8. Alternative Investments

8.1. Traditional Investment vs. Alternative Investment

8.1.1. 重要知识点

8.1.1.1. 理解其他类投资与传统投资的不同之处，并掌握其他类投资的特性

- Narrow specialization of the investment managers
- Relatively low correlation of returns with those of traditional investments
- Less regulation and less transparency than traditional investments
- Limited historical risk and return data (leptokurtic, left-tailed)
- Unique legal and tax considerations
- Higher fees, often including performance or incentive fees
- Concentrated portfolios
- Restrictions on redemptions (i.e., “lockups” and “gates”)

8.1.1.2. 掌握其他类投资在整个投资组合中的特点

- High return;
- Low correlation (improve both portfolio risk and expected return);

8.1.1.3. 三种另类投资的基本投资方法

- Fund investing (indirect)
- Co-investing (direct & indirect)
- Direct investing (direct)

8.1.2. 基础题

Q-1. The potential benefits of allocating a portion of a portfolio to alternative investments include:

A. ease of manager selection.

B. improvement in the portfolio’s risk–return relationship.

C. accessible and reliable measures of risk and return.

Q-2. Which of the following statements is most accurate? Alternative investments:

A. have relatively high correlation of returns with those of traditional investments.

B. tend to be more efficiently priced than traditional investments.

C. fall outside of the definition of long-only positions in stocks or bonds.

Q-3. Compared to traditional investments, alternative investments are most likely characterized by:

A. less active management

B. more redemption restrictions

C. greater regulation

Q-4. Compared with long-only investments in stocks and bonds, alternative investments are most likely characterized by less:

A. flexibility to use derivatives.

B. manager specialization.

C. transparency.

Q-5. Identify the most appropriate advantage of direct investing for an investor:

A. Potential diversification benefits.

B. Highest level of control over how asset is managed.

C. Access to alternative investment without possessing a high degree of investment expertise.

Q-6. Which of the following least likely describes an advantage of fund investing?

A. Access to alternative investments without possessing a high degree of investment expertise.

B. Lower level of investor involvement as the fund managers provide investment services and expertise.

C. Highest level of control over how the asset is managed.

Q-7. In co-investing, the investor invests in alternative assets indirectly through a fund but also has the:

A. right to invest directly in the same assets alongside the fund.

B. obligation to invest directly in the same assets alongside the fund.

C. right to invest in the general partner's fund management company.

Q-8. An investor, who wants to gain exposure to alternative investments and has the inhouse expertise to perform due diligence on individual deals, is least likely to engage in:

A. co-investing.

B. fund investing.

C. direct investing.

8.2. Investment and Compensation Structure

8.2.1. 重要知识点

8.2.1.1. Most common structure: Partnership

- **Limited partner (LP):** LP is the investors who understand and able to assume the risks in the investment.
  - LP owns a fractional interest (share of the partnership) based on their investment and as agreed to by the partners.
- **General partner (GP):** GP runs the fund.

8.2.1.2. Compensation structure

- **Management fee**
  - Based on assets under management (for hedge funds) or committed capital (for PE funds).
- **Performance fee (incentive fee, carried interest)**
  - Based on profits net of (or before) management fee.
  - E.g. "2 and 20"
    - 2% management fee.
    - 20% incentive fee for hedge funds.
  - Hurdle rate
    - A minimum rate of return that the GP must exceed in order to earn the performance fee.
    - **hard hurdle rate.** With a hard hurdle rate, incentive fees are based only on gains above the hurdle rate.
    - **soft hurdle rate.** If a soft hurdle rate is met, incentive fees are a percentage of the total increase in the value of each partner's investment.
  - High water mark: highest value reported.
    - Protect clients from paying twice for the same performance.

8.2.2. 基础题

Q-9. A manager is compensated with a management fee based on committed capital plus an incentive fee based on fund performance. This scenario best describes the fee structure of a:

A. hedge fund.

B. private equity fund.

C. exchange traded funds.

Q-10. High-water marks are typically used when calculating the incentive fee on hedge funds. They are most likely used by clients to:

A. avoid prime brokerage fees.

B. avoid paying twice for the same performance.

C. claw back the management fees.

Q-11. A hedge fund feature that allows an incentive fee to be earned only after the fund exceeds a specified return best defines a:

A. Lockup

B. Hurdle rate

C. High-water mark

8.3. Hedge Fund

8.3.1. 重要知识点

8.3.1.1. 了解对冲基金的收益目标（绝对和相对），投资策略，并能理解四种策略中的子策略，潜在收益与风险、估值方式、尽职调查的要点

- **Return objective**
  - Absolute return: e.g. total return of 12%.
  - Relative return: e.g. the return is 6% higher than DJIA.
- **Restrictions on redemptions**
  - Lockup period: the minimum period before investors are allowed to make withdrawals or redeem shares from a fund;
  - Notice period: the length of time (typically 30 to 90 days) in advance that investors may be required to notify a fund of their intent to redeem;
- **Fund of fund:** funds that hold a portfolio of hedge fund.
  - FoF benefits and drawbacks
    - FOFs enable small investors to have returns in hedge funds;
    - FOFs have some expertise in conducting due diligence on hedge funds;
    - Negotiate better redemption terms for investors;
    - FOFs invest in numerous hedge funds, diversifying across fund strategies, investment regions, and management styles;
    - FOFs managers charge an additional layer of fees beyond the fees charged by the individual hedge funds in the portfolio.
- **Strategies**
  - **Event-driven strategies**
    - **Merger arbitrage:** going long (buying) the stock of the company being acquired and going short (selling) the stock of the acquiring company;

- **Distressed/restructuring:** focus on the securities of companies either in bankruptcy or perceived to be near to bankruptcy;
- **Activist shareholder:** purchase of sufficient equity in order to influence a company's policies or direction;
- **Special situations:** focus on companies that are currently engaged in restructuring activities other than merger/acquisitions and bankruptcy.

■ **Relative value strategies**

- **Convertible bond arbitrage:** market neutral (zero beta) strategies that seek to exploit a perceived mispricing between a convertible bond and its component parts;
- **Fixed income asset backed:** take advantage of mispricing across different asset backed securities;
- **Fixed income general:** focus on the relative value within the fixed income markets;
- **Multi-strategy:** looks for investment opportunities wherever they might exist.

■ **Macro strategies and CTA strategies**

■ **Equity hedge strategies**

- **Market neutral:** Maintain a net position that is neutral with respect to market risk. The intent is to profit from individual securities movements while hedging against market risk;
- **Fundamental Long/Short:** Takes long positions in companies that are trading at inexpensive levels compared to their potential intrinsic value and shorts those that trade in the other direction.
- **Fundamental growth:** fundamental analysis to identify companies expected to exhibit high growth and capital appreciation;
- **Fundamental value:** buy equity securities believed to be undervalued based on fundamental analysis;
- **Short bias:** varies its net short exposure based upon market expectations, going fully short in declining markets.

- **Potential benefits and risks**
  - Hedge fund strategies that generate the highest returns in some years can be the ones to perform the most poorly in subsequent years;
  - In periods of financial crisis, the correlation of returns between global equities and hedge funds tends to increase, which limits hedge funds' effectiveness as a diversifying asset class.
- **Valuation**
  - The valuation of hedge fund may use market or estimated values of underlying positions.
- Key due diligence points to consider include investment strategy, investment process, competitive advantage, track record, size and longevity, management style, key-person risk, reputation, investor relations, plans for growth, and systems risk management.

8.3.2. 基础题

Q-12. A hedge fund strategy with a long-term view that attempts to identify unrelated, mispriced securities while maintaining a market neutral net position is best described as a(n):

A. Event-driven strategy

B. Equity hedge strategy

C. Relative value strategy

Q-13. which of the following is most likely subject to issues related to self-reporting? (B)

A. Equity index

B. Hedge fund index

C. Commodity futures index

Q-14. In valuing underlying hedge fund positions, the most conservative approach is most likely one that uses:

A. the average of the bid and ask prices.

B. bid prices for longs and ask prices for shorts.

C. the most recent market prices.

Q-15. A hedge fund that implements trades based on a top-down analysis of expected movements in economic variables most likely uses a(n):

A. macro strategy.

B. relative value strategy.

C. event-driven strategy.

Q-16. A measure that restricts new investors in a hedge fund from redeeming their capital for a set amount of time in order to implement the fund's investment strategy is known as a:

A. lockup period.

B. notice period.

C. gate.

Q-17. Which of the following least likely describes an advantage of investing in hedge funds through a fund of funds? A fund of funds may provide investors with:

A. access to due diligence expertise.

B. lower fees because of economies of scale.

C. access to managers who can negotiate better redemption terms.

Q-18. Which type of strategy is considered the Equity Hedge Strategies:

A. Sector specific.

B. Distressed/restructuring.

C. Volatility.

Q-19. A hedge fund strategy that seeks to influence a company's policies through the purchase of equity is best described as a(n):

A. market-neutral strategy.

B. merger arbitrage strategy.

C. activist strategy.

8.4. Private Capital

8.4.1. 重要知识点

8.4.1.1. 掌握 PE 的分类和退出策略，了解 PE 的费用结构、潜在收益与风险等。

- **Strategies**
  - **Leveraged buyouts (LBOs):** acquire companies with a significant percentage of the purchase price financed through debt. LBO 的两种形式：MBO 和 MBI
    - Management buyout (MBO): the current management team is involved in the acquisition;
    - Management buy-in (MBI): an current management team is being replaced and the acquiring team will be involved in managing the company.
  - **Venture capital (VC):** invest in private companies with high growth potential.
    - Formative stage:
      - Angel investing: at the idea stage, funds are used to transform the

idea into a business plan and to assess market potential.

- ✧ Seed stage: support product development and/or marketing efforts. The first stage at which VC funds invest.
- ✧ Early stage: help companies move toward operation but before commercial production and sales have occurred.

- ◆ Later stage: after commercial production and sales have begun, but before any IPO. Funds may be used for expansion.
- ◆ Mezzanine-stage financing: pre-IPO

- ■ **Growth capital (growth equity)**
  - ◆ Earns profits from funding business growth or restructuring.
  - ◆ Initiated and sought by management, which is interested in realizing earnings from selling a portion of its shares before the company can go public.

- ➢ **Exit strategies**
  - ■ **Trade Sale:** sale of company to a strategic buyer such as a competitors;
  - ■ **IPO:** the portfolio company selling its shares to public investors through an IPO;
  - ■ **Special purpose acquisition company (SPAC):** The special purpose acquisition company technique starts as a shell company via an IPO through which sponsors raise a blind pool of cash aimed for merger or acquisition with private firms.
  - ■ **Recapitalization:** the private equity firm re-leverages or introduces leverage to the company and pays itself a dividend;
  - ■ **Secondary Sale:** a sale to another private equity firm or a group of investors;
  - ■ **Write-off/Liquidation**: when a transaction has no gone well, the private equity firm is updating its value of the investment or liquidating the portfolio company to move on to other projects.

- ➢ **Private debt:** Refers to the various forms of debt provided by investors to private entities.
  - ■ Direct Lending
  - ■ Mezzanine Debt
  - ■ Venture Debt
  - ■ Distressed Debt
  - ■ Other Private Debt Strategies
    - ◆ Collateralized loan obligations (CLOs)
    - ◆ Unitranche debt

- Infrastructure debt
- Real estate debt
- Specialty loans

8.4.2. 基础题

Q-20. A private equity strategy in which the target company's management team is replaced is most likely a(n):

A. angel investment

B. management buy-in

C. management buyout

Q-21. Which of the following funds are most likely to invest in public companies with the intent to take them private?

A. Macro hedge funds

B. Private equity funds

C. Growth capital funds

Q-22. Hedge funds are similar to private equity funds in that both:

A. are typically structured as partnerships.

B. assess management fees based on assets under management.

C. do not earn an incentive fee until the initial investment is repaid.

Q-23. A collateralized loan obligation specialist is most likely to:

A. sell its debt at a single interest rate.

B. cater to niche borrowers in specific situations.

C. rely on diverse risk profiles to complete deals.

Q-24. Capital provided for companies beginning operation but before commercial manufacturing and sales have occurred best describes which stage in venture capital investing?

A. Seed-stage.

B. Early-stage.

C. Later-stage.

Q-25. The majority of private equity activity involves:

A. derivative positions.

B. leveraged buyouts.

C. investing in mortgaged-backed securities.

Q-26. Which of the following statements about private equity performance evaluation is most accurate?

A. Managers have no discretion on the timing of the distribution of proceeds.

B. Private equity fund management fees are based on capital called.

C. Cash flows are frequently described in terms of the J-curve effect.

Q-27. With regard to venture capital, which of the following statements is most likely true regarding venture capital?

A. Investments typically are in later stage and more established companies.

B. Investors tend to have short time horizons.

C. Investors require a higher return than investors in publicly traded equity.

Q-28. Which of the following is most likely a private equity strategy?

A. Merger arbitrage

B. Quantitative directional

C. Venture capital

Q-29. In a secondary sale, a private capital firm sells one of its portfolio companies to:

A. the public.

B. a competitor in its industry.

C. another private capital fund.

Q-30. Which of the following is NOT an advantage of a SPAC exit:

A. Fixed valuation with lower volatility of share pricing.

B. Flexibility of transaction structure to best suit the company's context.

C. Fast and simple execution.

8.5. Natural Resources

8.5.1. 重要知识点

8.5.1.1. 掌握大宗商品的投资形式、潜在收益与风险及与定价相关的概念

- **Forms**
  - Futures, forwards, options and swaps;
  - Commodity ETF;
  - Managed futures funds;
  - Specialized funds in specific commodity sectors.

- **Potential benefits and risks**
  - Potential for returns;
  - Portfolio diversification;
  - Inflation protection.
- **Pricing**
  - $F_0(T) = S_0 e^{(r+c-i)T}$;
  - **Convenience yield:** the value of the convenience of having physical possession of the commodity and having it immediately available for use;
  - **Contango:** futures price > spot price;
  - **Backwardation:** futures price < spot price.
- **Sources of commodities futures returns**
  - **Roll yield:** the difference between the spot price of a commodity and the price specified by its futures contracts;
  - **Collateral yield:** the interest earned on the collateral posted as a good-faith deposit for the futures contracts;
  - **Spot prices:** the primary determinant of spot (or current) prices is the relationship between current supply and demand, as discussed earlier.

8.5.1.2. 掌握林地、农地的投资形式、潜在收益与风险及与其他相关的概念

- **Timber (trees)** can be grown and easily "stored" by simply not harvesting.
  - **The three primary return:**
    - biological growth;
    - changes in spot prices and futures prices of lumber (cut wood);
    - changes in the price of the underlying land.
- **Farm products** must be harvested when ripe, so there is little flexibility in the production process.
  - **The three primary return:**
    - harvest quantities;
    - commodity prices (e.g., the price of corn);
    - land price changes.
- **Potential benefits and risk of commodities**
  - Return on commodities over time have been lower than returns on the global stocks or bonds. Sharpe ratios for the commodities as an asset class have been low due to these lower return and the high volatility of commodities prices.
  - Historically, correlation of commodity return with those of global equities and global bonds have been low, typically less than 0.2, so adding commodities to a traditional portfolio can provide diversification benefits.

- Because commodity prices tend to move with inflation rates, holding commodities can act as a hedge of inflation risk.

- **Instruments of Timberland and Farmland**
  - **Indirect investments:** Investment funds offered on the public markets, such as REITs.
  - **Direct investments**
    - for larger investors.
    - limited price transparency or information to guide investment decisions.
    - The direct farm and timberland investments is illiquid.

8.5.2. 基础题

Q-31. The most likely impact of adding commodities to a portfolio of equities and bonds is to:

A. increase risk.

B. reduce exposure to inflation.

C. provide higher current income.

Q-32. A significant challenge to investing in timber is most likely its:

A. high correlation with other asset classes.

B. dependence on an international competitive context.

C. return volatility compounded by financial market exposure.

Q-33. With regard to commodities, it is most likely true that:

A. exposure is most commonly achieved via commodity derivatives.

B. their returns are based on an income stream such as interest or dividends.

C. they are physical products so most investors prefer to trade the actual commodity.

Q-34. The return on a commodity index is likely to be different from returns on the underlying commodities because:

A. assets are not marked to market.

B. data are subject to survivorship bias.

C. indices are constructed using futures contracts.

Q-35. A positive roll yield is most likely earned when the commodity forward curve is:

A. flat

B. contango

C. backwardation

Q-36. Commodity index values are based on:

A. futures contract prices.

B. the market price of the specific commodity.

C. the average market price of a basket of similar commodities.

Q-37. If a commodity's storage cost is equal to its convenience yield, its futures prices will be greater than its spot price if the risk-free rate is:

A. negative.

B. zero.

C. positive.

8.6. Real Estate

8.6.1. 重要知识点

8.6.1.1. 掌握房地产投资的形式、潜在收益与风险、估值方法与尽职调查的要点

➢ **Forms**

	Equity	**Debt**
Private	• Direct ownership of real estate: ownership through sole ownership, joint ventures, separate accounts, or real estate limited partnerships • Indirect ownership via real estate funds • Private REITs	• Mortgages • Construction lending • Mezzanine debt
Public	• Shares in real estate operating and development corporations • Listed REIT shares • Mutual funds • Index funds • ETFs	• MBS(residential and commercial) • Collateralized mortgage obligations • Mortgage REITs • ETFs that own securitized mortgage debt

➢ **Performance measure**

■ Appraisal index

◆ Use estimates of value (appraisals) as inputs to the indices;

◆ Rely on comparable sales and cash flow analysis techniques;

- **Understate volatility**.
- Repeat sales index
  - Use changes in prices of properties to construct the indices;
  - **Sample selection bias**.
- REIT indices
  - Use the prices of publicly traded shares of REITs to construct the indices;
  - More frequently traded, more reliable is the index.

- Real estate returns are highly correlated with global equity returns but less correlated with global bond returns.
- **Real Estate Investment Categories**
  - The majority of real estate property may be classified as either commercial or residential.
  - **Residential property—**single-family residential property.
  - **Commercial property**—produces income and capital appreciation.
    - Residential properties owned with the intention to let, lease, or rent them are classified as commercial.
  - **REIT investing**
    - Risk and return characteristics depend on the type of investment
    - Equity must report EPS based on net income as defined by GAAP or IFRS.
  - **Mortgage-backed securities (MBS)**
    - MBS structure is buying a pool of assets and assigning the income and principal returns into individual security tranches.
    - The most junior tranche is referred to as the first-loss tranche.
    - When interest rates rise, prepayments will likely slow down.
    - When interest rates fall, the low-risk senior tranche will amortize more quickly.

8.6.2. 基础题

Q-38. Which of the following alternative investments is most appropriate for investors seeking a steady, predictable cash flow stream?

A. Private equity

B. Venture capital

C. Commercial real estate

Q-39. Direct commercial real estate ownership least likely requires investing in:

A. large amounts.

B. illiquid assets.

C. a short time horizon.

Q-40. A real estate investor looking for equity exposure in the public market is most likely to invest in:

A. real estate limited partnerships.

B. shares of real estate investment trusts.

C. collateralized mortgage obligations.

Q-41. When considering the attributes of private real estate markets, which is most likely to apply?

A. It is straightforward for individual investors to diversify through direct ownership of multiple properties.

B. Costs associated with transactions are typically substantial.

C. Private market indexes are investable.

Q-42. Compared with other investment asset classes, an investment in real estate is least likely to be characterized by:

A. basic indivisibility.

B. homogeneity.

C. fixed location.

Q-43. Which of the following statement regarding Mortgage-backed securities(MBS) is WRONG:

A. If mortgage defaults and losses are high, all tranches bear the cost of the shortfall on pro rata basis.

B. When rates rise, property owner prepayments can also slow, lengthening the duration of most MBS tranches and contributing to further price weakness.

C. An MBS issuer forms a special purpose vehicle (SPV) to buy mortgages from lenders and other mortgage owners and use them to create a diversified mortgage pool.

8.7. Infrastructure

8.7.1. 重要知识点

8.7.1.1. Infrastructure

- **Definition:** real, capital intensive, long-lived assets, which are intended for public use and provide essential services;
- **Characteristics of infrastructure**
  - Strategically important;
  - Monopolistic and regulated;
  - Stable long-term cash flows;
  - Significant capital investment;
  - Long operational lives;
  - Defined risks;
  - Highly leveraged financial structure.
- **Categories of Infrastructure Investments**
  - Economic VS social infrastructure assets;
  - Brownfield VS greenfield infrastructure investments
    - Investing in existing investable infrastructure assets may be referred to as **brownfield investments;**
    - Investing in infrastructure assets that are to be constructed may be referred to as **greenfield investments.**
- **Forms of infrastructure investments**
  - Invest directly in the underlying assets;
  - Indirect investment vehicles.
    - ETFs, mutual funds, private equity funds, or master limited partnerships (MLP).
- **Risk and returns overview**
  - Risk depends on underlying asset.
  - An inherent risk to many infrastructure investments is regulatory risk.

8.7.2. 基础题

Q-44. Which of the following most accurately characterizes a greenfield infrastructure investment as an asset?

A. One that is still in the planning and construction phase

B. An existing asset that has already been fully constructed

C. An asset that has completed its intended lifespan and is no longer operational

Q-45. Which of the following infrastructure investments would most likely be easiest to value?

A. private equity fund holding brownfield investments.

B. master limited partnership holding greenfield investments.

C. master limited partnership holding brownfield investments.

Q-46. When investing in greenfield infrastructure projects, participants generally:

A. invest alongside with strategic investors or developers in the investment process.

B. face less development risk compared to those investing in brownfield projects.

C. depend on the historical financial and operational records of the assets.

8.8. Issues in Performance Appraisal

8.8.1. 重要知识点

8.8.1.1. 在评估另类投资时，应重点关注以下四个方面:

- **When appraising alternative investments, four areas to focus on include:**
  - the life cycle phase of the investment;
  - the amount of borrowed funds used to maintain the market position;
  - the valuation of the assets;
  - the fee structure of the fund.
- **Investment Life Cycle**
  - Capital commitment;
  - Capital deployment;
  - Capital distribution.
  - **J-curve Effect**
- **Multiple of Invested Capital**
  - IRR approach
  - Multiple of invested capital (MOIC)
    - MOIC = (Realized value of investment + Unrealized value of investment) / (Total amount of invested capital)
    - 缺点：ignores the timing of cash flows.
- **Use of Borrowed Funds**
  - $r_L = r + V_b/V_c(r - r_b)$

8.8.2. 基础题

Q-47. Which of the following is true regarding private equity performance calculations?

A. The money multiple calculation relies on the amount and timing of cash flows.

B. The IRR calculation involves the assumption of two rates.

C. Because private equity funds have low volatility, accounting conventions allow them to use a lagged mark-to- market process.

Q-48. A credit hedge fund has a very short redemption notice period— one week. The fund has a small number of holdings that represent a significant portion of the outstanding issue of each holding. The fund's lockup period has expired. Unfortunately, in one particular month, because of the downgrades of two large holdings, the hedge fund has a drawdown (decline in NAV) of more than 10%. The declines in value of the two holdings result in margin calls from their prime broker, and the drawdown results in requests to redeem 50% of total partnership interests. The combined requests are most likely to:

A. force the hedge fund to liquidate or unwind 50% of its positions in an orderly fashion throughout the week.

B. have little effect on the prices received when liquidating the positions because the hedge fund has a week before the partnership interests are redeemed.

C. result in a forced liquidation, which is likely to further drive down prices and result in ongoing pressures on the hedge fund as it tries to convince nervous investors to remain in the fund.

Q-49. A shortcut methodology involving measuring the total value of all distributions and residual asset values relative to an initial total investment often cited by private equity and real estate managers is the:

A. leverage ratio.

B. capital loss ratio.

C. multiple of invested capital.

8.9. Calculating fees and returns

8.9.1. 重要知识点

8.9.1.1. 掌握 hedge funds 的管理费用结构

- **Management fee**
  - Based on capital under management
  - Attractive to portfolio managers because the management fee alone will generate significant revenue if assets under management are large.
  - Earned irrespective of returns
- **Incentive fee**
  - Based on profits net of (or before) management fee;
  - Only earned if the return exceeds a hurdle rate;
  - High water mark: highest value reported

- The hedge fund must recover past losses and return to previous high water mark before any additional incentive fee is earned;
- Protect clients from paying twice for the same performance.
- “2 and 20” means 2% management fee and 20% incentive fee for hedge funds;
- FoFs may charge extra 1% management fee and 10% incentive fee.

8.9.1.2. 掌握其他的结构和条款

➢ **Waterfall**

- Represents the distribution method that defines the order in which allocations are made to LPs and GPs.
- Deal-by-deal (American) waterfalls
- performance fees are collected on a per-deal basis.
- more advantageous to the GP.
- Whole-of-fund (European) waterfalls
- performance fees occur at the aggregate fund level (i.e., after all investments have been exited).
- more advantageous to the LP.

➢ **Clawback provision**

- A clawback provision reflects the right of LPs to reclaim part of the GP’s performance fee.

8.9.2. 基础课

Q-50. An analyst gathers the following information about a hedge fund:

Beginning-of-year assets under management (AUM)	\$200 million
End-of-year AUM before fees	\$220 million
Management fee based on year-end AUM	2%
Incentive fee	20%
Hard hurdle rate	8%

If the incentive fee is calculated net of the management fee, the total fees earned by the fund manager are closest to:

A. \$3.9 million

B. \$4.4 million

C. \$5.9 million

Q-51. For an investor in a private equity fund , the least advantageous of the following limited partnership terms is:

A. a clawback provision.

B. a European-style waterfall provision.

C. an American-style waterfall provision.

Q-52. An investor in a private equity fund is concerned that the general partner can receive incentive fees in excess of the agreed-on incentive fees by making distributions over time based on profits earned rather than making distributions only at exit from investments of the fund. Which of the following is most likey to protect the investor from the general partner receiving excess fees?

A. A high hurdle rate

B. A clawback provision

C. A lower capital commitment

Q-53. A private equity fund has a "2 and 20" fee structure with the incentive fee independent of management fees. The fund will sell a holding for a profit of 9%. The hurdle rate is specified as 8%. The provision that would result in an incentive fee of 1 % is:

A. a hard hurdle rate.

B. a soft hurdle rate.

C. a catch-up provision.

Q-54. A GF hedge fund begins the year with $235million and earns a30% return for the year. The fund charges a 2% management fee on end-of-year fund value and a 20% incentive fee on the return, net of the management fees, that is in excess of a 8% fixed hurdle rate. The fund's investors' return for the year, net of fees, is closest to:

A. 21.92%.

B. 23.52%.

C. 23%.

Q-55. A hedge fund has the following fee structure:

- Annual management fee based on year-end AUM 2%
- Incentive fee 20%
- Hurdle rate before incentive fee collection starts 4%
- Current high-water mark $610 million
- The fund has a value of $583.1 million at the beginning of the year. After one year, it has a value of $642 million before fees. The net return to an investor for this year is closest to:

A. 6.72%.

B. 6.80%.

C. 7.64%.

Q-56. A hedge fund has a "2 and 20" compensation structure with incentive fee independent of management fees. Management fees are calculated on an annual basis on AUM at the beginning of the year. The GP has earned an 20% IRR on an investment, the hurdle rate is 8%, and the partnership agreement includes a catch-up clause. What is total return for LP:

A. 14%.

B. 13.68%.

C. 16%.

Q-57. As an alternative investor, Evian makes a total investment of $50 million in a fund-of-funds that has a "1 and 10" fee structure, with management and incentive fees calculated independently based on year-end values.

$30 million of the investment was allocated to the fund A and $10 million was allocated to the fund B.

One year later, the value of the fund A investment is $45 million and the value of the fund B investment is $28 million, both net of fund fees. Calculate the investor's return for the year net of fees.

A. 39.94%

B. 40.086%

C. 46.00%

Q-58. Assuming the investment outcomes are realized in the same year, a PE fund invests $100 million in a venture company that is sold for $130 million and invests $100 million in an LBO that goes poorly and is liquidated for $80 million.

If the carried interest incentive fee for the GP is 20% and there is no clawback provision, the investor's return after incentive fees is:

A. 2% under an American-style (deal-by-deal) waterfall structure.

B. 2% under a European-style (whole-of-fund) waterfall structure.

C. 4% because the investor could "claw back" $4 million of the $6 million paid as an incentive fee under an American-style (deal-by-deal) waterfall structure.

Q-59. A HF has a return of 20% before fees in its first year. The fund has a management fee of 2% on end-of-year fund value and a 20% incentive fee, with an 8% hard hurdle rate on gains net of the management fee. The return after fees for an investor in this fund is closest to:

A. 13.60%

B. 15.20%.

C. 15.68%.

8.10. Introduction to Digital Assets

8.10.1. 重要知识点

8.10.1.1. 掌握分布式记账技术

➢ **Potential benefits of using distributed ledger technology include:**

- Greater accuracy;
- Transparency;
- Security in record keeping;
- Faster transfer of ownership;
- P2P interactions.

➢ **Consensus mechanism**

- Proof of Work (PoW);
- Proof of Stake (PoS).

8.10.1.2. 掌握数字资产投资与传统投资的主要区别

	Digital Assets	**Traditional Financial Assets**
Inherent value	**No fundamental value or future cash flow generation; Price driven by certain features on the blockchain.**	**Value determined by future cash flow generated from the assets.**
Transaction validation	**Usually recorded on decentralized digital ledgers using cryptography and algorithms for permissionless blockchain networks.**	**Recorded in private ledgers maintained by central intermediaries.**
Uses as a medium of exchange	**Very few digital assets are used as a direct medium of exchange, mainly targeting largescale commercially viable acceptance.**	**Not used directly as a medium of exchange but can be readily transacted and exchanged into traditional fiat currencies that are widely used in the real world.**
Legal and regulatory protection	**Ambiguous, often contradictory, evolving framework; generally unregulated, with minimal legal protections; Use can be illegal or criminal in some countries.**	**Well-established, tested, and proven legal, regulatory, and commercial standards that are clear, predictable, and well defined across all jurisdictions.**

8.10.1.3. 掌握数字资产的投资形式

- **Direct Investment in Digital Asset**
  - Direct ownership;
  - Centralized exchanges;
  - Decentralized exchanges.
- **Indirect Investment in Digital Asset**
  - Cryptocurrency coin trusts;
  - Cryptocurrency futures;
  - Cryptocurrency exchange-traded funds;
  - Cryptocurrency stocks;
  - Hedge funds investing in cryptocurrencies.

8.10.1.4. 掌握数字资产投资的风险和收益

- **Digital Asset Investment Risks and Returns**
  - Given that regulation of cryptocurrencies is evolving, there still is no clear legal protection for using them as a medium of exchange.
  - Bitcoin and other cryptocurrency values are based solely on asset appreciation, with no underlying cash flows.
  - The market demand for the limited supply of cryptocurrencies is a significant driver of prices.
  - Bitcoin's performance has been characterized by high return, high volatility, and low correlations with traditional asset classes.

8.10.2. 基础题

Q-60. The process of representing ownership rights to physical assets on a blockchain best describes:

A. tokenization

B. an initial coin offering

C. the consensus mechanism

Q-61. Which of the following best describes blockchain?

A. A digital ledger of changes in ownership

B. Computerized buying and selling of financial instruments

C. An algorithm capable of identifying relationships between inputs and outputs based on historical patterns

Q-62. Unlike traditional financial assets, digital assets:

A. can be invested in through indirect investment vehicles such as ETFs.
B. do not have an inherent value based on underlying assets or on potential cash flows.
C. are generally recorded in private ledgers maintained by central intermediaries.

Q-63. When assessing centralized versus decentralized cryptocurrency exchanges, which statement is more accurate?

A. Decentralized exchanges tend to be less regulated and are less vulnerable to hacker attacks.
B. Decentralized exchanges are usually less regulated and more vulnerable to hacker attacks.
C. Decentralized exchanges are more likely to be regulated and less vulnerable to hacker attacks.

Q-64. In evaluating the primary factors influencing the value of bitcoin, which is most likely to be a significant determinant?

A. The potential for generating cash flows
B. Consistently high correlation with conventional asset classes
C. The expansion of its acceptance in the market

Solutions

8. Alternative Investments

Q-1. Solution: B.

B is correct. Adding alternative investments to a portfolio may provide diversification benefits because of these investments' less than perfect correlation with other assets in the portfolio. As a result, allocating a portion of one's funds to alternatives could potentially result in an improved risk–return relationship. Challenges to allocating a portion of a portfolio to alternative investments include obtaining reliable measures of risk and return as well as selecting portfolio managers for the alternative investments.

Q-2. Solution: C.

Investing in alternative assets can require handling illiquidity, transacting on private markets, operating sophisticated investment strategies, or risk–return profiles that are very different from those of traditional long-only investments.

Alternative investments often have relatively low correlation of returns with those of traditional investments.

Alternative assets, by their very nature, tend to be less efficiently priced than traditional marketable securities, providing an opportunity to exploit market inefficiencies through active management.

Q-3. Solution: B.

Alternative investments often have many of the following characteristics:

■Narrow manager specialization

■Relatively low correlation of returns with those of traditional investments

■Less regulation and less transparency than traditional investments

■Limited and potentially problematic historical risk and return data

■Unique legal and tax considerations

■High fees

■Concentrated portfolios

■Restrictions on redemptions (i.e., "lockups" and "gates")

Q-4. Solution: C.

C is correct. Alternative investments are typically expected to have a lower level of regulation and less transparency than traditional long-only investments. B is incorrect because alternative investments are often characterized by narrow manager specialization, as compared with traditional long-only investments. A is incorrect because alternative investments typically give the manager more flexibility to use derivatives and leverage, invest in illiquid assets, and take short positions, as compared with traditional investments.

Q-5. Solution: B.

Direct investing has following advantages:

Avoids paying ongoing management fees to an external manager.

Greatest amount of flexibility for the investor.

Highest level of control over how the asset is managed.

Q-6. Solution: C.

	Advantages	**Disadvantages**
Fund investing	■ Lower level of investor involvement as the fund managers provide investment services and expertise ■ Access to alternative investments without possessing a high degree of investment expertise ■ Lower minimum capital requirements	■ Costly management and performance fees ■ Investor must conduct thorough due diligence when selecting the right fund because of the wide dispersion of fund manager returns ■ Investors less able to exit the investment as funds typically have lock-ups and other restrictions
Co-investing	■ Investors can learn from the fund's process to become better at direct investing ■ Reduced management fees ■ Allows more active management of the portfolio compared with fund investing and allows for a deeper relationship with the manager	■ Reduced control over the investment selection process compared with direct investing ■ May be subject to adverse selection bias ■ Requires more active involvement compared with fund investing, which can be challenging
Direct investing	■ Avoids paying ongoing management fees to an external manager ■ Greatest amount of flexibility for the investor ■ Highest level of control over how the asset is managed	■ Requires higher internal investment costs ■ Less access to a fund's ready diversification benefits or the fund manager's sourcing network ■ Requires more complex due diligence because of the absence of a fund manager ■ Higher minimum capital

		requirements

Q-7. Solution: A.

Co-investing, the investor invests in assets indirectly through the fund but also possesses rights (known as co-investment rights) to invest directly in the same assets. Through co-investing, an investor is able to make an investment alongside a fund when the fund identifies deals; the investor is not limited to participating in the deal solely by investing in the fund.

Co-investing, the investor invests in assets indirectly through the fund but also possesses rights (known as co-investment rights) to invest directly in the same assets. However, there is no obligation to invest.

Co-investing, the investor invests in assets indirectly through the fund but also possesses rights (known as co-investment rights) to invest directly in the same assets, not in the general partner's fund management company.

Q-8. Solution: B.

The investor may choose direct investing and co-investing that require greater due diligence of individual deals and investor's inhouse expertise.

With fund investing, due diligence on the fund's portfolio investments is a responsibility of the fund manager rather than the fund investors.

Q-9. Solution: B.

A private equity manager is compensated through a management fee based on committed capital plus an incentive fee.

The management fee of a hedge fund is based on assets under management.

The fee structure for exchange traded funds usually includes only a management fee, not an incentive fee.

Q-10. Solution: B.

B is correct. High-water marks help clients avoid paying twice for the same performance. When a hedge fund's value drops, the manager will not receive an incentive fee until the value of the fund returns to its previous level.

A is incorrect because high-water marks are not linked to prime brokerage fees.

C is incorrect because management fees are paid irrespective of returns.

Q-11. Solution: B.

An alternative investment fund's hurdle rate is a minimum rate of return the GP must exceed in order to earn a performance fee.

Q-12. Solution: B.

These strategies use quantitative, fundamental, and technical analysis to identify under- and overvalued equity securities. The hedge fund takes long positions in undervalued securities and short positions in overvalued securities, while seeking to maintain a market-neutral net position. Ideally, the manager achieves an overall beta relative to the market close to zero.

Q-13. Solution: B.

Self-reporting bias: Hedge funds have the freedom to not report their performance, and only the ones that report are included in an index.

Q-14. Solution: B.

A conservative and theoretically accurate approach is to use bid prices for longs and ask prices for shorts because these are the prices at which the positions could be closed.

A is incorrect because although using the average quote [(bid + ask)/2] is a common approach, a more conservative and theoretically accurate approach is to use bid prices for longs and ask prices for shorts as these are the prices at which the positions could be closed.

C is incorrect because when market prices or quotes are used for valuation, funds may differ in which price or quote they use (for example, bid price, ask price, average quote, and median quote).

Q-15. Solution: A.

A is correct. Macro strategies emphasize a top-down approach, and trades are made based on expected movements of economic variables.

B is incorrect. Relative value strategies focus on pricing discrepancies between related securities.

C is incorrect. Event-driven strategies focus on short-term events that are expected to affect individual companies. The approach is thus "bottom up."

Q-16. Solution: A.

Lockup periods are time periods when investors cannot withdraw their capital—provide the hedge fund manager the required time to implement and potentially realize a strategy's expected results. Lockup periods apply to new investors in a hedge fund with the goal of allowing the hedge fund manager time to implement the fund's investment strategy.

Notice periods provide an opportunity for the hedge fund manager to liquidate a position in an orderly fashion without magnifying the losses. A notice period applies to all investors wanting to withdraw some or all of their capital from a hedge fund with the goal of providing the manager with advance warning of the withdrawal.

In addition, funds sometimes impose a gate, which limits or restricts redemptions for a period of time. A gate is imposed by the hedge fund manager independent of any lockup period that may apply. A gate therefore applies to all investors for a finite period of time while a lockup period applies to new investors only.

Q-17. Solution: B.

B is correct. The fees on funds of funds are usually higher. The fund of funds manager charges a fee, and there is a fee charged by each hedge fund. A is incorrect because this is an advantage of investing through funds of funds. C is incorrect because this is an advantage of investing through funds of funds.

Q-18. Solution: A.

A is correct. Equity Hedge Strategies include Market neutral, Fundamental L/S growth, Fundamental value, Short-biased, Sector specific.

Q-19. Solution: C.

Event-driven strategies, which include "activist", seek to profit from defined catalyst events, typically those that involve changes in corporate structure, such as an acquisition or restructuring. In activist strategies, hedge fund managers secure sufficient equity holdings to allow them to influence a company’s policies or direction. The hedge fund manager thus tries to create his or her own catalyst, influencing the investment’s ultimate destiny by creating a desired corporate outcome.

Equity hedge strategies, which include market neutral, are focused on public equity markets and take long and short positions in equity and equity derivative securities. Market neutral strategies use quantitative (technical) and fundamental analysis to identify under- and overvalued equity securities. The hedge fund takes long positions in securities it has identified as undervalued and short positions in securities it has identified as overvalued. The hedge fund tries to maintain a net position that is neutral with respect to market risk and other risk factors (size, industry, momentum, value, etc.). Ideally, the portfolio has an overall beta of approximately zero.

Merger arbitrage strategies involve going long (buying) the stock of the company being acquired at a discount to its announced takeover price and going short (selling) the stock of the acquiring company when the merger or acquisition is announced. The manager may expect to profit once the initial deal spread narrows to the closing value of the transaction after it is fully consummated. The spread exists because there is always some uncertainty over whether the deal will actually close in the face of legal and regulatory hurdles.

Q-20. Solution: B.

In management buyouts (MBOs), the current management team is involved in the acquisition, and in management buy-ins (MBIs), the current management team is being replaced and the acquiring team will be involved in managing the company.

Q-21. Solution: B.

Private equity funds generally invest in companies (either startup or established) that are not listed on a public exchange, or they invest in public companies with the intent to take them private. The majority of private equity activity involves leveraged buyouts of established profitable and cash-generative companies with solid customer bases, proven products, and high-quality management.

Q-22. Solution: A.

Private equity funds and hedge funds are typically structured as partnerships where investors are limited partners (LP) and the fund is the general partner (GP). The management fee for private equity funds is based on committed capital whereas for hedge funds the management fees are based on assets under management. For most private equity funds, the general partner does not earn an incentive fee until the limited partners have received their initial investment back.

Q-23. Solution: C.

A CLO manager will extend several loans to corporations (usually to firms involved in LBOs, corporate acquisitions, or other similar types of transactions), pool these loans, and then divide that pool into various tranches of debt and equity that range in seniority and security. The CLO manager will then sell each tranche to different investors according to their risk profiles; the most senior portion of the CLO will be the least risky, and the most junior portion of the CLO (i.e., equity) will be the riskiest.

A is incorrect because with the different CLO tranches having distinct risks varying with their seniority and security, they will be priced over a range of interest rates. In contrast, unitranche debt combines different tranches of secured and unsecured debt into a single loan with a single, blended interest rate.

B is incorrect because debt extended to niche borrowers in specific situations is more commonly offered through specialty loans. For example, in litigation finance, a specialist funding company provides debt to a client to finance the borrower's legal fees and expenses in exchange for a portion of any case winnings.

Q-24. Solution: B.

Early-stage financing is capital provided for companies moving into operation and before commercial manufacturing and sales have occurred.

Q-25. Solution: B.

B is correct. The majority of private equity fund activity involves leveraged buyouts of established profitable and cash generative companies.

A is incorrect because, although a private equity fund may use derivatives, this use is not a defining characteristic of private equity investing. Derivative strategies are most likely used in hedge fund and commodity investment strategies.

C is incorrect because private equity funds generally invest in non-publicly traded companies or public companies with the intent to take them private, not mortgage-backed securities which are a form of publicly traded real estate debt.

Q-26. Solution: C.

Private equity investments generally involve an initial capital commitment, but actual capital flows often lag that commitment because capital “calls” are staggered over substantive periods of time. Private equity returns are frequently described in terms of the J-curve effect.

In an independent, fixed-life private equity fund, the decisions to raise money, take money in the form of capital calls, and distribute proceeds are all at the discretion of the private equity manager. Timing of cash flows is an important part of the investment decision process. The private equity manager should thus be rewarded or penalized for the results of those timing decisions, and the calculation of an IRR is key for doing so.

Private equity funds typically impose management fees on committed capital, which consists of the total amount that LPs have promised to fund future investments, not the capital called.

Q-27. Solution: C.

C is correct. The historical standard deviations of annual return for venture capital are higher than that of common stocks. Investors should therefore require a higher return in exchange for accepting this higher risk, along with the illiquidity of venture capital investing. A is incorrect because the venture capital strategy typically invests in start-up or early stage companies, not later stage companies. B is incorrect because venture capital investments require long time horizons.

Q-28. Solution: C.

Venture capital is a private equity strategy in which private equity companies invest and get actively involved in the management of portfolio companies.

Q-29. Solution: C.

In a secondary sale, a private capital firm sells one of its portfolio companies to another private capital fund or group of private investors. Selling a portfolio company to a competitor in its industry is known as a trade sale. Selling a portfolio company to the public requires an initial public offering.

Q-30. Solution: C.

Advantages of a SPAC exit include:

1. extended time for public disclosure on company prospects to build investor interest
2. fixed valuation with lower volatility of share pricing
3. flexibility of transaction structure to best suit the company's context
4. association with potentially high-profile and seasoned sponsors and their extensive investor network.

Q-31. Solution: B.

Over the long term, commodity prices are closely related to inflation and thus including commodities in a portfolio of equities and bonds will reduce its exposure to inflation.

Q-32. Solution: B.

A primary risk of timber is the international competitive landscape. Timber is a globally sold and consumed commodity subject to world trade interruptions. So the international context can be considered one of its major risk factors. A is incorrect because timberland offers an income stream based on the sale of trees, wood, and other timber products that has not been highly correlated with other asset classes. C is incorrect because investors are interested in timber because of its global nature (everyone requires shelter), the current income generated from the sale of the crop, inflation protection from holding the land, and its safe haven characteristics (it offers some insulation from financial market volatility).

Q-33. Solution: A.

A is correct. Commodity exposure is most commonly accessed via commodity derivatives.

B is incorrect because commodities returns are based on changes in price rather than income streams.

C is incorrect because holding commodities (i.e., the physical products) incurs costs for transportation and storage. Thus, most commodity investors do not trade actual physical commodities, but rather trade commodity derivatives.

Q-34. Solution: C.

Since commodity indices are constructed using commodity futures and not the underlying commodities there can be differences between commodity index returns and the returns of the underlying commodities.

Q-35. Solution: C.

If a price curve for a commodity is in backwardation, the curve is most likely be downward slopping and the forward price for this commodity will be lower than the current price. The roll yield is positive.

Q-36. Solution: A.

Commodity indexes consist of futures contracts on one or more commodities.

Q-37. Solution: C.

The futures price can be formalized in the following form: $F_0(T) = S_0 e^{(r+c-i)T}$, where c is the storage cost, i is the convenience yield, r is the risk-free rate, T is the time to the expiration of the forward contract. Thus, if Storage costs = Convenience yield, then $F_0(T) = S_0 e^{rT}$. If r > 0, then Futures price > Spot price.

Q-38. Solution: C.

Gross income from rents represents a relatively predictable income stream and, after servicing the debt, is a source of return to equity REITs.

Q-39. Solution: C.

Commercial real estate ownership requires long time horizons and purchasing illiquid assets that require large investment amounts.

Q-40. Solution: B.

B is correct. Shares in real estate investment trusts are publicly traded and represent an equity investment in real estate. A is incorrect. Real estate limited partnerships are an example of a private real estate investment. C is incorrect. A collateralized mortgage obligation is an example of debt-based exposure to real estate.

Q-41. Solution: B.

For private real estate markets, transaction costs are high.

It may be difficult for small investors to establish a diversified portfolio of wholly owned properties.

Private market indexes are not investable, and property typically requires professional operational management.

Q-42. Solution: B.

Because no two properties are identical, homogeneity is not a feature of an investment in real estate.

Q-43. Solution: A.

If mortgage defaults and losses are high, the lowest-ranked tranches bear the cost of the shortfall. The most junior tranche is referred to as the first-loss tranche.

Q-44. Solution: A.

Greenfield investments refer to infrastructure assets that are yet to be constructed.

Q-45. Solution: C.

A master limited partnership (MLP) is publicly traded, whereas a private equity fund is not. Therefore the MLP will have market pricing information to help with valuation. A brownfield investment is an existing asset that likely has operational and financial history to aid in valuation; whereas a greenfield investment is in new construction.

Q-46. Solution: A.

Greenfield investors typically invest alongside strategic investors or developers who specialize in developing the underlying assets.

Investing in infrastructure assets that are to be constructed is generally referred to as greenfield investment. Thus, greenfield investors face higher development and construction risks compared to brownfield investors, and may expect capital appreciation to reflect the construction and commissioning risk.

For brownfield, not greenfield, investors that, typically, some of the assets' financial and operating history is available.

Q-47. Solution: B.

B is correct. The determination of an IRR involves certain assumptions about a financing rate to use for outgoing cash flows (typically a weighted average cost of capital) and a reinvestment rate assumption to make on incoming cash flows (which must be assumed and may or may not actually be earned).

A is incorrect because the money multiple calculation completely ignores the timing of cash flows.

C is incorrect because it is somewhat of a reversal of cause and effect: Private equity (PE) funds can appear to have low volatility because of the lag in their mark-to-market process. It's not that PE investments don't actually rise and fall behind the scenes with economic influences, but accounting conventions may simply leave longer-lived investments marked at their initial cost for some time or with only modest adjustments to such carrying value until known impairments or realization events begin to transpire. Also, because PE funds are not easily marked to market, their returns can appear somewhat smoothed, making them appear more resilient and less correlated with other assets than they really are. The slowness to re-mark them can unfortunately be confused by investors as an overall lack of volatility.

Q-48. Solution: C.

C is correct. One week may not be enough time to unwind such a large portion of the fund's positions in an orderly fashion that does not also further drive down prices. A downgrade is not likely to have a temporary effect, so even if other non-losing positions are liquidated to meet the redemption requests, it is unlikely that the two large holdings will return to previous or higher values in short order. Also, the hedge fund may have a week to satisfy the requests for redemptions, but the margin call must be met immediately. Overall, sudden redemptions at the fund level can have a cascading negative impact on a fund.

Q-49. Solution: C.

Private equity and real estate managers often cite a multiple of invested capital ratio, where one simply measures the total value of all distributions and residual asset values (assets that may still be awaiting their ultimate sale) relative to the initial total investment.

Q-50. Solution: B.

Total fees earned by the hedge fund are closest to \$4.4 million:

Management fee = Year-end value × Management fee %

= \$220 million ×2% = \$4.4 million

Net rate of return after deducting management fees = (220-4.4)/200-1 = 7.8% ＜ hurdle rate

Incentive fee = 0

Total fees = Management fee + Incentive fee

= \$4.4 million+ \$0 million = \$4.4 million

Q-51. Solution: C.

An American-style waterfall structure has a deal-by-deal calculation of incentive fees to the general partner. In this case, a successful deal where incentive fees are paid, followed by the sale of a holding that has losses in the same year, can result in incentive fees greater than those calculated with a European-style (whole-of-fund) waterfall. A clawback provision benefits the limited partner investors by allowing them to recover incentive fees paid earlier if the fund realizes losses later. A clawback provision coupled with a American-style waterfall will result in the same overall incentive fees as a European-style waterfall if the transactions occur in subsequent years.

Q-52. Solution: B.

B is correct. A clawback provision requires the general partner in a private equity fund to return any funds distributed (to the general partner) as incentive fees until the limited partners have received back their initial investments and the contracted portion of the total profits. A high hurdle rate will result in distributions occurring only after the fund achieves a specified return. A high hurdle rate decreases the likelihood of, but does not prevent, excess distributions. Management fees, not incentive fees, are based on committed capital.

Q-53. Solution: C.

With a catch-up provision, the limited partners get the first 8% of gross return and the general partner gets all returns above that to a maximum of 2%, and gains above that are shared 80% to the limited partners and 20% to the general partner.

With a soft hurdle rate of 8%, the incentive fee would be 20% of 9%, or 1.8%.

With a hard hurdle rate of 8%, the incentive fee would be 20% of (9%-8%), or 0.2%.

Q-54. Solution: B.

The $235 million grows by 30% to $305.5 million [= $235 million × (1 +0.3)]. The management fee is $6.11 million (= $305.5million × 0.02), leaving $299.39million, net of the management fee, or an increase of $64.39million over the beginning value of $235 million.

The8% hurdle rate requires an increase of $18.8 million (= $235 million ×0.08), so the fund has earned $45.59 million (= $64.39million – $18.8million) over the hurdle rate, net of the management fee.

The incentive fee is 20% of this, or $9.118 million (= $45.59 million × 0.2), leaving an increase in fund assets, net of management and incentive fees, of $55.272 million (=$64.39million – $9.118 million) . The investor's return, net of fees, is $55.272/$235 million =23.52%.

Q-55. Solution: C.

C is correct. The management fee for the year is

$642 × 0.02 = $12.84 million.

Because the ending value exceeds the high-water mark, the hedge fund can collect an incentive fee.

The incentive fee is

{$642 – [$610 × (1 + 0.04)]} × 0.20 = $1.52 million.

The net return to the investor for the year is

[($642–$12.84–$1.52)/$583.1]–1≈0.07638≈7.64%.

Q-56. Solution: A.

With catch-up clause, after first 8% distributed to investors. GP will catch up to receive

(8%/80%)*20%=2%---because 2% out of 10% amounts to 20% of the profits accounted for so far, as the catch-up clause stipulates—and the remaining 10% would be split 80/20 between the LPs and the GP. Total incentive fee=2%+2%=4%. Total return of LP=20%-2%(MF)-4%(IF)=14%.

Q-57. Solution: A.

At year-end, the gross value of the investor's investment is $45 + $28 = $73 million, which is the net return of Funds of fund after distributed the management fee and incentive fee to Fund A and B.

The fund-of-funds management fee is 1% of $73 million, which is $0.73 million.

The investor's gain for the year before fund-of-funds fees is $73 – $50 = $23 million.

The fund-of-funds manager's incentive fee is 10% of $23 million, which is $2.3 million.

The year-end value of the investor's fund-of-funds investment is $73 – $0.73 – $2.3 = $69.97 million.

The investor's one-year return after fees is 69.97/50-1=39.94%

If the fund-of-funds manager's incentive fee is calculated net of management fee, the answer should be B. 10% of ($23-0.73 million) is 2.227 million. The investor's one-year return after fees is ($73 – $0.73 – $2.227)/50-1=40.086%

Note that the same investments made directly with the fund A and fund B would have returned 73/50-1=46.00% (Answer C). $73 million is the gross value of the investor's investment managed by FOFs.

Q-58. Solution: A.

Under an American-style (deal-by-deal) waterfall structure, an incentive fee of 20% × ($130 – $100) = $6 million would be paid on the venture investment. Because there is a loss on the LBO investment, no incentive fee is paid. Investor's return on investment: (130+80-6)/200-1=2%

Under a European-style (whole-of-fund) waterfall structure, the gain for the period is 130 + 80 – 200 = $10 million and the incentive fee is 20% × 10 = $2 million. Investor's return on investment: (130+80-2)/200-1=4%

There is no clawback provision.

If it is, after the LBO investment is sold, the incentive fee of $6 million paid on the venture investment is more than 20% of the return ($10 mil x 20%=$2 mil) on the total investment ($200 mil). It is 60% ($6 mil/$10 mil) of the total (net) gain of $10 million. The investor could "claw back" $4 million of the $6 million paid as an incentive fee on the venture investment so that the total incentive fee is reduced to 20% of the $10 million gain.

If there is a clawback provision, PE fund earns a same incentive fee ($ 2 mil) no matter an American-style (deal-by-deal) waterfall structure or a European-style (whole-of-fund) waterfall structure apply.

Q-59. Solution: C.

It is easiest to see if there is an assumed initial value ($ 100 mil investment).

Year-end gross value = 100 x 20% =$ 120 mil

Management fee = 2% × 120 = $ 2.4 mil

Gains net of management fee = 20 – 2.4 = $ 17.6 mil

Hurdle gains = 8% × 100 = $ 8 mil

Incentive fee = 20% × (20 – 2.4 – 8) = $ 1.92 mil

Total fees = 2.4 + 1.92 = $ 4.32 mil

Ending value after fees = 120 – 4.32 = $ 115.68 mil

Return after fees = 115.68/100 – 1 = 15.68%

Q-60. Solution: A.

Through tokenization, the process of representing ownership rights to physical assets on a blockchain or distributed ledger, DLT has the potential to streamline this process by creating a single, digital record of ownership with which to verify ownership title and authenticity, including all historical activity. Real estate transactions that require ownership and identify verification may be one area to benefit from tokenization, because these transactions are typically labor intensive and costly, involving decentralized, paper-based records and multiple parties.

Q-61. Solution: A.

Blockchain is a type of digital ledger in which information, such as changes in ownership, is recorded sequentially within blocks that are then linked or "chained" together and secured using cryptographic methods.

Q-62. Solution: B.

Unlike financial assets, most digital assets do not have an inherent value based on underlying assets or on the potential cash flow.

The main similarity (not difference) between these asset types is the emergence of indirect investment vehicles such as exchange-traded funds (ETFs) and hedge funds that invest both in traditional financial assets and in digital assets.

One key difference between digital assets and traditional financial instruments is that traditional (not digital) assets are generally recorded in private ledgers maintained by central intermediaries.

Q-63. Solution: A.

Decentralized exchanges are difficult to regulate because no single individual, organization, or group controls the system. This means that those trading on decentralized exchanges are generally free to transact without any regulatory scrutiny. However, some centralized exchanges are regulated, and depending on jurisdiction, these exchanges may be regulated as financial exchanges or other types of financial intermediaries. Hence, decentralized exchanges are less likely to be regulated.

Moreover, decentralized exchanges lack a centralized control mechanism and operate on a distributed platform without central coordination or control. This comes with the benefit that should one of the computers on the network be attacked, the exchange remains operational since there are numerous other computers that continue to operate on the network. That is why attacking decentralized exchanges is substantially more difficult, rendering such attacks almost certain to fail. However, for a centralized exchange, trading is hosted on private servers, exposing the centralized exchanges and their clients to security vulnerabilities. Should the exchange's servers become compromised, the entire system may become paralyzed, halting trade, and leaking vital user information. Hence, decentralized exchanges are less susceptible to attacks from hackers.

Q-64. Solution: C.

In practice, prices (or returns) of cryptocurrencies are driven more by market adoption, network effects, technological advancement, regulatory development, and general market risk appetite.

Bitcoin and other cryptocurrency values are based solely on asset appreciation, with no underlying cash flows.

Since its launch in 2009, bitcoin's performance has been characterized by high return, high volatility, and low correlations with traditional asset classes. The fact that the correlation of cryptocurrencies with traditional assets is on the rise does not imply that the correlation of bitcoin and other cryptocurrencies has reached a high level yet, nor would a high level necessarily be a desirable feature.