

01

RATES AND RETURNS

1. Assume an investor makes the following investments:
 - Today, she purchases a share of stock in Redwood Alternatives for \$50.00.
 - After one year, she purchases an additional share for \$75.00.
 - After one more year, she sells both shares for \$100.00 each.There are no transaction costs or taxes. The investor's required return is 35.0%. During year one, the stock paid a \$5.00 per share dividend. In year two, the stock paid a \$7.50 per share dividend. The time-weighted return is:
 - (A) 51.4%.
 - (B) 51.7%.
 - (C) 23.2%
2. If a stock decreases from \$90 to \$80, the continuously compounded rate of return for the period is
 - (A) -0.1250.
 - (B) -0.1000.
 - (C) -0.1178
3. An investor expects a stock currently selling for \$20 per share to increase to \$25 by year end. The dividend last year was \$1 but he expects this year's dividend to be \$1.25. What is the expected holding period return on this stock?
 - (A) 24.00%.
 - (B) 28.50%.
 - (C) 31.25%.
4. Vega research has been conducting investor polls for Third State Bank. They have found the most investors are not willing to tie up their money in a 1-year (2-year) CD unless they receive at least 1.0% (1.5%) more than they would on an ordinary savings account. If the savings account rate is 3%, and the bank wants to raise funds with 2-year CDs, the yield must be at least:
 - (A) 4.0%, and this represents a required rate of return.
 - (B) 4.5%, and this represents a discount rate.
 - (C) 4.5%, and this represents a required rate of return.

5. Wei Zhang has funds on deposit with Iron Range bank. The funds are currently earning 6% interest. If he withdraws \$15,000 to purchase an automobile, the 6% interest rate can be best thought of as a(n):
- (A) discount rate.
 - (B) financing cost.
 - (C) opportunity cost.
6. Selmer Jones has just inherited some money and wants to set some of it aside for a vacation in Hawaii one year from today. His bank will pay him 5% interest on any funds he deposits. In order to determine how much of the money must be set aside and held for the trip, he should use the 5% as a:
- (A) discount rate.
 - (B) opportunity cost.
 - (C) required rate of return.
7. An investor makes the following investments:
- She purchases a share of stock for \$50.00.
 - After one year, she purchases an additional share for \$75.00.
 - After one more year, she sells both shares for \$100.00 each.
 - There are no transaction costs or taxes.
- During year one, the stock paid a \$5.00 per share dividend. In year 2, the stock paid a \$7.50 per share dividend. The investor's required return is 35%. Her money-weighted return is closest to:
- (A) 48.9%.
 - (B) 16.1%.
 - (C) -7.5%.
8. A 10% coupon bond was purchased for \$1,000. One year later the bond was sold for \$915 to yield 11%. The investor's holding period yield on this bond is closest to:
- (A) 1.5%.
 - (B) 9.0%.
 - (C) 18.5%.
9. An investor buys a non-dividend paying stock for \$100 at the beginning of the year with 50% initial margin. At the end of the year, the stock price is \$95. Deflation of 2% occurred during the year. Which of the following return measures for this investment will be greatest?
- (A) Leveraged return.
 - (B) Real return.
 - (C) Nominal return.

10. The continuously compounded rate of return that will generate a one-year holding period return of -6.5% is closest to:
- (A) -5.7%.
 - (B) -6.3%.
 - (C) -6.7%.
11. Time-weighted returns are used by the investment management industry because they:
- (A) take all cash inflows and outflows into account using the internal rate of return.
 - (B) result in higher returns versus the money-weighted return calculation.
 - (C) are not affected by the timing of cash flows.
12. Which of the following is most accurate with respect to the relationship of the moneyweighted return to the time-weighted return? If funds are contributed to a portfolio just prior to a period of favorable performance, the:
- (A) money-weighted rate of return will tend to be depressed.
 - (B) money-weighted rate of return will tend to be elevated.
 - (C) time-weighted rate of return will tend to be elevated.
13. Computing the internal rate of return of the inflows and outflows of a portfolio would give the:
- (A) money-weighted return.
 - (B) net present value.
 - (C) time-weighted return
14. A stock that pays no dividend is currently priced at €42.00. One year ago the stock was €44.23. The continuously compounded rate of return is closest to
- (A) -5.17%.
 - (B) -5.04%.
 - (C) +5.17%.
15. Over a period of one year, an investor's portfolio has declined in value from 127,350 to 108,427. What is the continuously compounded rate of return?
- (A) -14.86%.
 - (B) -13.84%.
 - (C) -16.09%.

16. An investor buys a stock on March 24 for \$63.25. The stock pays quarterly dividends of \$0.54 on May 1 and August 1. On September 27, the investor sells the stock for \$62.80. The investor's holding period return is closest to:
- (A) 2.5%.
(B) 1.0%.
(C) 2.0%.
17. For a given stated annual rate of return, compared to the effective rate of return with discrete compounding, the effective rate of return with continuous compounding will be:
- (A) the same.
(B) higher.
(C) lower.
18. Stock XYZ is purchased on January 2 at a price of \$12 per share. The investor receives a quarterly dividend of \$0.60 per share on April 1, and the stock closes on June 30 at \$13 per share. The holding period return is closest to:
- (A) 13.33%.
(B) 8.33%.
(C) 18.33%.
19. The real risk-free rate can be thought of as:
- (A) approximately the nominal risk-free rate plus the expected inflation rate.
(B) approximately the nominal risk-free rate reduced by the expected inflation rate.
(C) exactly the nominal risk-free rate reduced by the expected inflation rate.
20. An investor begins with a \$100,000 portfolio. At the end of the first period, it generates \$5,000 of income, which he does not reinvest. At the end of the second period, he contributes \$25,000 to the portfolio. At the end of the third period, the portfolio is valued at \$123,000. The portfolio's money-weighted return per period is closest to:
- (A) 1.20%.
(B) -0.50%.
(C) 0.94%
21. An asset manager's portfolio had the following annual rates of return:

Year	Return
20X7	+6%
20X8	-37%
20X9	+27%

The manager states that the return for the period is -5.34% . The manager has reported the:

- (A) arithmetic mean return.
- (B) geometric mean return.
- (C) holding period return.

22. An investor buys one share of stock for \$100. At the end of year one she buys three more shares at \$89 per share. At the end of year two she sells all four shares for \$98 each. The stock paid a dividend of \$1.00 per share at the end of year one and year two. What is the investor's money-weighted rate of return?

- (A) 0.06%.
- (B) 5.29%.
- (C) 6.35%

23. A stated interest rate of 9% compounded continuously results in an effective annual rate closest to:

- (A) 9.42%.
- (B) 9.20%.
- (C) 9.67%.

24. A security portfolio earns a gross return of 7.0% and a net return of 6.5%. The difference of 0.5% most likely results from:

- (A) inflation.
- (B) fees.
- (C) taxes.

25. A stock increased in value last year. Which will be greater, its continuously compounded or its holding period return?

- (A) Its continuously compounded return.
- (B) Its holding period return.
- (C) Neither, they will be equal.

26. Which one of the following statements best describes the components of the required interest rate on a security?

- (A) The real risk-free rate, the expected inflation rate, the default risk premium, a liquidity premium and a premium to reflect the risk associated with the maturity of the security.
- (B) The real risk-free rate, the default risk premium, a liquidity premium and a premium to reflect the risk associated with the maturity of the security.

- (C) The nominal risk-free rate, the expected inflation rate, the default risk premium, a liquidity premium and a premium to reflect the risk associated with the maturity of the security.
27. An investor buys one share of stock for \$100. At the end of year one she buys three more shares at \$89 per share. At the end of year two she sells all four shares for \$98 each. The stock paid a dividend of \$1.00 per share at the end of year one and year two. What is the investor's time-weighted rate of return?
- (A) 0.06%.
(B) 11.24%.
(C) 6.35%.
28. Based on the advice of his financial advisor regarding dollar cost averaging, a client invests \$2,000 each month into a blue-chip stock. The stock price on the date of purchase each month over a four-month stretch was \$12, \$14, \$11, and \$9. Using the harmonic mean, the average cost per share of the stock is closest to:
- (A) \$11.50.
(B) \$11.75.
(C) \$11.20.
29. Over the last four years, an investor's portfolio has the following returns: 5.26%, -2.10%, 3.86%, and 8.18%. The arithmetic mean return is closest to:
- (A) 3.73%.
(B) 3.80%.
(C) 3.76%.
30. A dataset contains six values, none of which are equal. The arithmetic mean of the data is 13.25, and the geometric mean of the data is 12.75. The harmonic mean will be:
- (A) less than 12.75.
(B) between 12.75 and 13.25.
(C) greater than 13.25.
31. The product of the arithmetic mean and the harmonic mean is the:
- (A) square root of the geometric mean.
(B) square of the geometric mean.
(C) geometric mean.

32. Which of the following return measures is best described as purely representing time preference?
- (A) Real risk-free interest rate.
 - (B) Total rate of return.
 - (C) Nominal risk-free interest rate.
33. A bond was purchased exactly one year ago for \$910 and was sold today for \$1,020. During the year, the bond made two semi-annual coupon payments of \$30. What is the holding period return?
- (A) 12.1%.
 - (B) 18.7%.
 - (C) 6.0%.
34. An investor sold a 30-year bond at a price of \$850 after he purchased it at \$800 a year ago. He received \$50 of interest at the time of the sale. The annualized holding period return is:
- (A) 12.5%.
 - (B) 15.0%.
 - (C) 6.25%.
35. A stock is currently worth \$75. If the stock was purchased one year ago for \$60, and the stock paid a \$1.50 dividend during the year, what is the holding period return?
- (A) 24.0%.
 - (B) 22.0%.
 - (C) 27.5%.
36. T-bill yields can be thought of as:
- (A) nominal risk-free rates because they contain an inflation premium.
 - (B) nominal risk-free rates because they do not contain an inflation premium.
 - (C) real risk-free rates because they contain an inflation premium.
37. Given a holding period return of R , the continuously compounded rate of return is:
- (A) $e^R - 1$.
 - (B) $\ln(1 + R)$.
 - (C) $\ln(1 + R) - 1$.

38. If an investor bought a stock for \$32 and sold it nine months later for \$37.50 after receiving \$2 in dividends, what was the holding period return on this investment?
- (A) 23.44%.
 - (B) 17.19%.
 - (C) 32.42%
39. Assuming at least some variations in a set of data, the:
- (A) arithmetic mean is greater than geometric mean, which is greater than the harmonic mean.
 - (B) geometric mean is greater than the arithmetic mean, which is greater than the harmonic mean.
 - (C) harmonic mean is greater than the geometric mean, which is greater than the arithmetic mean.
40. An investor buys a share of stock for \$200.00 at time $t = 0$. At time $t = 1$, the investor buys an additional share for \$225.00. At time $t = 2$ the investor sells both shares for \$235.00. During both years, the stock paid a per share dividend of \$5.00. What are the approximate timeweighted and money-weighted returns respectively?
- (A) 10.8%; 9.4%.
 - (B) 7.7%; 7.7%.
 - (C) 9.0%; 15.0%.
41. An analyst evaluates a dataset with eight values. From the dataset, she calculates the geometric mean to be 8.50. If the arithmetic mean is equal to 8.90, the harmonic mean is closest to:
- (A) 8.63.
 - (B) 8.12.
 - (C) 9.30.
42. On January 1, Jonathan Wood invests \$50,000. At the end of March, his investment is worth \$51,000. On April 1, Wood deposits \$10,000 into his account, and by the end of June, his account is worth \$60,000. Wood withdraws \$30,000 on July 1 and makes no additional deposits or withdrawals the rest of the year. By the end of the year, his account is worth \$33,000. The time-weighted return for the year is closest to:
- (A) 7.0%.
 - (B) 5.5%.
 - (C) 10.4%.

43. An investor with a buy-and-hold strategy who makes quarterly deposits into an account should most appropriately evaluate portfolio performance using the portfolio's:
- (A) arithmetic mean return.
 - (B) geometric mean return.
 - (C) money-weighted return
44. The most appropriate measure of the increase in the purchasing power of a portfolio's value over a given span of time is a(n):
- (A) after-tax return.
 - (B) real return.
 - (C) holding period return



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