CHAPTER 1—THE INVESTMENT SETTING

TRUE/FALSE

1. The rate of exchange between certain future dollars and certain current dollars is known as the pure rate of interest.

   ANS: T PTS: 1

2. An investment is the current commitment of dollars over time to derive future payments to compensate the investor for the time funds are committed, the expected rate of inflation and the uncertainty of future payments.

   ANS: T PTS: 1

3. The holding period return (HPR) is equal to the holding period yield (HPY) stated as a percentage.

   ANS: F PTS: 1

4. The geometric mean of a series of returns is always larger than the arithmetic mean and the difference increases with the volatility of the series.

   ANS: F PTS: 1

5. The expected return is the average of all possible returns.

   ANS: F PTS: 1

6. Two measures of the risk premium are the standard deviation and the variance.

   ANS: F PTS: 1

7. The variance of expected returns is equal to the square root of the expected returns.

   ANS: F PTS: 1

8. The coefficient of variation is the expected return divided by the standard deviation of the expected return.

   ANS: F PTS: 1

9. Nominal rates are averages of all possible real rates.

   ANS: F PTS: 1

10. The risk premium is a function of the volatility of operating earnings, sales volatility and inflation.

    ANS: F PTS: 1

11. An individual who selects the investment that offers greater certainty when everything else is the same is known as a risk averse investor.

    ANS: T PTS: 1

12. Investors are willing to forgo current consumption in order to increase future consumption for a nominal rate of interest.

    ANS: F PTS: 1

MULTIPLE CHOICE

1. The basic trade-off in the investment process is
   a. between the anticipated rate of return for a given investment instrument and its degree of risk.
   b. between understanding the nature of a particular investment and having the opportunity to purchase it.
   c. between high returns available on single instruments and the diversification of instruments into a portfolio.
   d. between the desired level of investment and possessing the resources necessary to carry it out.
   e. None of the above.

   ANS: A PTS: 1

2. The rate of exchange between future consumption and current consumption is
   a. The nominal risk-free rate.
   b. The coefficient of investment exchange.
   c. The pure rate of interest.
   d. The consumption/investment paradigm.
   e. The expected rate of return.

   ANS: C PTS: 1

3. The ____ the variance of returns, everything else remaining constant, the ____ the dispersion of expectations and the ____ the risk.
   a. Larger, greater, lower
   b. Larger, smaller, higher
   c. Larger, greater, higher
   d. Smaller, greater, lower
   e. Smaller, greater, greater

   ANS: C PTS: 1

4. The coefficient of variation is a measure of
   a. Central tendency.
   b. Absolute variability.
   c. Absolute dispersion.
   d. Relative variability.
   e. Relative return.

   ANS: D PTS: 1

5. The nominal risk free rate of interest is a function of
   a. The real risk free rate and the investment's variance.
   b. The prime rate and the rate of inflation.
   c. The T-bill rate plus the inflation rate.
   d. The tax free rate plus the rate of inflation.
   e. The real risk free rate and the rate of inflation.

   ANS: E PTS: 1

6. In the phrase "nominal risk free rate," nominal means
   a. Computed.
   b. Historical.
   c. Market.
   d. Average.
   e. Risk adverse.

   ANS: C PTS: 1

7. If a significant change is noted in the yield of a T-bill, the change is most likely attributable to
   a. A downturn in the economy.
   b. A static economy.
   c. A change in the expected rate of inflation.
   d. A change in the real rate of interest.
   e. A change in risk aversion.

   ANS: C PTS: 1

8. The real risk-free rate is affected by a two factors:
   a. The relative ease or tightness in capital markets and the expected rate of inflation.
   b. The expected rate of inflation and the set of investment opportunities available in the economy.
   c. The relative ease or tightness in capital markets and the set of investment opportunities available in the economy.
   d. Time preference for income consumption and the relative ease or tightness in capital markets.
   e. Time preference for income consumption and the set of investment opportunities available in the economy.

   ANS: E PTS: 1

9. Which of the following is **not** a component of the risk premium?
   a. Business risk
   b. Financial risk
   c. Liquidity risk
   d. Exchange rate risk
   e. Unsystematic market risk

   ANS: E PTS: 1

10. The ability to sell an asset quickly at a fair price is associated with
   a. Business risk.
   b. Liquidity risk.

c. Exchange rate risk.
d. Financial risk.
e. Market risk.

ANS: B PTS: 1

11. The variability of operating earnings is associated with
 a. Business risk.
 b. Liquidity risk.
 c. Exchange rate risk.
 d. Financial risk.
 e. Market risk.

 ANS: A PTS: 1

12. The uncertainty of investment returns associated with how a firm finances its investments is known as
 a. Business risk.
 b. Liquidity risk.
 c. Exchange rate risk.
 d. Financial risk.
 e. Market risk.

 ANS: D PTS: 1

13. What will happen to the security market line (SML) if the following events occur, other things constant: (1) inflation expectations increase, and (2) investors become more risk averse?
 a. Shift up and keep the same slope
 b. Shift up and have less slope
 c. Shift up and have a steeper slope
 d. Shift down and keep the same slope
 e. Shift down and have less slope

 ANS: C PTS: 1

14. A decrease in the market risk premium, all other things constant, will cause the security market line to
 a. Shift up
 b. Shift down
 c. Have a steeper slope
 d. Have a flatter slope
 e. Remain unchanged

 ANS: D PTS: 1

15. A decrease in the expected real growth in the economy, all other things constant, will cause the security market line to
 a. Shift up
 b. Shift down
 c. Have a steeper slope
 d. Have a flatter slope
 e. Remain unchanged

 ANS: B PTS: 1

16. Unsystematic risk refers to risk that is

a. Undiversifiable
b. Diversifiable
c. Due to fundamental risk factors
d. Due to market risk
e. None of the above

ANS: B PTS: 1

17. The security market line (SML) graphs the expected relationship between
 a. Business risk and financial risk
 b. Systematic risk and unsystematic risk
 c. Risk and return
 d. Systematic risk and unsystematic return
 e. None of the above

 ANS: C PTS: 1

18. Two factors that influence the nominal risk-free rate are:
 a. The relative ease or tightness in capital markets and the expected rate of inflation.
 b. The expected rate of inflation and the set of investment opportunities available in the economy.
 c. The relative ease or tightness in capital markets and the set of investment opportunities available in the economy.
 d. Time preference for income consumption and the relative ease or tightness in capital markets.
 e. Time preference for income consumption and the set of investment opportunities available in the economy.

 ANS: A PTS: 1

19. Measures of risk for an investment include
 a. Variance of returns and business risk
 b. Coefficient of variation of returns and financial risk
 c. Business risk and financial risk
 d. Variance of returns and coefficient of variation of returns
 e. All of the above

 ANS: D PTS: 1

20. Sources of risk for an investment include
 a. Variance of returns and business risk
 b. Coefficient of variation of returns and financial risk
 c. Business risk and financial risk
 d. Variance of returns and coefficient of variation of returns
 e. All of the above

 ANS: C PTS: 1

21. Modern portfolio theory assumes that most investors are
 a. Risk averse
 b. Risk neutral
 c. Risk seekers
 d. Risk tolerant

e. None of the above

ANS: A PTS: 1

22. Which of the following is not a component of the required rate of return?
   a. Expected rate of inflation
   b. Time value of money
   c. Risk
   d. Holding period return
   e. All of the above are components of the required rate of return

ANS: D PTS: 1

23. All of the following are major sources of uncertainty EXCEPT
   a. Business risk
   b. Financial risk
   c. Default risk
   d. Country risk
   e. Liquidity risk

ANS: C PTS: 1

24. The total risk for a security can be measured by its
   a. Beta with the market portfolio
   b. Systematic risk
   c. Standard deviation of returns
   d. Unsystematic risk
   e. Alpha with the market portfolio

ANS: C PTS: 1

NARRBEGIN: Exhibit 01-01
Exhibit 1-1

USE THE FOLLOWING INFORMATION FOR THE NEXT PROBLEM(S)

Assume you bought 100 shares of NewTech common stock on January 15, 2003 at $50.00 per share and sold it on January 15, 2004 for $40.00 per share.
NARREND

25. Refer to Exhibit 1-1. What was your holding period return?
   a. –10%
   b. –0.8
   c. 25%
   d. 0.8
   e. –20%

ANS: D
HPR = Ending Value / Beginning Value = 40/50 = 0.8

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-01

26. Refer to Exhibit 1-1. What was your holding period yield?

a. –10%
b. –0.8
c. 25%
d. 0.8
e. –20%

ANS: E
HPY = HPR – 1 = (40/50) – 1 = 0.8 – 1 = –0.2 = –20%

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-01

NARRBEGIN: Exhibit 01-02
Exhibit 1-2

USE THE FOLLOWING INFORMATION FOR THE NEXT PROBLEM(S)

Suppose you bought a GM corporate bond on January 25, 2001 for $750, on January 25, 2004 sold it for $650.00.
NARREND

27. Refer to Exhibit 1-2. What was your annual holding period return?
a. 0.8667
b. –0.1333
c. 0.0333
d. 0.9534
e. –0.0466

ANS: D
HPR = Ending Value/Beginning Value = $650.00/$750 = 0.8667

Annual HPR = $(\text{HPR})^{1/n} = (0.8667)^{1/3} = 0.9534$

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-02

28. Refer to Exhibit 1-2. What was your annual holding period yield?
a. –0.0466
b. –0.1333
c. 0.0333
d. 0.3534
e. 0.8667

ANS: A
HPR = Ending Value/Beginning Value = $650.00/$750 = 0.8667

Annual HPR = $(\text{HPR})^{1/n} = (0.8667)^{1/3} = 0.9534$

Annual HPY = Annual HPR – 1 = 0.9534 – 1 = –0.0466 = –4.66%

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-02

NARRBEGIN: Exhibit 01-03
Exhibit 1-3

USE THE FOLLOWING INFORMATION FOR THE NEXT PROBLEM(S)

The common stock of XMen had the following historic prices.

Time	Price of XMen
3/01/1999	50.00
3/01/2000	47.00
3/01/2001	76.00
3/01/2002	80.00
3/01/2003	85.00
3/01/2004	90.00

NARREND

29. Refer to Exhibit 1-3. What was your holding period return for the time period 3/1/1999 to 3/1/2004?
a. 0.1247
b. 1.8
c. 0.1462
d. 0.40
e. 0.25

ANS: B
HPR = Ending Value/Beginning Value = 90/50 = 1.8

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-03

30. Refer to Exhibit 1-3. What was your annual holding period yield (Annual HPY)?
a. 0.1462
b. 0.1247
c. 1.8
d. 0.40
e. 0.25

ANS: B
Annual HPR = $(\text{HPR})^{1/n} = (1.8)^{1/5} = 1.1247$

Annual HPY = Annual HPR − 1 = 1.1247 − 1 = 0.1247 = 12.47%

Time	Price of XMen	Return	HPR
3/01/1999	50		
3/01/2000	47	–0.0600	0.9400
3/01/2001	76	0.6170	1.6170
3/01/2002	80	0.0526	1.0526
3/01/2003	85	0.0625	1.0625
3/01/2004	90	0.0588	1.0588

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-03

31. Refer to Exhibit 1-3. What was your arithmetic mean annual yield for the investment in XMen?
a. 0.1462
b. 0.1247

c. 1.8
d. 0.40
e. 0.25

ANS: A

Arithmetic Mean = $\frac{1}{N}\sum_{t=1}^{N} HPY_t = \frac{-0.06 + 0.0617 + 0.0526 + 0.0625 + 0.588}{5} = 0.1462$

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-03

32. Refer to Exhibit 1-3. What was your geometric mean annual yield for the investment in XMen?
a. 0.25
b. 0.40
c. 1.8
d. 0.1247
e. 0.1462

ANS: D

Geometric Mean = $\prod_{t=1}^{N} (HPR_t)^{1/N} - 1$

$= [(0.94)(1.617)(1.0526)(1.0625)(1.0588)]^{1/5} - 1$

$= 1.1247 - 1 = 0.1247 = 12.47\%$

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-03

NARRBEGIN: Exhibit 01-04
Exhibit 1-4

USE THE FOLLOWING INFORMATION FOR THE NEXT PROBLEM(S)

You have concluded that next year the following relationships are possible:

Economic Status	Probability	Rate of Return
Weak Economy	.15	–5%
Static Economy	.60	5%
Strong Economy	.25	15%

NARREND

33. Refer to Exhibit 1-4. What is your expected rate of return [$E(R_i)$] for next year?
a. 4.25%
b. 6.00%
c. 6.25%
d. 7.75%
e. 8.00%

ANS: B
$E(R_i) = (0.15)(-5) + (0.60)(5) + (0.25)(15) = 6\%$

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-04

34. Refer to Exhibit 1-4. Compute the standard deviation of the rate of return for the one year period.
    a. 0.65%
    b. 1.45%
    c. 4.0%
    d. 6.25%
    e. 6.4%

ANS: D
$\sigma = [(0.15)(-5 - 6)^2 + (0.60)(5 - 6)^2 + (0.25)(15 - 6)^2]^{1/2} = 6.25\%$

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-04

35. Refer to Exhibit 1-4. Compute the coefficient of variation for your portfolio.
    a. 0.043
    b. 0.12
    c. 1.40
    d. 0.69
    e. 1.04

ANS: E
CV = Standard Deviation of Returns/Expected Rate of Return
= 6.25/6 = 1.04

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-04

NARRBEGIN: Exhibit 01-05
Exhibit 1-5

USE THE FOLLOWING INFORMATION FOR THE NEXT PROBLEM(S)

Assume that during the past year the consumer price index increased by 1.5 percent and the securities listed below returned the following nominal rates of return.

U.S. Government T-bills	2.75%
U.S. Long-term bonds	4.75%

NARREND

36. Refer to Exhibit 1-5. What are the real rates of return for each of these securities?
    a. 4.29% and 6.32%
    b. 1.23% and 4.29%
    c. 3.20% and 6.32%
    d. 1.23% and 3.20%
    e. 3.75% and 5.75%

ANS: D
Real rate on T-bills = (1.0275 / 1.015) – 1 = 0.0123 = 1.23%

Real rate on bonds = (1.0475 / 1.015) – 1 = 0.032 = 3.2%

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-05

37. Refer to Exhibit 1-5. If next year the real rates all rise by 10 percent while inflation climbs from 1.5 percent to 2.5 percent, what will be the nominal rate of return on each security?
   a. 1.24% and 1.52%
   b. 1.35% and 3.52%
   c. 3.89% and 6.11%
   d. 3.52% and 3.89%
   e. 1.17% and 6.11%

ANS: C
The computations for the new real rates are:

Real rate on T-bills = 1.23 × 1.10 = 1.353%
Real rate on bonds = 3.2 × 1.10 = 3.52%
Nominal rate on T-bills = (1.01353)(1.025) − 1 = .03886 = 3.89%
Nominal rate on corporate bonds = (1.0352)(1.025) − 1 = .06108 = 6.11%

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-05

38. If over the past 20 years the annual returns on the S&P 500 market index averaged 12% with a standard deviation of 18%, what was the coefficient of variation?
   a. 0.6
   b. 0.6%
   c. 1.5
   d. 1.5%
   e. 0.66%

ANS: C
Coefficient of Variation = Standard Deviation of Returns/Expected Rate of Return
= 18% / 12% = 1.5

PTS: 1 OBJ: Multiple Choice Problems

39. Given investments A and B with the following risk return characteristics, which one would you prefer and why?

Investment	**Expected Return**	**Standard Deviation of Expected Returns**
A	12.2%	7%
B	8.8%	5%

   a. Investment A because it has the highest expected return.
   b. Investment A because it has the lowest relative risk.
   c. Investment B because it has the lowest absolute risk.
   d. Investment B because it has the lowest coefficient of variation.
   e. Investment A because it has the highest coefficient of variation.

ANS: D
Coefficient of Variation = Standard Deviation of Returns/Expected Rate of Return

CV_A = 7% / 12.2% = 0.573

$CV_B = 5\% / 8.8\% = 0.568$

Investment B has the lowest coefficient of variation and would be preferred.

PTS: 1 OBJ: Multiple Choice Problems

NARRBEGIN: Exhibit 01-06
Exhibit 1-6

USE THE FOLLOWING INFORMATION FOR THE NEXT PROBLEM(S)

You are provided with the following information

Nominal return on risk-free asset = 4.5%
Expected return for asset i = 12.75%
Expected return on the market portfolio = 9.25%
NARREND

40. Refer to Exhibit 1-6. Calculate the risk premium for asset i
    a. 4.5%
    b. 8.25%
    c. 4.75%
    d. 3.5%
    e. None of the above

ANS: B
Risk premium for asset i = 12.75 – 4.5 = 8.25%

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-06

41. Refer to Exhibit 1-6. Calculate the risk premium for the market portfolio
    a. 4.5%
    b. 8.25%
    c. 4.75%
    d. 3.5%
    e. None of the above

ANS: C
Risk premium market portfolio = 9.25 – 4.5 = 4.75%

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-06

NARRBEGIN: Exhibit 01-07
Exhibit 1-7

USE THE FOLLOWING INFORMATION FOR THE NEXT PROBLEM(S)

Consider the following information

Nominal annual return on U.S. government T-bills for year 2000 = 3.5%
Nominal annual return on U.S government long-term bonds for year 2000 = 4.75%

Nominal annual return on U.S. large-cap stocks for year 2000 = 8.75%
Consumer price index January 1, 2000 = 165
Consumer price index December 31, 2000 = 169
NARREND

42. Refer to Exhibit 1-7. Compute the rate of inflation for the year 2000
    a. 2.42%
    b. 4.0%
    c. 1.69%
    d. 1.24%
    e. None of the above

    ANS: A
    Rate of inflation = (169/165) – 1 = .0242 = 2.42%

    PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-07

43. Refer to Exhibit 1-7. Calculate the real rate of return for U.S. T-bills
    a. 2.26%
    b. 1.81%
    c. –0.5%
    d. 1.05%
    e. None of the above

    ANS: D
    Real return on U.S. T-bills = (1.035/1.0242) – 1 = .0105 = 1.05%

    PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-07

44. Refer to Exhibit 1-7. Calculate the real rate of return for U.S. long-term bonds
    a. 3.06%
    b. 2.27%
    c. 2.51%
    d. 3.5%
    e. None of the above

    ANS: B
    Real return on U.S. bonds = (1.0475/1.0242) – 1 = .0227 = 2.27%

    PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-07

45. Refer to Exhibit 1-7. Calculate the real rate of return for U.S. large-cap stocks
    a. 7.06%
    b. 6.18%
    c. 4.75%
    d. 3.75%
    e. None of the above

    ANS: B
    Real return on U.S. stocks = (1.0875/1.0242) – 1 = .0618 = 6.18%

    PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-07

NARRBEGIN: Exhibit 01-08
Exhibit 1-8

USE THE FOLLOWING INFORMATION FOR THE NEXT PROBLEM(S)

Assume that you hold a two stock portfolio. You are provided with the following information on your holdings

Stock	Shares	Price(t)	Price(t+1)
1	15	10	12
2	25	15	16

NARREND

46. Refer to Exhibit 1-8. Calculate the HPY for stock 1
    a. 10%
    b. 20%
    c. 15%
    d. 12%
    e. 7%

ANS: B

Stock	Shares	Price(t)	MV(t)	Price(t+1)	MV(t+1)	HPR	HPY	Weight	Weighted HPY
1	15	10	150	12	180	1.2	0.2	0.29	0.058
2	25	15	375	16	400	1.07	0.07	0.71	0.048
			525		580				0.106

HPY for stock 1 = (180/150) – 1 = .2 = 20%

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-08

47. Refer to Exhibit 1-8. Calculate the HPY for stock 2
    a. 5%
    b. 6%
    c. 7%
    d. 8%
    e. 10%

ANS: C

Stock	Shares	Price(t)	MV(t)	Price(t+1)	MV(t+1)	HPR	HPY	Weight	Weighted HPY
1	15	10	150	12	180	1.2	0.2	0.29	0.058
2	25	15	375	16	400	1.07	0.07	0.71	0.048
			525		580				0.106

HPY for stock 2 = (400/375) – 1 = .07 = 7%

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-08

48. Refer to Exhibit 1-8. Calculate the market weights for stock 1 and 2 based on period t values
    a. 39% for stock 1 and 61% for stock 2

b. 50% for stock 1 and 50% for stock 2
c. 71% for stock 1 and 29% for stock 2
d. 29% for stock 1 and 71% for stock 2
e. None of the above

ANS: D

Stock	Shares	Price(t)	MV(t)	Price(t+1)	MV(t+1)	HPR	HPY	Weight	Weighted HPY
1	15	10	150	12	180	1.2	0.2	0.29	0.058
2	25	15	375	16	400	1.07	0.07	0.71	0.048
			525		580				0.106

Market weight for stock 1 = 150/525 = .29 = 29%
Market weight for stock 2 = 375/525 = .71 = 71%

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-08

49. Refer to Exhibit 1-8. Calculate the HPY for the portfolio
a. 10.6%
b. 6.95%
c. 13.5%
d. 10%
e. 15.7%

ANS: A

Stock	Shares	Price(t)	MV(t)	Price(t+1)	MV(t+1)	HPR	HPY	Weight	Weighted HPY
1	15	10	150	12	180	1.2	0.2	0.29	0.058
2	25	15	375	16	400	1.07	0.07	0.71	0.048
			525		580				0.106

Portfolio HPY = .29(.20) + .71(.07) = .106 = 10.6%

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-08

NARRBEGIN: Exhibit 01-09
Exhibit 1-9

USE THE FOLLOWING INFORMATION FOR THE NEXT PROBLEM(S)

You purchased 100 shares of GE common stock on January 1, for $29 a share. A year later you received $1.25 in dividends per share and you sold it for $28 a share.
NARREND

50. Refer to Exhibit 1-9. Calculate your holding period return (HPR) for this investment in GE stock.
a. 0.9655
b. 1.0086
c. 1.0357
d. 1.0804
e. 1.0973

ANS: B
HPR = (28 + 1.25)/29 = 1.0086

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-09

51. Refer to Exhibit 1-9. Calculate your holding period yield (HPY) for this investment in GE stock.
    a. –0.0345
    b. –0.0090
    c. 0.0086
    d. 0.0643
    e. 0.0804

ANS: C
HPY = (28 + 1.25)/29 – 1 = 1.0086 – 1 = 0.0086

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-09

NARRBEGIN: Exhibit 01-10
Exhibit 1-10

USE THE FOLLOWING INFORMATION FOR THE NEXT PROBLEM(S)

The annual rates of return of Stock Z for the last four years are 0.10, 0.15, –0.05, and 0.20, respectively.
NARREND

52. Refer to Exhibit 1-10. Compute the arithmetic mean annual rate of return for Stock Z.
    a. 0.03
    b. 0.04
    c. 0.06
    d. 0.10
    e. 0.40

ANS: D
AM = (0.10 + 0.15 – 0.05 + 0.20)/4 = 0.10

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-10

53. Refer to Exhibit 1-10. Compute the standard deviation of the annual rate of return for Stock Z.
    a. 0.0070
    b. 0.0088
    c. 0.0837
    d. 0.0935
    e. 0.1145

ANS: D

$$\text{Std Dev} = \sqrt{\frac{(0.10-0.10)^2+(0.15-0.10)^2+(-0.05-0.10)^2+(0.20-0.10)^2}{4}}$$

$$= \sqrt{\frac{0+.0025+.0225+.01}{4}} = \sqrt{\frac{.035}{4}} = .0935$$

PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-10

54. Refer to Exhibit 1-10. Compute the coefficient of variation for Stock Z.
    a. 0.837
    b. 0.935
    c. 1.070
    d. 1.145
    e. 1.281

    ANS: B
    The coefficient of variation is equal to the standard deviation divided by the expected return.
    .0935/10 = 0.935

    PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-10

55. Refer to Exhibit 1-10. Compute the geometric mean rate of return for Stock Z.
    a. 0.051
    b. 0.074
    c. 0.096
    d. 0.150
    e. 1.090

    ANS: C
    $[(1.1)(1.15)(0.95)(1.2)]^{1/4} = 1.0958 - 1 = 0.0958$

    PTS: 1 OBJ: Multiple Choice Problems NAR: Exhibit 01-10