) 2.9 years

C) 3.1 years

D) 2.6 years

10) The payback period for project Beta is closest to:

A) 2.9 years

B) 3.1 years

C) 2.6 years

D) 3.2 years

*Use the information for the question(s) below.*

The Sisyphean Company is planning on investing in a new project. This will involve the purchase of some new machinery costing $450,000. The Sisyphean Company expects cash inflows from this project as detailed below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Year One** | **Year Two** | **Year Three** | **Year Four** |
| $200,000 | $225,000 | $275,000 | $200,000 |

The appropriate discount rate for this project is 16%.

11) The payback period for this project is closest to:

A) 2.1 years

B) 3.0 years

C) 2.0 years

D) 2.2 years

7.4 Choosing Between Projects

6) You are trying to decide between three mutually exclusive investment opportunities. The most appropriate tool for identifying the correct decision is:

A) NPV.

B) profitability index.

C) IRR.

D) incremental IRR.

7.5 Project Selection with Resource Restraints

3) You are opening up a brand new retail strip mall. You presently have more potential retail outlets wanting to locate in your mall than you have space available. What is the most appropriate tool to use if you are trying to determine the optimal allocation of your retail space?

A) IRR

B) Payback period

C) NPV

D) Profitability index

*Use the table for the question(s) below.*

Consider a project with the following cash flows:

|  |  |
| --- | --- |
| **Year** | **Cash Flow** |
| 0 | -10,000 |
| 1 | 4000 |
| 2 | 4000 |
| 3 | 4000 |
| 4 | 4000 |

4) Assume the appropriate discount rate for this project is 15%. The profitability index for this project is closest to:

A) .14

B) .22

C) .60

D) .15

*Use the table for the question(s) below.*

Consider the following two projects:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Project** | **Year 0**  **Cash Flow** | **Year 1**  **Cash Flow** | **Year 2**  **Cash Flow** | **Year 3**  **Cash Flow** | **Year 4**  **Cash Flow** | **Discount Rate** |
| A | -100 | 40 | 50 | 60 | N/A | .15 |
| B | -73 | 30 | 30 | 30 | 30 | .15 |

5) The profitability index for project A is closest to:

A) 0.12

B) 21.65

C) 0.17

D) 12.04

6) The profitability index for project B is closest to:

A) 23.34

B) 12.64

C) 0.17

D) 0.12

*Use the table for the question(s) below.*

Consider the following list of projects:

|  |  |  |
| --- | --- | --- |
| **Project** | **Investment** | **NPV** |
| A | 135,000 | 6000 |
| B | 200,000 | 30,000 |
| C | 125,000 | 20,000 |
| D | 150,000 | 2000 |
| E | 175,000 | 10,000 |
| F | 75,000 | 10,000 |
| G | 80,000 | 9000 |
| H | 200,000 | 20,000 |
| I | 50,000 | 4000 |

7) Assuming that your capital is constrained, which investment tool should you use to determine the correct investment decisions?

A) Profitability Index

B) Incremental IRR

C) NPV

D) IRR

8) Assuming that your capital is constrained, which project should you invest in first?

A) Project C

B) Project G

C) Project B

D) Project F

9) Assuming that your capital is constrained, what is the fifth project that you should invest in?

A) Project H

B) Project I

C) Project B

D) Project A

10) Assuming that your capital is constrained, which project should you invest in last?

A) Project A

B) Project I

C) Project D

D) Project C

11) Assuming that your capital is constrained, so that you only have $600,000 available to invest in projects, which projects should you invest in and in what order?

A) CBFH

B) CBGF

C) BCFG

D) CBFG

12) Assume that your capital is constrained, so that you only have $600,000 available to invest in projects. If you invest in the optimal combination of projects given your capital constraint, then the total NPV for all the projects you invest in will be closest to:

A) $65,000

B) $80,000

C) $69,000

D) $111,000

13) Assume that your capital is constrained, so that you only have $500,000 available to invest in projects. If you invest in the optimal combination of projects given your capital constraint, then the total NPV for all the projects you invest in will be closest to:

A) $111,000

B) $69,000

C) $80,000

D) $58,000

*Use the information for the question(s) below.*

The Sisyphean Company is planning on investing in a new project. This will involve the purchase of some new machinery costing $450,000. The Sisyphean Company expects cash inflows from this project as detailed below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Year One** | **Year Two** | **Year Three** | **Year Four** |
| $200,000 | $225,000 | $275,000 | $200,000 |

The appropriate discount rate for this project is 16%.

14) The profitability index for this project is closest to:

A) .44

B) .26

C) 0.39

D) .34

*Use the information for the question(s) below.*

Your firm is preparing to open a new retail strip mall and you have multiple businesses that would like lease space in it. Each business will pay a fixed amount of rent each month plus a percentage of the gross sales generated each month. The cash flows from each of the businesses has approximately the same amount of risk. The business names, square footage requirements, and monthly expected cash flows for each of the businesses that would like to lease space in your strip mall are provided below:

|  |  |  |
| --- | --- | --- |
| **Business Name** | **Square Feet Required** | **Expected Monthly Cash Flow** |
| Videos Now | 4000 | 70,000 |
| Gords Gym | 3500 | 52,500 |
| Pizza Warehouse | 2500 | 52,500 |
| Super Clips | 1500 | 25,500 |
| 30 1/2 Flavors | 1500 | 28,500 |
| S-Mart | 12,000 | 180,000 |
| WalVerde Drugs | 6000 | 147,000 |
| Multigular Wireless | 1000 | 22,250 |

15) If your new strip mall will have 15,000 square feet of retail space available to be leased, to which businesses should you lease and why?

16) If your new strip mall will have 16,000 square feet of retail space available to be leased, to which businesses should you lease and why?

17) Consider the following list of projects:

|  |  |  |
| --- | --- | --- |
| **Project** | **Investment** | **NPV** |
| A | 405,000 | 18,000 |
| B | 600,000 | 90,000 |
| C | 375,000 | 60,000 |
| D | 450,000 | 6000 |
| E | 525,000 | 30,000 |
| F | 225,000 | 30,000 |
| G | 240,000 | 27,000 |
| H | 600,000 | 60,000 |
| I | 150,000 | 12,000 |
| J | 270,000 | 30,000 |

You are given a budget of only $1,800,000 to invest in projects. Which projects will you select, in what order will you select them, and why?

***Corporate Finance, 4e, Global Edition* (Berk / DeMarzo)**

**Chapter 8 Fundamentals of Capital Budgeting**

8.1 Forecasting Earnings

11) Which of the following costs would you consider when making a capital budgeting decision?

A) Sunk cost

B) Opportunity cost

C) Interest expense

D) Fixed overhead cost

12) A decrease in the sales of a current project because of the launching of a new project is:

A) cannibalization.

B) a sunk cost.

C) an overhead expense.

D) irrelevant to the investment decision.

13) Money that has been or will be paid regardless of the decision whether or not to proceed with the project is:

A) cannibalization.

B) considered as part of the initial investment in the project.

C) an opportunity cost.

D) a sunk cost.

14) The value of currently unused warehouse space that will be used as part of a new capital budgeting project is:

A) an opportunity cost.

B) irrelevant to the investment decision.

C) an overhead expense.

D) a sunk cost.

*Use the information for the question(s) below.*

Ford Motor Company is considering launching a new line of Plug-in Electric SUVs. The heavy advertising expenses associated with the new SUV launch would generate operating losses of $35 million next year. Without the new SUV, Ford expects to earn pre-tax income of $80 million from operations next year. Ford pays a 30% tax rate on its pre-tax income.

15) The amount that Ford Motor Company will owe in taxes next year without the launch of the new SUV is closest to:

A) $24.0 million

B) $56.0 million

C) $31.5 million

D) $13.5 million

16) The amount that Ford Motor Company will owe in taxes next year with the launch of the new SUV is closest to:

A) $13.5 million

B) $31.5 million

C) $56.0 million

D) $24.0 million

8.2 Determining Free Cash Flow and NPV

1) Which of the following statements is FALSE?

A) Depreciation is not a cash expense paid by the firm.

B) Net Working Capital = Cash + Inventory + Payables - Receivables.

C) Since 1997, companies can "carry back" losses for two years and "carry forward" losses for 20 years.

D) Earnings do not represent real profits.

6) Which of the following statements is FALSE?

A) Because only the tax consequences of depreciation are relevant for free cash flow, we should use the depreciation expense that the firm will use for tax purposes in our free cash flow forecasts.

B) A firm generally identifies its marginal tax rate by determining the tax bracket that it falls into based on its overall level of pre-tax income.

C) Free Cash Flow = (Revenues - Costs) × (1 - *τ*c) - Capital Expenditures - Δ*NWC* + *τ*c × Depreciation.

D) Net working capital is the difference between current liabilities and current assets.

10) You are considering adding a microbrewery on to one of your firm's existing restaurants. This will entail an increase in inventory of $8000, an increase in Accounts payable of $2500, and an increase in property, plant, and equipment of $40,000. All other accounts will remain unchanged. The change in net working capital resulting from the addition of the microbrewery is:

A) $45,500

B) $10,500

C) $6500

D) $5500

*Use the information for the question(s) below.*

Temporary Housing Services Incorporated (THSI) is considering a project that involves setting up a temporary housing facility in an area recently damaged by a hurricane. THSI will lease space in this facility to various agencies and groups providing relief services to the area. THSI estimates that this project will initially cost $5 million to set up and will generate $20 million in revenues during its first and only year in operation (paid in one year). Operating expenses are expected to total $12 million during this year and depreciation expense will be another $3 million. THSI will require no working capital for this investment. THSI's marginal tax rate is 35%.

17) Ignoring the original investment of $5 million, what is THSI's free cash flow for the first and only year of operation?

A) $5.0 million

B) $3.75 million

C) $8.0 million

D) $6.25 million

18) Assume that THSI's cost of capital for this project is 15%. The NPV of this temporary housing project is closest to:

A) $435,000

B) -$650,000

C) $1,960,000

D) -$435,000

*Use the information for the question(s) below.*

Shepard Industries is evaluating a proposal to expand its current distribution facilities. Management has projected the project will produce the following cash flows for the first two years (in millions).

|  |  |  |
| --- | --- | --- |
| **Year** | **1** | **2** |
| Revenues | 1200 | 1400 |
| Operating Expense | 450 | 525 |
| Depreciation | 240 | 280 |
| Increase in working capital | 60 | 70 |
| Capital expenditures | 300 | 350 |
| Marginal corporate tax rate | 30% | 30% |

19) The incremental EBIT for the Shepard Industries project in year one is closest to:

A) $360

B) $750

C) $595

D) $510

20) The incremental EBIT for the Shepard Industries project in year two is closest to:

A) $415

B) $875

C) $595

D) $510

21) The incremental unlevered net income of the Shepard Industries project in year one is closest to:

A) $510

B) $415

C) $600

D) $355

22) The incremental unlevered net income of the Shepard Industries project in year two is closest to:

A) $355

B) $415

C) $600

D) $510

23) The depreciation tax shield for the Shepard Industries project in year one is closest to:

A) $84

B) $168

C) $96

D) $72

24) The depreciation tax shield for the Shepard Industries project in year two is closest to:

A) $84

B) $196

C) $72

D) $96

25) The free cash flow from the Shepard Industries project in year one is closest to:

A) $240

B) $300

C) -$5

D) $390

26) The free cash flow from the Shepard Industries project in year two is closest to:

A) $345

B) $455

C) $275

D) -$5

8.5 Analyzing the Project

1) Which of the following statements is FALSE?

A) The break-even level of an input is the level for which the investment has an IRR of zero.

B) The most difficult part of capital budgeting is deciding how to estimate the cash flows and the cost of capital.

C) When evaluating a capital budgeting project, financial managers should make the decision that maximizes NPV.

D) Sensitivity analysis reveals which aspects of the project are most critical when we are actually managing the project.

5) An exploration of the effect on NPV of changing multiple project parameters is called:

A) scenario analysis.

B) IRR analysis.

C) accounting break-even analysis.

D) sensitivity analysis.

6) An analysis that breaks the NPV calculation into its component assumptions and shows how the NPV varies as one of the underlying assumptions is changed is called:

A) scenario analysis.

B) IRR analysis.

C) accounting break-even analysis.

D) sensitivity analysis.