MODERN PORTFOLIO THEORY AND INVESTMENT ANALYSIS
9TH EDITION

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The following exam questions are organized according to the text's sections. Within each section, questions follow the order of the text's chapters and are organized as multiple choice, true-false with discussion, problems, and essays. The correct answers and the corresponding chapter(s) are indicated below each question.

PART 1: INTRODUCTION

Multiple Choice

1. Julia earns $60,000 each year for two consecutive years. She has an option to invest in treasury funds to earn a 5% interest today, and consume the entire amount in the second year. Alternatively, she can choose to borrow money at 5% against the second period's income. Assume that the optimum decision for her is to invest money at 5%. Determine the maximum amount she could consume in period 2.
   a. $60,000
   b. $0
   c. $123,000
   d. $117,143

Answer: c
Chapter: 1

2. Which of the following security's value is contingent on the performance of an underlying security?
   a. Treasury Bill
   b. Option
   c. Corporate Bond
   d. Equity

Answer: b
Chapter: 2

3. Collateralized debt obligations (CBO)are backed by one of the following:
   a. Pools of mortgages
   b. Pools of commercial or personal loans
   b. Low Investment-grade corporate bonds

Answer: b
Chapter: 2

4. An order which is activated only when the price of the stock reaches or passes through a predetermined limit is called the:
   a. stop order.
   b. day order.
   c. limit order.
   d. market order.

Answer: a
Chapter: 3

True/False

1. Dow Jones Industrial Average Index (DJIA) is consisted of a price-weighted average of 30 large "blue chip" stocks.
Answer: True
Chapter: 2

2. Stocks are traded only in the listing exchange. For example, the fact that IBM is listed in NYSE implies that it can only be traded in NYSE
Answer: False
Chapter: 3

3. In a book market, orders are ranked by price and time. That is, one the bid (buy) side of the book, a high priced limit order has priority over a lower priced order. On the offer (ask) side of the book, a low priced limit order has priority.
Answer: True
Chapter: 3

4. In case of government bonds, non-competitive bidders have price uncertainty and competitive bidders face volume uncertainty.
Answer: True
Chapter: 3

Essays

1. Given a typical set of indifference curves and a budget constraint for a 1-period (2-date) consumption model, where will the optimum consumption pair (for date 1 and date 2) be found on the graph and why is it optimal?
Answer:
The amount an investor consumes over the period is constrained by the amount of income the investor has available in the period. A budget constraint specifies the options that are available to the investor, and can be used to determine the opportunity set. The first part of the analysis is to determine the options open to the investor. One option available is to save nothing and consume everything on receipt. The second option is to save all income received on date 1. On date 2, income saved on the first date plus interest earned on it is consumed along with the income received on date 2. The third

option is to consume everything now and not worry about tomorrow. The amount consumed would be the amount received on date 1 and the amount that can be borrowed against the amount to be received on date 2. This can be plotted on a graph as a straight line to depict the investor's opportunity set.

The economic theory of choice states that an investor chooses among the opportunities in the opportunity set by specifying a series of curves called utility functions or indifference curves. These curves represent the investor's preference for income over a period. The optimum consumption pattern for the investor is determined by the point at which an indifference curve is tangent to the opportunity set. The investor can select either of the two consumption patterns indicated by the points where the indifference curve intersects the opportunity set. This is because an investor is better off selecting a consumption pattern lying on a higher indifference curve. However, an investor cannot choose an indifference curve above the opportunity set as there is no feasible investment opportunity available on this curve. The investor will move to higher indifference curves until the highest one that contains a feasible consumption pattern is reached. In other words, the optimum consumption pattern is where the highest feasible indifference curve is just tangent to the opportunity set.
Chapter: 1

2. List the factors that affect risk.
Answer: The following are the factors that affect risk:

1. The maturity of an instrument (usually, longer the maturity assets are riskier)
2. The risk characteristics and creditworthiness of the issuer or guarantor of the investment.
3. The nature and priority of the claims the investment has on income and assets.
4. The liquidity of the instrument and the type of market in which it is being traded.

Chapter: 2

3. List and discuss the characteristics of various types of financial securities.
Answer: A security is a legal contract representing the right to receive future benefits under a stated set of conditions. The various types of financial securities are:

A. Money Market Securities

Money market securities are short-term debt instruments sold by governments, financial institutions, and corporations. Money market instruments have maturities of one year or less when issued and their transaction size is typically large. The various types of money market instruments are:

1. Treasury Bills (T-bills): These are the least risky and the most marketable of all money market instruments. T-bills are sold at a discount from face value and pay no explicit interest payments. The difference between the purchase price and the face value constitutes the return the investor receives. These are considered to be the closest approximations available to a riskless investment.
2. Repurchase Agreements (Repos): These refer to an agreement between a borrower and a lender to sell and repurchase a U.S. government security. The

maturity of a repo is usually very short (less than 14 days), with overnight repos being fairly common. Longer repos, often labeled "term repos," may have maturities of 30 days or more.

3. Other Short-Term Instruments: CDs (negotiable certificates of deposit) are time deposits with a bank. Bankers' acceptances are contracts by a bank to pay a specific sum of money on a particular date. Both instruments sell at rates that depend on the credit rating of the bank that backs them. Commercial paper is a short-term debt instrument issued by large, well-known corporations, and rates are determined in part by the creditworthiness of the corporation.

B. Capital Market Securities

Capital market securities include instruments with maturities greater than one year, and those with no designated maturity at all. The types of capital market instruments are:

1. Fixed Income Securities: These securities have a specified payment schedule promising to pay specific amounts at specific times. In almost all cases, failure to meet any specific payment puts them into default, with all remaining payments (missed interest plus principal) due immediately.
    - Treasury Notes and Bonds: The federal government issues fixed income securities over a broad range of the maturity spectrum. Securities with maturity of 1 to 10 years are called Treasury notes, and securities with a maturity beyond 10 years are known as Treasury bonds. Both notes and bonds pay interest twice a year and repay principal on the maturity date.
    - Federal Agency Securities: They are issued by various federal agencies that have been granted the power to issue debt in order to help certain sectors of the economy.
    - Municipal Bonds: They are debt instruments sold by political entities such as states, counties, cities, and so forth, other than the federal government or its agencies. In contrast to agency bonds, municipal bonds can default and the interest on municipal bonds is exempt from federal and usually state taxes.
    - Corporate Bonds: They promise to pay interest at periodic intervals and to return principal at a fixed date. The major difference is that these bonds are issued by business entities and thus have a risk of default.

2. Not-So-Fixed Income Securities: These securities have a greater degree of variability in cash flows and variability does not result in the holder's right to force bankruptcy.
    - Preferred Stock: These securities promise to pay the holder periodic payments like coupons which are known as dividends rather than interest. Usually when a firm fails to pay dividends, these dividends are cumulated

and all unpaid preferred stock dividends must be paid off before any common stock dividends can be paid.

- Mortgage-Backed Securities: These instruments represent a share in a pool of mortgages.

3. Other Asset-Backed Securities: There are securities issued by financial institutions and backed by a pool of other fixed income securities usually structured so that there are several classes with different maturities and different levels of risk.

4. Common Stock (Equity): It represents an ownership claim on the earnings and assets of a corporation. After debt holders' claims are paid, the management of the company can either pay out the remaining earnings to stockholders in the form of dividends or reinvest part or all of the earnings in the business.

C. Derivative Instruments: These are securities whose value is derived from the value of an underlying security or basket of securities. The most common derivatives are:

1. Options: An option on a security gives the holder the right to either buy (a call option) or sell (a put option) a particular asset or a bundle of assets at a future date or during a particular period of time for a specified price.
2. Futures: They are obligations to buy a particular security or a bundle of securities at a particular time for a stated price.
3. Credit default swaps (CDS): These are insurance contracts to protect lenders against credit defaults. Essentially the lender pays an insurance premium to the issuer of the CDS, who will purchase the asset in the event of a default.

D. Mutual fund

A mutual fund holds a portfolio of securities, usually in line with a stated policy and objective. Mutual funds have two variants: open-end funds and closed-end funds. Open-end fund shares are purchased (and sold) directly from (and to) the mutual fund. They are purchased (and sold) at the value of the net assets standing behind each share. Closed-end funds sell at predetermined number of shares in the fund. They then take the proceeds (minus costs) from the sale of fund shares, and invest in stocks or stocks and bonds. The shares of a closed-end mutual fund can sell at a discount or a premium to their net asset value.

Chapter: 2

4. List and discuss the characteristics of various types of financial markets.

Answer: Financial markets can be classified in many different ways. We will look at four such ways to classify them. First, markets can be classified as primary or secondary. Primary markets are for new issues of securities. Secondary markets are where securities are resold.

The second classification divides markets into call or continuous markets. In a call market, trading takes place at specified time intervals with the prices being announced verbally, or with the use of a computer. To prevent a temporary order imbalance from dramatically moving the price, some call markets have a provision that limits the movement from the prior price. Continuous markets are markets where trading takes place on a continuous basis. These markets execute market orders quickly at the best available price.

The third way of classifying markets is based on whether they are dealer or broker markets. In a broker market, a broker acts as an agent for an investor and buys or sells shares on the investor's behalf. In a broker market, shareholders trade with other shareholders, albeit utilizing an agent. In a dealer market, the dealer purchases or sells shares for the investor utilizing his own inventory.

The fourth way to classify markets is to determine whether the trading is executed by humans or done electronically. An advantage of an electronic market is that the power of the computer allows complex conditional trades to be handled.

There are some characteristics for a desirable market:
(a) Market information should be promptly and accurately available to investors.
(b) Trading costs should be low.
(c) Share prices should reflect all available information about the shares.
(d) The market should be liquid.

Liquidity here refers to the ability to transact a large number of shares at prices that don't vary substantially from past prices, unless new information enters the market.
Chapter: 3