

Module 1: Rates and Returns (Practice)

Question 1:

The nominal risk-free rate is best described as the sum of the real risk-free rate and a premium for:

- A. maturity.
 - B. liquidity.
 - C. expected inflation.
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Question 2:

Which of the following risk premiums is most relevant in explaining the difference in yields between 30-year bonds issued by the US Treasury and 30-year bonds issued by a small, private US corporate issuer?

- A. Inflation
 - B. Maturity
 - C. Liquidity
-

Question 3:

Consider the following annual return for Fund Y over the past five years:

Exhibit 1 Five-Year Annual Returns

Year	Return (%)
Year 1	19.5
Year 2	-1.9
Year 3	19.7
Year 4	35.0
Year 5	5.7

The geometric mean return for Fund Y is closest to:

- A. 14.9 percent.
 - B. 15.6 percent.
 - C. 19.5 percent.
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Question 4:

A portfolio manager invests EUR5,000 annually in a security for four years at the following prices:

Exhibit 1 Five-Year Purchase Prices

Year	Purchase Price (euros per unit)
Year 1	62.00
Year 2	76.00
Year 3	84.00

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Year	Purchase Price (euros per unit)
Year 4	90.00

The average price is best represented as the:

- A. harmonic mean of EUR76.48.
 - B. geometric mean of EUR77.26.
 - C. arithmetic average of EUR78.00.
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Question 5:

Which of the following statements regarding arithmetic and geometric means is correct?

- A. The geometric mean will exceed the arithmetic mean for a series with non-zero variance.
 - B. The geometric mean measures an investment's compound rate of growth over multiple periods.
 - C. The arithmetic mean measures an investment's terminal value over multiple periods.
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Question 6:

A fund receives investments at the beginning of each year and generates returns for three years as follows:

Exhibit 1 Investments and Returns for Three Years

Year of Investment	Assets under Management at the Beginning of each year	Return during Year of Investment
1	USD1,000	15%
2	USD4,000	14%
3	USD45,000	-4%

Which return measure over the three-year period is negative?

- A. Geometric mean return
 - B. Time-weighted rate of return
 - C. Money-weighted rate of return
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Question 7:

At the beginning of Year 1, a fund has USD10 million under management; it earns a return of 14 percent for the year. The fund attracts another net USD100 million at the start of Year 2 and earns a return of 8 percent for that year. The money-weighted rate of return of the fund is most likely to be:

- A. less than the time-weighted rate of return.
- B. the same as the time-weighted rate of return.
- C. greater than the time-weighted rate of return.

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Question 8:

An investor is evaluating the returns of three recently formed ETFs. Selected return information on the ETFs is presented in Exhibit 1:

Exhibit 1>Returns on ETFs

ETF	Time Since Inception	Return Since Inception (%)
1	125 days	4.25
2	8 weeks	1.95
3	16 months	17.18

Which ETF has the highest annualized rate of return?

- A. ETF 1
 - B. ETF 2
 - C. ETF 3
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Question 9:

The price of a stock at $t = 0$ is USD208.25 and at $t = 1$ is USD186.75. The continuously compounded rate of return, r , for the stock from $t = 0$ to $t = 1$ is closest to:

- A. -10.90 percent.
 - B. -10.32 percent.
 - C. 11.51 percent.
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Question 10:

A USD25 million equity portfolio is financed 20 percent with debt at a cost of 6 percent annual cost. If that equity portfolio generates a 10 percent annual total investment return, then the leveraged return is:

- A. 11.0 percent.
 - B. 11.2 percent.
 - C. 13.2 percent
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Question 11:

An investment manager's gross return is:

- A. an after-tax nominal, risk-adjusted return.
 - B. the return earned by the manager prior to deduction of trading expenses.
 - C. an often used measure of an investment manager's skill because it does not include expenses related to management or administration.
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Question 12:

The strategy of using leverage to enhance investment returns:

- A. amplifies gains but not losses.
 - B. doubles the net return if half of the invested capital is borrowed.
 - C. increases total investment return only if the return earned exceeds the borrowing cost.
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Question 13:

At the beginning of the year, an investor holds EUR10,000 in a hedge fund. The investor borrowed 25 percent of the purchase price, EUR2,500, at an annual interest rate of 6 percent and expects to pay a 30 percent tax on the return she earns from his investment. At the end of the year, the hedge fund reported the information in Exhibit 1:

Exhibit 1 Hedge Fund Investment

Gross return	8.46%
Trading expenses	1.10%
Managerial and administrative expenses	1.60%

The investor's after-tax return on the hedge fund investment is closest to:

- A. 3.60 percent.
 - B. 3.98 percent.
 - C. 5.00 percent.
-

Question 14:

An investor purchases one share of stock for \$85. Exactly one year later, the company pays a dividend of \$2.00 per share. This is followed by two more annual dividends of \$2.25 and \$2.75 in successive years. Upon receiving the third dividend, the investor sells the share for \$100. The money-weighted rate of return on this investment is closest to:

- A. 7.97%.
 - B. 8.15%.
 - C. 8.63%.
-

Question 15:

The liquidity premium can best be described as compensation to investors for the:

- A. risk of loss relative to an investment's fair value if the investment needs to be converted to cash quickly.
- B. increased sensitivity of the market value of debt to a change in market interest rates as maturity is extended.
- C. possibility that the borrower will fail to make a promised payment at the contracted time and in the

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contracted amount.

Question 16:

Once an investor chooses a particular course of action, the value forgone from alternative actions is best described as a(n):

- A. sunk cost.
 - B. required return.
 - C. opportunity cost.
-

Question 17:

The quarterly returns on a portfolio are as follows:

Quarter	1	2	3	4
Return	20%	-20%	10%	-10%

The time-weighted rate of return of the portfolio is closest to:

- A. -5.0%.
 - B. -1.3%.
 - C. 0.0%.
-

Question 18:

The annualized return for an investor who has achieved a return of 5% over a six-week period is closest to:

- A. 43.33%.
 - B. 52.63%.
 - C. 54.24%.
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Question 19:

An investor deposits £2,000 into an account that pays 6% per annum compounded continuously. The value of the account at the end of four years is closest to:

- A. £2,525.
 - B. £2,542.
 - C. £2,854.
-

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Question 20:

Using a discount rate of 5%, compounded monthly, the present value (PV) of \$5,000 to be received three years from today is closest to:

- A. \$4,250.
 - B. \$4,319.
 - C. \$4,305.
-

Question 21:

Assume the following: The real risk-free rate of return is 3%. The expected inflation premium is 5%. The market-determined interest rate of a security is 12%. The sum of the default risk premium, liquidity premium, and maturity premium for the security is closest to:

- A. 4%.
 - B. 8%.
 - C. 10%.
-

Question 22:

The minimum rate of return an investor must receive in order to accept an investment is best described as the:

- A. expected return.
 - B. internal rate of return.
 - C. required rate of return.
-

Question 23:

Over the past four years, a portfolio experienced returns of -8%, 4%, 17%, and -12%. The geometric mean return of the portfolio over the four-year period is closest to:

- A. -0.37%.
 - B. 0.25%.
 - C. 0.99%.
-

Question 24:

A portfolio provides the following returns over a five-year period.

Year	1	2	3	4	5
Return	10%	-25%	8%	5%	7%

The average compound rate of return of the portfolio across the five-year period is closest to:

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- A. -9.31%.
 - B. 0.02%.
 - C. 1.00%.
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Question 25:

If the price of a stock goes from \$15.00 to \$16.20 in one year, the continuously compounded rate of return is closest to:

- A. 7.70%.
 - B. 8.33%.
 - C. 8.00%.
-

Question 26:

Investor A and Investor B invest in a fund for two years:

	Year 1	Year 2
Fund Return	Positive	Negative

Portfolio	Money-Weighted Rate of Return
Investor A	7.5%
Investor B	8.2%

Given the information in the table, which of the following is least likely to be an explanation for the difference between the two money-weighted rates of return?

- A. Investor A increased the investment in the fund at the end of year 1 whereas investor B did not make any additions or withdrawals.
 - B. Investor B decreased the investment in the fund at the end of year 1 whereas investor A did not make any additions or withdrawals.
 - C. The investors invested different amounts at inception and afterward did not make any additions or withdrawals.
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Question 27:

An investment in 10,000 common shares of a company for one year earned a 15.5% return. The investor received a \$2,500 dividend just prior to the sale of the shares at \$24 per share. The price that the investor paid for each share one year earlier was closest to:

- A. \$20.80.
- B. \$20.50.
- C. \$21.00.

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Question 28:

Consider the investment in the following table:

Start of Year 1	One share purchased at \$100
End of Year 1	\$5.00 dividend/share paid and one additional share purchased at \$125
End of Year 2	\$5.00 dividend/share paid and both shares are sold for \$140 per share

Assuming dividends are not reinvested, compared with the time-weighted return, the money-weighted return is:

- A. lower.
 - B. the same.
 - C. higher.
-

Question 29:

An investor purchases 100 shares of stock at \$40 per share. The investor holds the shares for exactly one year and then sells all of them at \$41.50 per share. On the date of sale, the investor receives dividends totaling \$200. The holding period return (HPR) on the investment is closest to:

- A. 8.75%.
 - B. 3.75%.
 - C. 8.43%.
-

Question 30:

An analyst observes that the historic geometric nominal return for equities is 9%. Given a real return of 1% for riskless Treasury bills and annual inflation of 2%, the real rate of return and risk premium for equities are closest to:

- A. 7.9% and 5.8%.
 - B. 6.9% and 7.9%.
 - C. 6.9% and 5.8%.
-

Question 31:

The return measure that best allows one to compare asset returns earned over different length time periods is the:

- A. holding period return.
 - B. annualized return.
 - C. net portfolio return.
-

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Question 32:

The 15-month holding period return for a security is 12%. Its annualized return is closest to:

- A. 9.49%.
 - B. 9.60%.
 - C. 10.03%.
-

Question 33:

For a given dataset with different non-negative observations, which of the following will have the largest value?

- A. Harmonic mean
 - B. Arithmetic mean
 - C. Geometric mean
-

Question 34:

An investor is considering buying a US T-bill. If the real risk-free rate is 1% and the inflation premium is 2%, the investor's opportunity cost of failing to make this investment is closest to:

- A. 1%.
 - B. 2%.
 - C. 3%.
-

Question 35:

An investor invests a fixed amount of money into a fund each year for three years as follows:

Year	Price per Share
1	€14.00
2	€12.00
3	€17.00

The investor's average cost per share is closest to:

- A. €14.05.
 - B. €14.33.
 - C. €14.63.
-

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Question 36:

An investor records the following information and transactions for a stock:

Year	Price per Share at Beginning of Year	Cash Flow at Beginning of Year
1	\$100	\$100 used to purchase one share
2	\$100	\$9 received in dividends and not reinvested
3	\$100	\$100 received from selling one share

The investor's money-weighted rate of return is closest to:

- A. 4.4%.
 - B. 4.5%.
 - C. 4.6%.
-

Question 37:

If a client controls the timing of cash flows into and out of a portfolio, which of the following is most appropriate when evaluating the performance of the portfolio manager?

- A. Time-weighted rate of return
 - B. Arithmetic mean rate of return
 - C. Money-weighted rate of return
-

Question 38:

The time preference of individuals for current instead of future real consumption is captured by the:

- A. liquidity premium.
 - B. maturity premium.
 - C. real risk-free interest rate.
-

Question 39:

An investor summarizes end-of-year cash outlays and proceeds from a two-year investment in a company's shares below:

Year	Outlays	Proceeds
0	\$100 to purchase the first share	---
1	\$110 to purchase the second share	\$10 dividend received from first share (not reinvested)
2	---	\$230 received from selling two shares at \$115 per share

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The annualized time-weighted rate of return of the investment over the two-year period is closest to:

- A. 9.7%.
- B. 12.0%.
- C. 12.3%.

Question 40:

An investor gathers the following information about a stock:

Stock price at $t = 0$	\$20
Dividend paid at $t = 1$	\$3
Stock price at $t = 1$	\$12
Dividend paid at $t = 2$	\$1
Stock price at $t = 2$	\$20

The investor purchased one unit of the stock at $t = 0$ and sold it at $t = 2$. If the dividends were not reinvested, the money-weighted rate of return is closest to:

- A. 10%.
- B. 15%.
- C. 20%.

Question 41:

An individual can invest \$19,000 today and receive \$20,000 in one year's time. If her required rate of return is 5%, the rate of return on the investment is:

- A. less than the required rate of return.
- B. equal to the required rate of return.
- C. greater than the required rate of return.

Question 42:

An analyst collects the following set of ten returns from previous years:

Year	1	2	3	4	5	6	7	8	9	10
Return (%)	2.2	6.2	8.9	9.3	10.5	11.7	12.3	14.1	15.3	18.4

The geometric mean return is closest to:

- A. 9.62%.
- B. 10.80%.
- C. 10.89%.

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Question 43:

Over a period of 16 months, an investor has earned a return of 12%. The investor's annualized return is closest to:

- A. 8.87%.
 - B. 9.00%.
 - C. 9.38%.
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Question 44:

An investor observed the following hedge fund return data.

Year	Beginning of Year Account Balance	Net Return of the Fund
1	\$30 million	10%
2	\$40 million	−5%
3	\$30 million	−5%

The money-weighted return is closest to:

- A. −1.523%.
 - B. −0.749%.
 - C. −0.524%.
-

Question 45:

A pension fund needs to pay a lump sum \$10,000,000 to its participants in 15 years. If the fund is expected to earn 5% per year compounded semi-annually, the amount needed today to meet its liability in 15 years is closest to:

- A. \$4,767,427.
 - B. \$4,810,171.
 - C. \$4,892,771.
-

Question 46:

A company estimates its revenue will be 50% higher than today in four years' time. The compound annual growth rate is closest to:

- A. 10.7%.
 - B. 11.8%.
 - C. 12.5%.
-

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Question 47:

An investor considers the following certificates of deposit (CDs) available for purchase at face value:

CD	Interest Rate
1	2.2%
2	3.3%
3	4.4%

If each CD has the same maturity and default risk, the opportunity cost of investing in CD 1 is closest to:

- A. 0.0%.
 - B. 1.1%.
 - C. 2.2%.
-

Question 48:

A bank offers a savings account with a stated annual rate of 3% in the first year and 5% in the second year. If returns are compounded quarterly and €90,000 is deposited in the account at the beginning of the first year, the account's value at the end of the second year is closest to:

- A. €97,200.
 - B. €97,335.
 - C. €97,455.
-

Question 49:

An investor is considering two term deposits with the following characteristics:

	Term Deposit 1	Term Deposit 2
Compounding frequency	Quarterly	Continuous
Stated annual rate	4%	---

The stated annual rate for Term Deposit 2 that should make the investor indifferent between the two term deposits is closest to:

- A. 3.92%.
 - B. 3.98%.
 - C. 4.06%.
-

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Question 50:

An analyst gathers the following information about a portfolio:

	Returns	
Year	Equity	Fixed Income
1	7.20%	2.10%
2	9.60%	-4.60%
3	-14.20%	4.70%

If the equity weighting is 70%, the fixed-income weighting is 30% and the portfolio is rebalanced annually, the portfolio's annual geometric mean return is closest to:

- A. 0.60%.
 - B. 0.83%.
 - C. 1.82%.
-

Question 51:

An investor purchased a stock for \$450 and then sold the stock immediately after receiving a dividend of \$2. If the holding period return is a loss of 10.2%, the investor sold the stock at a price closest to:

- A. \$402.
 - B. \$404.
 - C. \$406.
-

Question 52:

An investor purchases a stock for \$100. Immediately after receiving a dividend of \$7, the investor sells the stock for \$107. The holding period return of the investment is closest to:

- A. 0%.
 - B. 7%.
 - C. 14%.
-

Question 53:

Which of the following statements is most accurate? The money-weighted return:

- A. ignores cash withdrawals and additional cash investments.
 - B. measures what the investor actually earned on the funds invested.
 - C. should be used to compare the performance of different investment managers.
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Question 54:

Which of the following risk premiums compensates investors for the risk of loss relative to an investment's fair value if the investment needs to be converted to cash quickly?

- A. Liquidity premium
 - B. Inflation premium
 - C. Maturity premium
-

Question 55:

With respect to portfolio return measures, which of the following statements is most accurate?

- A. The time-weighted return is sensitive to additions and withdrawals of funds
 - B. The calculations of the money-weighted return and internal rate of return are similar
 - C. The money-weighted return is the preferred measure when evaluating the performance of a portfolio manager
-