

Alternative Investments

共享题干题

【题干】Tim Wang is a financial adviser specializing in commercial real estate investing. He is meeting with Mark Caudill, a new client who is looking to diversify his investment portfolio by adding real estate investments. Caudill has heard about various investment vehicles related to real estate from his friends and is seeking a more in-depth understanding of these investments from Wang.

Wang begins the meeting by advising Caudill of the many options that are available when investing in real estate, including the following:

Option 1 Direct ownership in real estate
Option 2 Publicly traded real estate investment trusts
Option 3 Publicly traded real estate operating companies
Option 4 Publicly-traded

residential mortgage-backed securities
Wang next asks Caudill about his investment preferences.

Caudill responds by telling Wang that he prefers to invest in equity securities that are highly liquid, provide high income, and are not subject to double taxation.

Caudill asks Wang how the economic performance of REITs and REOCs is evaluated and how their shares are valued. Wang advises Caudill there are multiple measures of economic performance for REITs and REOCs, including the following:

Measure 1 Net operating income
Measure 2 Funds from operations
Measure 3 Adjusted funds from operations
In response, Caudill asks Wang:

“Which of the three measures is the best measure of a REIT’s current economic return to shareholders?”

To help Caudill’s understanding of valuation, Wang presents Caudill with data on Baldwin, a health care REIT that primarily invests in independent and assisted senior housing communities in large cities across the United States. Selected financial data on Baldwin for the past two years are provided in Exhibit 1.

Before the meeting, Wang had put together some valuation assumptions for Baldwin in anticipation of discussing valuation with Caudill. Wang explains the process of valuing a REIT share using discounted cash flow analysis, and he proceeds to estimate the value of Baldwin on a per-share basis using a two-step dividend discount model using the data provided in Exhibit 2.

Exhibit 2. Baldwin Valuation Projections and Assumptions

Current risk-free rate	4.0%
Baldwin beta	0.90
Market risk premium	5.0%
Appropriate discount rate (CAPM)	8.5%
Expected dividend per share, 1 year from today	\$1.00
Expected dividend per share, 2 years from today	\$1.06
Long-term growth rate in dividends, starting in year 3	5.0%

Exhibit 1. Baldwin REIT Summarized Income Statement (USD thousands, except per-share data)

	Year Ending 31 December	
	2019	2018
Rental income	339,009	296,777
Other property income	6,112	4,033
Total income	345,121	300,810
Rental expenses		
Property operating expenses	19,195	14,273
Property taxes	3,610	3,327
Total property expenses	22,805	17,600
Net operating income	322,316	283,210
Other income (gains on sale of properties)	2,162	1,003
General and administrative expenses	21,865	19,899
Depreciation and amortization	90,409	78,583
Net interest expenses	70,017	56,404
Net income	142,187	129,327
Weighted average shares outstanding	121,944	121,863
Earnings per share	1.17	1.06
Dividend per share	0.93	0.85
Price/FFO, based upon year-end stock price	11.5x	12.7x

1. 【单项选择题】Based on Caudill's investment preferences, the type of real estate investment Wang is most likely to recommend to Caudill is:

- A. Option 2
- B. Option 3
- C. Option 4

参考答案: A

【莽学解析】Option 2, publicly traded REITs, best satisfy Caudill's investment preferences.

REITs are equity investments that, in general, are income tax exempt at the corporate/trust level, so there is no double income taxation. To qualify for the income tax exemption, REITs are legally obligated to pay out a high percentage of income to their shareholders, and this typically results in relatively high income for investors. Lastly, public REITs are generally liquid as they are traded in stock exchanges.

2. 【单项选择题】Relative to Option 2 and Option 3, an advantage of investing in Option 1 is:

A. greater liquidity.

B. lower investment requirements.

C. greater control over property level investment decisions.

参考答案: C

【莽学解析】Direct property ownership offers greater control over property level investment decisions in comparison to the level of control exhibited by shareholders in REITs and REOCs.

3. 【单项选择题】The Baldwin REIT is least likely to experience long-run negative effects from:

A. An economic recession.

B. An unfavorable change in population demographics.

C. A major reduction in government funding of health care.

参考答案: A

【莽学解析】Baldwin, a health care REIT, is largely resistant to economic recessions but is exposed to changes in population demographics and changes in government funding for health care.

4. 【单项选择题】The most appropriate response to Caudill's question is:

A. Measure 1

B. Measure 2

C. Measure 3

参考答案: C

【莽学解析】Measure 3, adjusted funds from operations, is a refinement of FFO that is designed to be a more accurate measure of current economic income. In essence, FFO is adjusted to remove any non-cash rent and to include a provision for maintenance-type capital expenditures and leasing costs. Maintenance expenses are required for a business to continue as a going concern.

5. 【单项选择题】Based on Exhibit 1, the 2019 year-end share price of Baldwin was closest to:

A. \$13.23.

B. \$21.73.

C. \$30.36.

参考答案: B

【莽学解析】Baldwin's FFO per share in 2019 was \$1.89, and the resulting share price was \$21.73. First, calculate FFO per share in 2019, and then apply the year-end P/FFO multiple of 11.5x.

FFO = accounting net earnings, excluding: (a) depreciation charges on real estate, (b) deferred tax charges, and (c) gains or losses from sales of property and debt restructuring.

2019 accounting net income: \$142,187

2019 depreciation charges: \$90,409

2019 deferred tax charges: N/A

2019 gains on sale of properties (other income): \$2,162

2019 shares outstanding = 121,944

2019 year-end price/FFO = 11.5x

2019 Baldwin's FFO per share = $(\$142,187 + \$90,409 - \$2,162) / 121,944 \text{ shares} = \1.89 . At the given 2019 year-end price/FFO multiple of 11.5x, this results in a share price for Baldwin of $\$1.89 \times 11.5 = \21.73 .

6. 【单项选择题】Based on Exhibit 2, the intrinsic value of the Baldwin REIT on a per share basis using the two-step dividend discount model is closest to:

A. \$26.72.

B. \$27.59.

C. \$28.83.

参考答案: C

【莽学解析】The estimated value per share for the Baldwin REIT using a two-step dividend discount model is \$28.83, calculated as:

	Step One		Step Two
	Year 1	Year 2	Year 3
Dividends per share:	\$1.00	\$1.06	\$1.11
Value of stock at end of Year 2 ¹ :		\$31.80	
		\$32.86	
Discount rate: 8.50%			
Net present value of all dividends ² : \$28.83			

¹ Calculated as $\$1.11 / (0.085 - 0.05) = \31.80

² Calculated as: $\$1.00 / (1.085) + \$32.86 / (1.085)^2 = \$28.83$

【题干】Mary McNeil is the corporate treasurer at Farmhouse, which owns and operates several farms and ethanol production plants in the United States. McNeil's primary responsibility is risk management. Katrina Falk, a recently hired junior analyst at Farmhouse, works for McNeil in managing the risk of the firm's commodity price exposures. Farmhouse's risk management policy requires the use of futures to protect revenue from price volatility, regardless of forecasts of future prices, and prohibits risk managers from taking speculative positions. McNeil meets with Falk to discuss recent developments in two of Farmhouse's commodity markets, grains and livestock. McNeil asks Falk about key characteristics of the two markets that affect revenues and costs. Falk tells McNeil the following:

Statement 1 The life cycle for livestock depends on the product and varies widely by product.

Statement 2 Grains have uniform, well-defined seasons and growth cycles specific to geographic regions.

A material portion of Farmhouse's revenue comes from livestock exports, and a major input cost is the cost of grains imported from outside the United States. Falk and McNeil next discuss three conclusions that

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Falk reached in an analysis of the grains and livestock markets: Conclusion 1 Assuming demand for grains remains constant, extreme heat in the regions from which we import our grains will result in a benefit to us in the form of lower grain prices. Conclusion 2 New tariffs on cattle introduced in our primary export markets will likely result in higher prices for our livestock products in our local market. Conclusion 3 Major improvements in freezing technology allowing for longer storage will let us better manage the volatility in the prices of our livestock products. McNeil asks Falk to gather spot and futures price data on live cattle, wheat, and soybeans, which are presented in Exhibit 1. Additionally, she observes that (1) the convenience yield of soybeans exceeds the costs of its direct storage and (2) commodity producers as a group are less interested in hedging in the forward market than commodity consumers are.

Exhibit 1 Selected Commodity Price Data*

Market	Live Cattle Price	Wheat Price	Soybeans Price
Spot	109	607	846
Futures	108	607	850

* Live cattle: US cents per pound; wheat and soybeans: US cents per bushel.

A key input cost for Farmhouse in producing ethanol is natural gas. McNeil uses positions in natural gas (NG) futures contracts to manage the risk of natural gas price volatility. Three months ago, she entered into a long position in natural gas futures at a futures price of \$2.93 per million British thermal units (MMBtu). The current price of the same contract is \$2.99. Exhibit 2 presents additional data about the three-month futures position.

Exhibit 2 Selected Information—Natural Gas Futures Three-month Position*

Commodity	Total Current \$ Exposure	Position	Prices	
			Near-Term Futures (Current Price)	Farther-Term Futures
Natural Gas (NG)	5,860,000	Long	2.99	3.03

* NG: \$ per MMBtu; 1 contract = 10,000 MMBtu.

The futures position is fully collateralized with a 3% rate. McNeil decides to roll forward her current exposure in the natural gas position. Each month, McNeil reports the performance of the energy futures positions, including details on price returns, roll returns, and collateral returns, to the firm's executive committee. A new committee member is concerned about the negative roll returns on some of the positions. In a memo to McNeil, the committee member asks

her to explain why she is not avoiding positions with negative roll returns.

7. 【单项选择题】With respect to its risk management policy, Farmhouse can be best described as:

A. a trader.

B. a hedger.

C. an arbitrageur.

参考答案: B

【莽学解析】Hedgers trade in the futures markets to hedge their exposures related to the commodity, as stated in Farmhouse's risk management policy.

8. 【单项选择题】Which of Falk's statements regarding the characteristics of the grains and live-stock markets is correct?

A. Only Statement 1

B. Only Statement 2

C. Both Statement 1 and Statement 2

参考答案: C

【莽学解析】The life cycle of livestock does vary widely by product. Grains have uniform, well-defined seasons and growth cycles specific to geographic regions. Therefore, both statements are correct.

9. 【单项选择题】Which of Falk's conclusions regarding commodity markets is correct?

A. Conclusion 1

B. Conclusion 2

C. Conclusion 3

参考答案: C

【莽学解析】Commodity prices are affected by supply and demand, and improvements in freezing technology can improve the firm's ability to store its products for longer periods and manage the volatility of supply and demand. For example, during times of excess supply, a livestock producer, such as Farmhouse, can freeze its products and offer them during better market supply conditions.

10. 【单项选择题】Which commodity market in Exhibit 1 is currently in a state of contango?

A. Wheat

B. Soybeans

C. Live cattle

参考答案: B

【莽学解析】The futures market for soybeans is in a state of contango because the spot price is lower than the futures price.

11. 【单项选择题】Based on Exhibit 1 and McNeil's two observations, the futures price of soybeans is most consistent with the:

A. insurance theory.

B. theory of storage.

C. hedging pressure hypothesis.

参考答案: C

【莽学解析】In Exhibit 1, the spot price of soybeans is less than the futures price. This莽学教育官网 www.mangxuejy.com 版权所有

observation can be explained only by the hedging pressure hypothesis. According to this hypothesis, hedging pressure occurs when both producers and consumers seek to protect themselves from commodity market price volatility by entering into price hedges to stabilize their projected profits and cash flows. If consumers are more interested in hedging than producers are, the futures price will exceed the spot price. In contrast, the insurance theory predicts that the futures price has to be lower than the current spot price as a form of payment or remuneration to the speculator who takes on the price risk and provides price insurance to the commodity seller. Similarly, the theory of storage also predicts that when a commodity's convenience yield is greater than its direct storage costs, the futures price will be lower than the spot price.

12. 【单项选择题】Based on Exhibit 2, the total return from the long position in natural gas futures is closest to:

- A. 1.46%.
- B. 3.71%.
- C. 4.14%.

参考答案: A

【莽学解析】The total return for a fully collateralized position is the sum of the price return, the roll return, and the collateral return: Price return = (Current price - Previous price)/Previous price = $(2.99 - 2.93)/2.93 = 2.05\%$. Roll return = (Near-term futures closing price - Farther-term futures closing price)/Near-term futures closing price \times Percentage of position in futures contract being rolled = $[(2.99 - 3.03)/2.99] \times 100\% = -1.34\%$. Collateral return = Annual rate \times Period length as a fraction of the year = $3\% \times 0.25 = 0.75\%$. Therefore, the total return for three months = $2.05\% - 1.34\% + 0.75\% = 1.46\%$.

13. 【单项选择题】The most appropriate response to the new committee member's question is that:

- A. roll returns are negatively correlated with price returns.
- B. such roll returns are the result of futures markets in backwardation.
- C. such positions may outperform other positions that have positive roll returns.

参考答案: C

【莽学解析】Investment positions are evaluated on the basis of total return, and the roll return is part of the total return. Even though negative roll return negatively affects the total return, this effect could be more than offset by positive price and collateral returns. Therefore, it is possible that positions with negative roll returns outperform positions with positive roll returns, depending on the price and collateral returns.

【题干】Amanda Rodriguez is an alternative investments analyst for a US investment management firm, Delphinus Brothers. Delphinus' Chief Investment Officer, Michael Tang, has informed Rodriguez that he wants to reduce the amount invested in traditional asset classes and gain exposure to the real estate sector by acquiring commercial property in the United States. Rodriguez is to analyze potential commercial real estate investments for Delphinus Brothers. Selected data on three commercial real estate properties is presented in Exhibit 1. Rodriguez reviews the three properties with Tang, who indicates that he would like her to focus on Property #1 because of his prediction of robust job growth in New York City over the next

Exhibit 1. Selected Property Data			
	Property #1	Property #2	Property #3
Property Type	Downtown Office Building	Grocery-Anchored Retail Center	Multi-Family Building
Location	New York, NY	Miami, FL	Boston, MA
Occupancy	90.00%	93.00%	95.00%
Square Feet or Number of Units	100,000 sf	205,000 sf	300 units
Gross Potential Rent	\$4,250,000	\$1,800,000	\$3,100,000
Expense			
Reimbursement			
Revenue	\$330,000	\$426,248	\$0
Other Income (includes % Rent)	\$550,000	\$15,000	\$45,000
Potential Gross Income	\$5,130,000	\$2,241,248	\$3,145,000
Vacancy Loss	(\$513,000)	(\$156,887)	(\$157,250)
Effective Gross Income	\$5,079,000	\$2,084,361	\$2,987,750
Property Management Fees	(\$203,160)	(\$83,374)	(\$119,510)
Other Operating Expenses	(\$2,100,000)	(\$342,874)	(\$1,175,000)
Net Operating Income (NOI)	\$2,775,840	\$1,658,113	\$1,693,240

ten years. To complete her analysis, Rodriquez assembles additional data on Property #1, which is presented in Exhibits 2, 3 and 4.

Exhibit 2. 6-Year Net Operating Income (NOI) and DCF Assumptions for Property #1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
NOI	\$2,775,840	\$2,859,119	\$2,944,889	\$3,033,235	\$3,124,232	\$3,217,959
DCF Assumptions						
Investment Hold Period	5 years					
Going-in Cap Rate	5.25%					
Terminal Cap Rate	6.00%					
Discount Rate	7.25%					
Income/Value	Growth					
Rate	Constant					

As part of the review, Tang asks Rodriguez to evaluate financing alternatives to determine if it would be better to use debt financing or to make an all cash purchase. Tang directs Rodriguez to inquire about terms with Richmond Life Insurance Company, a publicly traded company, which is an active lender on commercial real estate property. Rodriguez obtains the following information from Richmond Life for a loan on Property #1: loan term of 5 years, interest rate of 5.75% interest-only, maximum loan to value of 75%, and minimum debt service coverage ratio of 1.5x. After reviewing her research materials, Rodriguez formulates the following two conclusions: Conclusion 1 Benefits of private equity real estate investments include owners' ability to attain diversification benefits, to earn current income, and to achieve tax benefits. Conclusion 2 Risk factors of private equity real estate investments include business conditions, demographics, the cost of debt and equity capital, and financial leverage.

14. 【单项选择题】 Which of the following is most likely accurate regarding Property 2 described in Exhibit 1?

- A. Operating expense risk is borne by the owner.
- B. The lease term for the largest tenant is greater than three years.
- C. There is a significant amount of percentage rent linked to sales levels.

参考答案: B

【莽学解析】 The lease term for the anchor tenant is typically longer than the usual 3 to 5 year term for smaller tenants. The data in Exhibit 1 suggest that the operating expenses are passed on to the tenant; the sum of Property Management Fees and Other Operating Expenses equal the Expense Reimbursement Revenue. Also, Other Income is only \$15,000 suggesting that there is a minimal amount of percentage rent linked to sales thresholds.

15. 【单项选择题】 Based upon Exhibits 2, 3 and 4, which of the following statements is most

Exhibit 3. Sales Comparison Data for Property #1

Variable	Property 1	Sales Comp A	Sales Comp B	Sales Comp C
Age (years)	10	5	12	25
Condition	Good	Excellent	Good	Average
Location	Prime	Secondary	Secondary	Prime
Sale price psf		\$415 psf	\$395 psf	\$400 psf

Adjustments

Age (years)	-10%	2%	10%
Condition	-10%	0%	10%
Location	15%	15%	0%
Total Adjustments	-5%	17%	20%

Exhibit 4. Other Selected Data for Property #1

Land Value	\$7,000,000
Replacement Cost	\$59,000,000
Total Depreciation	\$5,000,000

accurate regarding the valuation of Property 1?

A. The cost approach valuation is \$71 million.

B. The adjusted price psf for Sales Comp B is \$423 psf.

C. The terminal value at the end of year 5 in the income approach is \$53,632,650.

参考答案: C

【莽学解析】The terminal value using the income approach is \$53,632,650 (= Year 6 NOI/terminal cap rate = \$3,217,959 / 0.06). The value of the property using the cost approach is \$61,000,000 (= Land Value + Building Replacement Cost - Total Depreciation = \$7,000,000 + \$59,000,000 - \$5,000,000). The adjusted sales price per square foot for Sales Comp B is \$462 psf (= \$395 × 1.17).

16. 【单项选择题】Based on Exhibit 2, the growth rate of Property 1 is closest to:

A. 0.75%

B. 1.25%.

C. 2.00%.

参考答案: C

【莽学解析】There is a constant growth rate in income and value; growth rate = discount rate (7.25%) - going-in cap rate (5.25%) = 2.00%.

17. 【单项选择题】Based on Exhibit 2, the value of Property 1 using the discounted cash flow method is closest to:

- A. \$48,650,100.
- B. \$49,750,900.
- C. \$55,150,300.

参考答案: B

【莽学解析】

The value of Property 1 using the discounted cash flow method is \$49,750,931, or \$49,750,900 rounded, calculated as follows:

		Discount period	Discounted value*
Year 1 NOI	\$2,775,840	1	\$2,588,196
Year 2 NOI	\$2,859,119	2	\$2,485,637
Year 3 NOI	\$2,944,889	3	\$2,387,135
Year 4 NOI	\$3,033,235	4	\$2,292,540
Year 5 NOI	\$3,124,232	5	\$2,201,693
Terminal Value**	\$53,632,650	5	\$37,795,731
Property #1 DCF value			\$49,750,932

* Discount rate = 7.25%

** The terminal value = Year 6 NOI/terminal cap rate = \$3,217,959/0.06 = \$53,632,650

18. 【单项选择题】Based on Exhibit 2, relative to the estimated value of Property 1 under the discounted cash flow method, the estimated value of Property 1 using the direct capitalization method is:

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

参考答案: C

【莽学解析】

The direct capitalization method estimate of value for Property #1 is \$52,873,143 (= Year 1 NOI/Going-in Cap Rate = \$2,775,840/0.0525), which is greater than the estimated DCF value of \$49,750,932. Value of Property #1 under the discounted cash flow method can be calculated from the following table:

		Discount period	Discounted value*
Year 1 NOI	\$2,775,840	1	\$2,588,196
Year 2 NOI	\$2,859,119	2	\$2,485,637
Year 3 NOI	\$2,944,889	3	\$2,387,135
Year 4 NOI	\$3,033,235	4	\$2,292,540
Year 5 NOI	\$3,124,232	5	\$2,201,693
Terminal Value**	\$53,632,650	5	\$37,795,731
Property #1 DCF value			\$49,750,932

* Discount rate = 7.25%

** The terminal value = Year 6 NOI/terminal cap rate = \$3,217,959/0.06 = \$53,632,650

19. 【单项选择题】Based upon Exhibits 1 and 3, the estimated value of Property 1 using the sales comparison approach (assigning equal weight to each comparable) is closest to:

- A. 40, 050, 000.
- B. 40, 300, 000.
- C. 44, 500, 000.

参考答案: C

【莽学解析】

The estimate of the value of Property #1 using the sales comparison approach is:

	Unadjusted psf	Adjusted psf
Sales Comp 1	\$415	\$394 (= \$415 × 0.95)
Sales Comp 2	\$395	\$462 (= \$395 × 1.17)
Sales Comp 3	\$400	\$480 (= \$400 × 1.20)
Average	\$403	\$445

Estimated Value of Property #1 = \$44,500,000 (= \$445 psf × 100,000 sf)

20. 【单项选择题】In the event that Delphinus purchases Property 2, the due diligence process would most likely require a review of:

- A. all tenant leases.
- B. tenant sales data.
- C. the grocery anchor lease.

参考答案: C

【莽学解析】The due diligence process includes a review of leases for major tenants which would
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include the grocery anchor tenant. Typically, only major tenant leases will be reviewed in the due diligence process, and smaller tenant leases will likely not be reviewed. Also, the fact that Other Income is only \$15,000 suggests that percentage rent linked to sales levels is minimal and has not been underwritten in the valuation and acquisition process.

21. 【单项选择题】Compared with an all-cash purchase, a mortgage on Property 1 through Richmond Life would most likely result in Delphinus earning:

- A. a lower return on equity.
- B. a higher return on equity.
- C. the same return on equity.

参考答案: B

【莽学解析】Delphinus will expect to earn a higher return on equity with the use of a mortgage to finance a portion of the purchase. The quoted mortgage interest rate of 5.75% is less than the discount rate of 7.25%.

22. 【单项选择题】Assuming an appraised value of \$48 million, Richmond Life Insurance Company's maximum loan amount on Property 1 would be closest to:

- A. \$32 million.
- B. \$36 million.
- C. \$45 million.

参考答案: A

【莽学解析】The maximum amount of debt that an investor can obtain on commercial real estate is usually limited by either the ratio of the loan to the appraised value of the property (loan to value or LTV) or the debt service coverage ratio (DSCR) depending on which measure results in the lowest loan amount. The maximum LTV is 75% of the appraised value of \$48,000,000 or \$36,000,000. The loan amount based on the minimum DSCR would be \$32,183,652 determined as follows: $\text{Maximum debt service} = \text{Year 1 NOI} / \text{DSCR} = \$2,775,840 / 1.5 = \$1,850,560$ $\text{Loan amount (interest only loan)} = \text{maximum debt service} / \text{mortgage rate} = \$1,850,560 / 0.0575 = \$32,183,652$ (rounded to \$32,000,000).

23. 【单项选择题】Rodriguez's Conclusion 1 is:

- A. correct.
- B. incorrect, because tax benefits do not apply to tax-exempt entities.
- C. incorrect, because private real estate is highly correlated to stocks.

参考答案: A

【莽学解析】Benefits of private equity real estate investments include owners' ability to attain diversification benefits, to earn current income, and to achieve tax benefits.

24. 【单项选择题】Rodriguez's Conclusion 2 is:

- A. correct.
- B. incorrect, because inflation is not a risk factor.
- C. incorrect, because the cost of equity capital is not a risk factor.

参考答案: A

【莽学解析】Business conditions, demographics, the cost of debt and equity capital, and financial leverage are characteristic sources of risk for real estate investments.

25. 【单项选择题】Richmond Life Insurance Company' s potential investment would be most likely described as:

- A.private real estate debt.
- B.private real estate equity.
- C.publicly traded real estate debt.

参考答案: A

【莽学解析】Richmond Life' s investment would be a mortgage which falls under private debt on the four quadrants.

【题干】Raffi Musicale is the portfolio manager for a defined benefit pension plan. He meets with Jenny Brown, market strategist with Menlo Bank, to discuss possible investment opportunities. The investment committee for the pension plan has recently approved expanding the plan' s permitted asset mix to include alternative asset classes. Brown proposes the Apex Commodity Fund (Apex Fund) offered by Menlo Bank as a potentially suitable investment for the pension plan. The Apex Fund attempts to produce trading profits by capitalizing on the mispricing between the spot and futures prices of commodities. The fund has access to storage facilities, allowing it to take delivery of commodities when necessary. The Apex Fund' s current asset allocation is presented in Exhibit 1.

Exhibit 1 Apex Fund's Asset Allocation

Commodity Sector	Allocation (%)
Energy	31.9
Livestock	12.6
Softs	21.7
Precious metals	33.8

Brown explains that the Apex Fund has had historically low correlations with stocks and bonds, resulting in diversification benefits. Musicale asks Brown, "Can you identify a factor that affects the valuation of financial assets like stocks and bonds but does not affect the valuation of commodities?" Brown shares selected futures contract data for three markets in which the Apex Fund invests. The futures data are presented in Exhibit 2.

Exhibit 2 Selected Commodity Futures Data*

Month	Gold Price	Coffee Price	Gasoline Price
July	1,301.2	0.9600	2.2701
September	1,301.2	0.9795	2.2076
December	1,301.2	1.0055	2.0307

* Gold: US\$/troy ounce; Coffee: US\$/pound; Gasoline: US\$/gallon

Menlo Bank recently released a report on the coffee market. Brown shares the key conclusion from the report with Musicale: "The coffee market had a global harvest that was greater than expected. Despite the large harvest, coffee futures trading activity is balanced between

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producers and consumers. This balanced condition is not expected to change over the next year” Brown shows Musicale the total return of a recent trade executed by the Apex Fund. Brown explains that the Apex Fund took a fully collateralized long futures position in nearby soybean futures contracts at the quoted futures price of 865.0 (US cents/bushel). Three months later, the entire futures position was rolled when the near-term futures price was 877.0 and the farther-term futures price was 883.0. During the three-month period between the time that the initial long position was taken and the rolling of the contract, the collateral earned an annualized rate of 0.60%. Brown tells Musicale that the pension fund could alternatively gain long exposure to commodities using the swap market. Brown and Musicale analyze the performance of a long position in an S&P GSCI total return swap having monthly resets and a notional amount of \$25 million. Selected data on the S&P GSCI are presented in Exhibit 3.

Exhibit 3 Selected S&P GSCI Data

Reference Date	Index Level
April (swap initiation)	2,542.35
May	2,582.23
June	2,525.21

26. 【单项选择题】The Apex Fund is most likely to be characterized as:

- A. a hedger.
- B. a speculator.
- C. an arbitrageur.

参考答案: C

【莽学解析】Commodity arbitrage involves an ability to inventory physical commodities and the attempt to capitalize on mispricing between the commodity (along with related storage and financing costs) and the futures price. The Apex Fund has access to storage facilities and uses these facilities in the attempt to capitalize on mispricing opportunities.

27. 【单项选择题】Which factor would most likely affect the supply or demand of all four sectors of the Apex Fund?

- A. Weather
- B. Spoilage
- C. Government actions

参考答案: C

【莽学解析】Government actions can affect the supply or demand of all four sectors of the Apex Fund. With respect to energy, environmental mandates imposed by governments have tightened pollution standards, which have led to increasing processing costs that negatively affect demand. The supply of live stock, such as hogs and cattle, is affected by government-permitted use of drugs and growth hormones. Softs, or cash crops, can be affected by government actions, such as the attempt to maintain strategic stockpiles to control domestic prices. The level of demand and relative value of a precious metal, such as gold, is directly linked to government actions associated with managing to inflation targets.

28. 【单项选择题】The most appropriate response to Musicale' s question regarding the valuation factor is:

- A. storage costs.
- B. transportation costs.
- C. expected future cash flows.

参考答案: C

【莽学解析】Expected future cash flows affect the valuation of financial assets, such as stocks and bonds, but do not affect the valuation of commodities. Financial assets (stocks and bonds) are valued based on expected future cash flows. In contrast, the valuation of a commodity is based on a discounted forecast of a future commodity price, which incorporates storage and transportation costs.

29. 【单项选择题】Which futures market in Exhibit 2 is in backwardation?

- A. Gold
- B. Coffee
- C. Gasoline

参考答案: C

【莽学解析】When the near-term (i.e., closer to expiration) futures contract price is higher than the longer-term futures contract price, the futures market for the commodity is in backwardation. Because gasoline is the only one of the three futures markets in Exhibit 2 in which the near-term futures contract price (\$1.2701) is higher than the longer-term contract price (\$1.0307), the gasoline futures market is the only one in backwardation.

30. 【单项选择题】Based on the key conclusion from the Menlo Bank coffee market report, the shape of the coffee futures curve in Exhibit 2 is most consistent with the:

- A. insurance theory.
- B. theory of storage.
- C. hedging pressure hypothesis.

参考答案: B

【莽学解析】The theory of storage focuses on the level of commodity inventories and the state of supply and demand. A commodity that is regularly stored should have a higher price in the future (contango) to account for those storage costs. Because coffee is a commodity that requires storage, its higher future price is consistent with the theory of storage.

31. 【单项选择题】Based on Exhibit 2, which commodity' s roll returns will most likely be positive?

- A. Gold
- B. Coffee
- C. Gasoline

参考答案: C

【莽学解析】Roll returns are generally positive (negative) when the futures market is in backwardation (contango) and zero when the futures market is flat. Because the gasoline market is in backwardation, its roll returns will most likely be positive.

32. 【单项选择题】The Apex Fund' s three-month total return on the soybean futures trade is closest to:

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A. 0.85%.

B. 1.30%.

C. 2.22%.

参考答案: A

【莽学解析】The total return on the trade represents the sum of three components: price return, roll return, and collateral return. Price return = $(\text{Current price} - \text{Previous price}) / \text{Previous price} = (877.0 - 865.0) / 865.0 = 1.387\%$. Roll return = $[(\text{Near-term futures contract closing price} - \text{Farther-term futures contract closing price}) / \text{Near-term futures contract closing price}] \times \text{Percentage of the position in the futures contract being rolled}$. Because the entire position is being rolled, the percentage of the position in the futures contract being rolled is equal to 100%. So: Roll return = $[(877.0 - 883.0) / 877.0] \times 100\% = -0.684\%$. Collateral return = $[3 \text{ months} / 12 \text{ months}] \times 0.60\% = 0.15\%$. Total return = $1.387\% - 0.684\% + 0.15\% = 0.853\%$.

33. 【单项选择题】Based on Exhibit 3, on the June settlement date, the party that is long the S&P GSCI total return swap will:

A. owe a payment of \$552,042.23.

B. receive a payment of \$1,502,621.33.

C. receive a payment of \$1,971,173.60.

参考答案: A

【莽学解析】The total return swap involves a monthly cash settlement (reset) based on the performance of the underlying reference asset (S&P GSCI) given a notional amount of \$25 million. If the level of the index increases between the two valuation dates (in this case, May and June), the long position (the swap buyer) receives payment. If the level of the index decreases between the two valuation dates, the swap seller receives payment. The return on the reference index for the month of June is $[(2,525.21 - 2,582.23) / 2,582.23]$, which is equivalent to -2.2082%. Therefore, the swap buyer (long position) must pay the swap seller a cash settlement for the month of June. The June payment calculation is equal to $\$25,000,000 \times -2.2082\%$, or -\$552,042.23.

【题干】Jamal Nabli is a portfolio manager at NextWave Commodities (NWC), a commodity-based hedge fund located in the United States. NWC's strategy uses a fixed-weighting scheme to allocate exposure among 12 commodities, and it is benchmarked against the Thomson/Reuters/CoreCommodity CRB Index (TR/CC CRB). Nabli manages the energy and livestock sectors with the help of Sota Yamata, a junior analyst. Nabli and Yamata meet to discuss a variety of factors that affect commodity values in the two sectors they manage. Yamata tells Nabli the following: Statement 1 Storage costs are negatively related to futures prices. Statement 2 In contrast to stocks and bonds, most commodity investments are made by using derivatives. Statement 3 Commodities generate future cash flows beyond what can be realized through their purchase and sale. Nabli and Yamata then discuss potential new investments in the energy sector. They review Brent crude oil futures data, which are presented in Exhibit 1.

Yamata presents his research related to the energy sector, which has the following conclusions: ■ Consumers have been more concerned about prices than producers have. ■ Energy is consumed on a real-time basis and requires minimal storage. After concluding the discussion of the energy sector, Nabli reviews the performance of NWC's long position in lean hog futures

Exhibit 1 Selected Data on Brent Crude Oil Futures

Spot Price	Near-Term Futures Price	Longer-Term Futures Price
77.56	73.64	73.59

contracts. Nabli notes that the portfolio earned a -12% price return on the lean hog futures position last year and a -24% roll return after the contracts were rolled forward. The position was held with collateral equal to 100% of the position at a risk-free rate of 1.2% per year. Yamata asks Nabli to clarify how the state of the futures market affects roll returns. Nabli responds as follows: Statement 4 Roll returns are generally negative when a futures market is in contango. Statement 5 Roll returns are generally positive when a futures market is in backwardation. As part of their expansion into new markets, NWC is considering changing its benchmark index. Nabli investigates two indexes as a possible replacement. These indexes both use similar weighting and rebalancing schemes. Index A includes contracts of commodities typically in contango, whereas Index B includes contracts of commodities typically in backwardation. Nabli asks Yamata how the two indexes perform relative to each other in a market that is trending upward. Because of a substantial decline in drilling activity in the North Sea, Nabli believes the price of Brent crude oil will increase more than that of heavy crude oil. The actual price volatility of Brent crude oil has been lower than its expected volatility, and Nabli expects this trend to continue. Nabli also expects the level of the ICE Brent Index to increase from its current level. Nabli and Yamata discuss how to use swaps to take advantage of Nabli's expectations. The possible positions are (1) a basis swap long on Brent crude oil and short on heavy crude oil, (2) a long volatility swap on Brent crude oil, and (3) a short position in an excess return swap that is based on a fixed level (i.e., the current level) of the ICE Brent Index.

34. 【单项选择题】Which of Nabli's statements regarding the valuation and storage of commodities is correct?

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

参考答案: B

【莽学解析】The most common way to invest in commodities is via derivatives, and commodities do not generate future cash flows beyond what can be realized through their purchase and sale. Also, storage costs are positively related to futures prices. Physical assets have to be stored, and storage incurs costs (rent, insurance, spoilage, etc.). Therefore, a commodity that is regularly stored should have a higher price in the future to account for those storage costs.

35. 【单项选择题】Based on Exhibit 1, Yamata should conclude that the:

- A. calendar spread for Brent crude oil is \$3.97.
- B. Brent crude oil futures market is in backwardation.

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C.basis for the near-term Brent crude oil futures contract is \$0.05 per barrel.

参考答案: B

【莽学解析】The Brent crude oil futures market is in a state of backwardation. Commodity futures markets are in a state of backwardation when the spot price is greater than the price of near-term (i.e., nearest-to-expiration) futures contracts and, correspondingly, the price of near-term futures contracts is greater than that of longer-term contracts. The calendar spread is the difference between the near-term futures contract price and the longer-term futures contract price, which is $\$73.64 - \$73.59 = \$0.05$. The basis for the near-term Brent crude oil futures contract is the difference between the spot price and the near-term futures price: $\$77.56 - \$73.59 = \$3.97$.

36. 【单项选择题】Based on Exhibit 1 and Yamata's research on the energy sector, the shape of the futures price curve for Brent crude oil is most consistent with the:

A.insurance theory.

B.theory of storage.

C.hedging pressure hypothesis.

参考答案: B

【莽学解析】The Brent crude oil futures market is in a state of backwardation: The spot price is greater than the price of near-term (i.e., nearest-to-expiration) futures contracts. Commodities (in this case, Brent crude oil) are physical assets, not virtual assets, such as stocks and bonds. Physical assets have to be stored, and storage incurs costs (rent, insurance, inspections, spoilage, etc.). According to the theory of storage, a commodity that is consumed along a value chain that allows for just-in-time delivery and use (i.e., minimal inventories and storage) can avoid these costs. Yamata's research concluded that energy is consumed on a real-time basis and requires minimal storage. In this situation, demand dominates supply, and current prices are higher than futures prices (state of backwardation).

37. 【单项选择题】The total return (annualized excluding leverage) on the lean hog futures contract is:

A. - 37.2%.

B. - 36.0%.

C. - 34.8%.

参考答案: C

【莽学解析】The contract was held for one year, so the price return of -12% is an annualized figure. Additionally, the -24% roll return is also annualized. Nabli's collateral return equals $1.2\% \text{ per year} \times 100\% \text{ initial collateral investment} = 1.2\%$. Therefore, the total return (annualized) is calculated as follows: $\text{Total return} = \text{Price return} + \text{Roll return} + \text{Collateral return}$
 $\text{Total return} = -12\% + (-24\%) + 1.26\% = -34.8\%$.

38. 【单项选择题】Which of Nabli's statements about roll returns is correct?

A.Only Statement 4

B.Only Statement 5

C.Both Statement 4 and Statement 5

参考答案: C

【莽学解析】Roll returns are generally negative (positive) when the futures market is in

contango (backwardation) and zero when the futures market is flat.

39. 【单项选择题】The best response to Nabli's question about the relative performance of the two indexes is that Index B is most likely to exhibit returns that are:

- A. lower than those of Index A.
- B. the same as those of Index A.
- C. higher than those of index A.

参考答案: C

【莽学解析】Index B is likely to have higher performance than Index A in a market that is trending upward. Indexes that (perhaps inadvertently) contain contracts that more commonly trade in backwardation may improve forward-looking performance because this generates a positive roll return. Similarly, indexes that contain contracts that more commonly trade in contango may hurt performance for the same reason (i.e., negative roll return).

40. 【单项选择题】Given Nabli's expectations for crude oil, the most appropriate swap position is the:

- A. basis swap.
- B. volatility swap.
- C. excess return swap.

参考答案: A

【莽学解析】Nabli expects the price of Brent crude oil to increase more than that of heavy crude oil, and Nabli can take advantage of this prediction by entering into a basis swap that is long Brent crude oil and short heavy crude oil. Nabli should take a short (not long) position in a volatility swap to take advantage of his prediction that Brent crude oil's price volatility will be lower than its expected volatility. Nabli should take a long (not short) position in an excess return swap to take advantage of his expectation that the level of the ICE Brent Index will increase faster than leading oil benchmarks.

【题干】Daniel Collin is a junior analyst at JRR Equity Partners, a private equity firm. Collin is assigned to work with Susan Tseng, a senior portfolio manager. Tseng and Collin meet to discuss existing and potential investments. Tseng starts the meeting with a discussion of LBO firms and VC firms. Collin tells Tseng, LBO firms tend to invest in companies with predictable cash flows and experienced management teams, whereas VC firms tend to invest in companies with high EBITDA or EBIT growth and where an exit is fairly predictable. Tseng and Collin next analyze a potential investment in the leveraged buyout of Stoneham Industries. Specifically, they assess the expected gain if they elect to purchase all the preference shares and 90% of the common equity in the LBO. Details of the LBO include the following: ●The buyout requires an initial investment of \$10 million. ●Financing for the deal includes \$6 million in debt, \$3.6 million in preference shares that promise a 15% annual return paid at exit, and \$0.4 million in common equity. The expected exit value in six years is \$15 million, with an estimated reduction in debt of \$2.8 million over the six years prior to exit. Tseng and Collin next discuss JRR's investment in Venture Holdings, a private equity fund. Selected details on the Venture Holdings fund include the following: ●Total committed capital is \$115 million. ●The distribution waterfall follows the deal-by-deal method, and carried interest is 20%. ●On its first exit event a few years ago, the fund generated a \$10 million profit. ●At the end of the most recent year, cumulative paid-in capital was \$98 million, cumulative distributions paid out to LPs were

\$28 million, and the year-end NAV, before and after distributions, was \$170.52 million and \$131.42 million, respectively. ●Tseng and Collin estimate that the fund's NAV before distributions will be \$242.32 million at the end of next year. Finally, Tseng and Collin evaluate two venture capital funds for potential investment: the Squire Fund and the Treble Fund. Both funds are in Year 7 of an estimated 10-year term. Selected data for the two funds are presented in Exhibit 1.

Exhibit 1. Selected Data for the Squire Fund and the Treble Fund

	Squire Fund	Treble Fund
DPI	0.11	0.55
RVPI	0.95	0.51
Gross IRR	-11%	10%
Net IRR	-20%	8%

After reviewing the performance data in Exhibit 1, Collin draws the following conclusions: Conclusion 1 The unrealized return on investment for the Squire Fund is greater than the unrealized return on investment for the Treble Fund. Conclusion 2 The TVPI for the Treble Fund is higher than the TVPI for the Squire Fund because the Treble Fund has a higher gross IRR.

41. 【单项选择题】Is Collin's statement about LBO firms and VC firms correct?

- A. Yes
- B. No, because he is wrong with respect to VC firms.
- C. No, because he is wrong with respect to LBO firms.

参考答案: B

【莽学解析】LBO firms generally invest in firms with a predictable cash flow pattern (EBITDA or EBIT growth) and experienced management teams. In contrast, venture capital firms tend to invest in new firms and new technologies with high revenue growth. Also, VC investments tend to be characterized as having exits that are difficult to anticipate.

42. 【单项选择题】The multiple of expected proceeds at exit to invested funds for JRR's Stoneham LBO investment is closest to:

- A. 2.77x.
- B. 2.89x.
- C. 2.98x.

参考答案: B

【莽学解析】The investment exit value is \$15 million. The expected payoff to JRR is calculated as (all amounts in millions): Expected exit value: \$15.00 Debt remaining at exit: (\$6.0 - \$2.8) = \$3.20 Preference shares: $[\$3.60 \times (1.15)^6] = \8.33 Common equity: (\$15 exit - \$3.2 debt - \$8.33 preference) = \$3.47 Initial investment: \$3.6 (preference) + 0.9 x \$0.4 (common) = \$3.96 Proceeds at exit: \$8.33 (preference) + 0.9 x \$3.47 (common) = \$11.45 Multiple of expected proceeds to invested funds: \$11.45 exit value / \$3.96 initial investment = 2.89x

43. 【单项选择题】The distribution available to the limited partners of the Venture Holdings fund from the first exit is closest to:

- A. \$2 million.
- B. \$8 million.
- C. \$10 million.

参考答案: B

【莽学解析】The distribution waterfall for the Venture Holdings fund follows the deal-by-deal method. The investment generated a profit of \$10 million, and with carried interest of 20%, the general partner would receive \$2 million (\$10 million x 20%), leaving \$8 million for the limited partners.

44. 【单项选择题】At the end of the most recent year, the total value to paid-in capital (TVPI) ratio for the Venture Holdings fund was closest to:

- A. 0.29x.
- B. 1.34x.
- C. 1.63x.

参考答案: C

【莽学解析】Total value to paid-in capital (TVPI) represents the fund's distributed value and undistributed value as a proportion of the cumulative invested capital. TVPI is the sum of distributed to paid-in capital (DPI) and residual value to paid-in capital (RVPI):

$$\text{TVPI} = \text{DPI} + \text{RVPI}$$

$$\text{DPI} = \frac{\text{Cumulative distributions}}{\text{Cumulative invested capital}} = \frac{\$28\text{million}}{\$98\text{million}} = 0.29$$

$$\text{RVPI} = \frac{\text{NAV (after distributions)}}{\text{Cumulative invested capital}} = \frac{\$131.42\text{ million}}{\$98\text{million}} = 1.34$$

$$\text{TVPI} = \text{DPI} + \text{RVPI} = 1.63x$$

45. 【单项选择题】Based on Tseng and Collin's estimate of NAV next year, the estimate of carried interest next year is closest to:

- A. \$14.36 million.
- B. \$22.18 million.
- C. \$25.46 million.

参考答案: A

【莽学解析】Provided that NAV before distribution exceeds committed capital, the general partner is entitled to carried interest, calculated as the given 20% multiplied by the increase in NAV before distributions. So, the carried interest is calculated as follows:

$$\text{Carried interest} = 20\% \times (\$242.32 - \$170.52) = \$14.36\text{million}$$

46. 【单项选择题】Which of Collin's conclusions regarding the Squire Fund and the Treble Fund is correct?

- A. Only Conclusion 1
- B. Only Conclusion 2
- C. Both Conclusion 1 and Conclusion 2

参考答案: A

【莽学解析】DPI provides an indication of a fund's realized return, whereas RVPI provides an indication of a fund's unrealized return. The Squire Fund has a higher RVPI (0.95) than the Treble Fund (0.85). Therefore, Conclusion 1 is correct. Conclusion 2 is incorrect because the Squire Fund has a higher DPI (1.34) than the Treble Fund (1.14).
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Treble Fund (0.51). TVPI, which is the sum of DPI and RVPI, is the same for both funds: $0.11 + 0.95 = 1.06$ for the Squire Fund, and $0.55 + 0.51 = 1.06$ for the Treble Fund.

【题干】Martha Brady is the CIO of the Upper Darby County (UDC) public employees' pension system. Brady is considering an allocation of the pension system's assets to private equity. She has asked two of her analysts, Jennifer Chau, CFA, and Matthew Hermansky, to provide more information about the workings of the private equity market.

Brady recognizes that the private equity asset class covers a broad spectrum of equity investments that are not traded in public markets. She asks Chau to describe the major differences between assets within this asset class. Chau notes that private equity ranges from venture capital financing of early-stage companies to complete buyouts of large publicly traded or even privately held companies. Chau describes some of the characteristics of venture capital and buyout investments.

Chau mentions that private equity firms take care to align the economic interests of the managers of the investments they control with their own. Various contractual clauses are inserted in the compensation contracts of the management team in order to reward or punish managers who meet or do not meet agreed-upon target objectives.

One concern Chau highlights is the illiquidity of private equity investments over time. Some funds are returned to investors, however, over the life of the fund because a number of investment opportunities are exited early. Provisions in a fund's prospectus describe the distribution of returns to investors, some of which favor the limited partners. One such provision is the distribution waterfall mechanism that provides distributions to limited partners (LPs) before the general partner (GP) receives the carried interest. This distribution mechanism is called the total return waterfall.

Chau prepares the following data to illustrate the distribution waterfall mechanism and the funds provided to limited partners when a private equity fund with a zero hurdle rate exits from its first three projects during a three-year period.

Exhibit 1. Investment Returns and Distribution Waterfalls

Private equity committed capital	\$400 million
Carried interest	20%
First project investment capital	\$20 million
Second project investment capital	\$45 million
Third project investment capital	\$50 million
Proceeds from first project	\$25 million
Proceeds from second project	\$35 million
Proceeds from third project	\$65 million

Chau cautions that investors must understand the terminology used to describe the performance of private equity funds. Interpretation of performance numbers should be made with the awareness that much of the fund assets are illiquid during a substantial part of the fund's

life. She provides the latest data in Exhibit 2 for the Alpha, Beta, and Gamma Funds, diversified high-technology venture capital funds formed five years ago, each with five years remaining to termination.

Exhibit 2. Financial Performance of Alpha, Beta, and Gamma Funds			
Fund	PIC	DPI	RVPI
Alpha	0.30	0.10	0.65
Beta	0.85	0.10	1.25
Gamma	0.85	1.25	0.75

Chau studies the data and comments, Of the three funds, the Alpha Fund has the best chance to outperform over the remaining life. First, it's because the management has earned such a relatively high residual value on capital and will be able to earn a high return on the remaining funds called down. At termination, the RVPI will be double the 0.65 value when the rest of the funds are called down. Second, its cash-on-cash return as measured by DPI is already as high as that of the Beta Fund. The PIC (or paid-in capital) ratio indicates the proportion of capital already called by the GP. The PIC of Alpha is relatively low relative to Beta and Gamma.

Hermansky notes that a private equity fund's ability to properly plan and execute its exit from an investment is vital for the fund's success. Venture funds, such as Alpha, Beta, and Gamma, take special care to plan their exits.

Brady then asks the analysts what procedures private equity firms would use to value investments in their portfolios as well as investments that are added later. She is concerned about buying into a fund with existing assets that do not have public market prices that can be used to ascertain value. In such cases, she worries, what if a GP overvalues the assets and new investors in the fund pay more for the fund assets than they are worth?

Hermansky makes three statements regarding the valuation methods used in private equity transactions during the early stages of selling a fund to investors.

Statement 1: For venture capital investment in the early stages of analysis, emphasis is placed on the discounted cash flow approach to valuation.

Statement 2: For buyout investments, income-based approaches are used frequently as a primary method of valuation.

Statement 3: If a comparable group of companies exist, multiples of revenues or earnings are used frequently to derive a value for venture capital investments.

47. 【单项选择题】The characteristic that is most likely common to both the venture capital and buyout private equity investment is:

A. measurable and assessable risk.

B. the extensive use of financial leverage.

C. the strength of the individual track record and ability of members of management.

参考答案: C

【莽学解析】Members of both the firm being bought out and the venture capital investment usually have strong individual management track records. Extensive financial leverage is common

in buyouts but not venture capital investments, whereas measurable risk is more common in buyouts than in venture capital situations.

48. 【单项选择题】The contractual term enabling management of the private equity controlled company to be rewarded with increased equity ownership as a result of meeting performance targets is called:

- A. a ratchet.
- B. the tag-along right.
- C. the clawback provision.

参考答案: A

【莽学解析】A is correct. Ratchet是将股权在股东和PE标的公司的管理层之间的分配, 它允许管理层基于业绩报酬来增加股权, 因此A是正确选项。Tag-along是指如果有收购者想通过购买股权来收购标的公司, 那么就必须买下所有股东手中的股份, 包括管理层的股份, 因此B是不正确的。Clawback provision是指盈利不佳时, GP把之前分配到的资金归还部分给LP, 因此C也是不正确的。

49. 【单项选择题】For the projects described in Exhibit 1, under a deal-by-deal method with a clawback provision and true-up every three years, the cumulative dollar amount the GP receives by the end of the three years is equal to:

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

参考答案: B

【莽学解析】On a cumulative basis for three years, the fund earns \$10 million, of which \$2 million goes to the GP. The \$2 million earned by the GP corresponds to 20 percent of the difference between total three-year proceeds and three-year invested capital, or $0.2[(25 + 35 + 65) - (20 + 45 + 50)]$.

50. 【单项选择题】Are Chau's two reasons for interpreting Alpha Fund as the best performing fund over the remaining life correct?

- A. No.
- B. Yes.
- C. The first reason is correct, but the second reason is incorrect.

参考答案: A

【莽学解析】Chau misinterprets DPI, RVPI, and PIC. The returns earned to date are for each dollar of invested capital, that which has been drawn down, not total returns. Chau mistakenly believes (assuming the same management skill) the result for Alpha Fund at termination will be on the order of $3 \times 0.65 = 1.95$ instead of 0.65. In both cases, Alpha Fund has underperformed relative to the other two funds.

51. 【单项选择题】The exit route for a venture capital investment is least likely to be in the form of a(n):

- A. initial public offering (IPO).
- B. sale to other venture funds targeting the same sector.
- C. buyout by the management of the venture investment.

参考答案: C

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with limited history.

52. 【单项选择题】Which statement by Hermansky is the least valid?

A. Statement 1

B. Statement 2

C. Statement 3

参考答案: A

【莽学解析】Statement 1 is the least likely to be valid. 本题可以直接选出A选项，因为VC的现金流是很难预测的，所以用现金流折现模型是最不切实际的。

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