32 REAL ESTATE INVESTMENTS

1. Which of the following most accurately identifies a private equity investment in income-producing real estate?
   (A) Investment in a real estate investment trust (REIT).
   (B) Private market mortgage lending by an insurance company.
   (C) Direct ownership of real estate properties.

2. Suppose that a property has a gross annual income equal to $150,000, and that a comparable property has a gross annual income of $100,000 and a market value of $1,125,000. The gross income multiplier approach produces a market value for this property that is closest to:
   (A) $1,687,500.
   (B) $1,625,000.
   (C) $1,333,333.

3. A key difference between Funds From Operations (FFO) and Adjusted Funds From Operations (AFFO) is that AFFO excludes:
   (A) non-cash rent while FFO does not.
   (B) depreciation while FFO does not.
   (C) deferred tax charges while FFO does not.

4. Compared to transaction-based indices used to track the performance of private real estate, appraisal-based indices are most likely to exhibit an apparent:
   (A) higher volatility.
   (B) higher correlation with other asset classes.
   (C) time lag.

5. The most likely consequence of the high income distribution that REITs are required to make is:
   (A) frequent secondary equity offerings compared to other kinds of companies.
   (B) dividend yields that are nearly on-par with the yields of other publicly traded equities.
   (C) high volatility of reported income.

Spanos Klios analyzes investment opportunities for Central Europe Securities. Klios is considering proposals by several of the firm's junior analysts.

Josef Klein, one of the junior analysts, proposes a real estate project in Stuttgart and has put together a comprehensive packet on the project. Klein is optimistic about the potential apartment buildings because it is located in an area densely populated with high-income residents. Klios finds the proposal intriguing, but is worried about the equity needed to make the deal work. Most Central European properties' loan-to-values (LTV) are usually below 80% and Klein's project would require borrowing 60% of the value.

Klios calls Klein in for a conference and asks him some questions about the real estate proposal, including the different ways to value the properties. During the meeting, Klios takes notes based on Klein's findings:

- The market value of the land using comparables is €1.25 billion. The total area is 2.5 million square feet.
- Replacement cost and developer's profit is €630.00 per square foot. Curable deterioration is €10.0 million; total economic life is 75 years and effective age is 15 years. All estimated obsolescence costs are €50.0 million.
- The expected purchase price is €2.35 billion and the expected selling price in 10 years is €2.80 billion. The debt value owed on the mortgage value in 10 years is €909,893,015.
- The expected net operating income for next year is €264 million and the debt service is expected to be $121,220,135. No growth is expected in NOI or debt service during the 10-year holding period.
- Klein found three comparable properties. Information related to each property are as follows:
    - Property A - net operating income, €192 million; market value, €1.60 billion.
    - Property B - net operating income, €550 million; market value, €5.50 billion.
    - Property C - net operating income, €715 million; market value, €6.50 billion.

After Klios finishes his meeting with Klein, he turns his attention to a proposal from Carlotta Graccos. She is proposing a venture-capital investment in two firms; retail group Belgarrique and the KinderWerks toy company. Klios reviews a fact sheet prepared by Graccos, considering a number of factors relating to both companies:

	Belgarrique	KinderWerks
Management	Experienced	Strong leader, minimal experience
Best sales strategy	Auction	Private deals
Working capital needs	Moderate	High
Company financing	Private	Public
Exit strategy	Terms specified in contract	Uncertain

Company's chief goals	Cash-flow targets, market expansion	Market-share tragets
Risk	Measurable	Difficult to measure

6. The levered internal rate of return for the apartment project is closest to:
   (A) 12.3%.
   (B) 19.2%.
   (C) 22.0%.

7. When calculating NAVPS, a real estate company's assets and liabilities are valued at their:
   (A) market value.
   (B) book value.
   (C) liquidation value.

8. Patricia Ly, CFA, is a portfolio manager who wishes to add diversification to her portfolio through the addition of a real estate investment. Ly finds the following data for a particular industrial REIT:

   Net operating income (NOI): $710,000
   Funds from operations (FFO): $630,000
   Assumed cap rate: 6%
   Shares outstanding: 90,000 shares
   Storage property average P/FFO multiple: 13x.
   Industrial property average P/FFO multiple: 10x.

   Ly decides to perform a valuation on this REIT. The value per share of this REIT using a price-to-FFO approach is closest to:
   (A) $91
   (B) $112
   (C) $70

9. A real estate investment is expected to have cash flows after taxes in each of the next three years equal to CAD70,000, CAD50,000, and CAD65,000, respectively. The initial equity investment in this property is CAD600,000 and the equity at the end of year three is estimated to be CAD500,000. The internal rate of return (IRR) for this investment is closest to:
   (A) 8.0%.
   (B) –7.8%.
   (C) 5.0%.

10. Which of the following most accurately identifies one of the advantages of investing in real estate through publicly traded securities?
   (A) Diversification by geography and property type is facilitated.

(B) Publicly traded corporate structures cost less to maintain.

(C) Structural conflicts of interest are eliminated.

11. The best estimate for the real-estate project's value using the direct capitalization method is:

(A) €2.40 billion.

(B) €2.00 billion.

(C) €2.60 billion.

12. What kind of transaction seems most suitable for:

	Belgarrique	KinderWerks
(A)	Buyout	Venture capital
(B)	Venture capital	Buyout
(C)	Venture capital	Venture capital

13. Which of the following least accurately describes a major category of due diligence factors that should be investigated in determining the value of a property?

(A) Structural integrity.

(B) Operating expenses.

(C) Pipeline analysis.

Bai Mako, CFA, is an investment manager looking to diversify into real estate by gaining exposure to the REIT market. She is particularly interested in healthcare and multi-family REITs. As part of her work, she asks two junior analysts, Elvie Ko and Jenny Meethong, to collect information on two REITS, which Mako considers interesting. Exhibit 1 summarizes their findings:

Exhibit 1: Selected REIT Financial Data

	Healthcare REIT	Multi-family REIT
Estimated cash NOI for next year	$420,000	$370,000
Funds from operations (FFO)	$401,000	$363,000
Cash and accounts receivable	$734,000	$645,000
Goodwill	$250,000	$175,000
Debt and other liabilities	$1,870,000	$1,640,000
Non-cash rents	$24,000	$19,000
Recurring maintenance expenditure	$72,000	$65,000
Cap rate	6.00%	8.00%
Shares outstanding	42,000	35,000

Meethong, who previously worked for a public real estate operating company (REOC), suggests to Mako that they can extend the analysis to REOCs as well as REITS. However, Mako declines the suggestion stating that she believes there is a fundamental difference between REITs and REOCs.

Mako would like to perform relative valuation analysis on the REITS and asks her analysts to suggest appropriate methodologies. The analysts make the following comments:

Ko's comment: FFO data is readily available through market data providers, and therefore P/FFO is easily computable.

Meethong's comment: FFO, and consequently P/FFO, does not adjust for the impact of recurring capital expenditures, which are necessary in order to keep the properties running smoothly. P/AFFO is an improved measure, which takes this recurring cost into account.

Ultimately, Ko is pushing for P/FFO whereas Meethong is insisting on P/AFFO. Mako decides that each analyst should have the opportunity to prove their point and asks them to collect relevant sector data, each one working on their own suggested methodology. The findings of the two analysts are summarized in Exhibit 2:

Exhibit 2

	Healthcare REIT	Multi-family REIT
Sector average P/FFO multiple	14.3	13.2
Sector average P/FFO multiple	17.2	14.6

14. Based on Exhibit 1, the estimated NAV per share of the Healthcare REIT is closest to:
    (A) $140.
    (B) $144.
    (C) $154.

15. Based on Exhibits 1 and 2, the estimated value per share of the Healthcare REIT using the method suggested by Ko is closest to:
    (A) $137.
    (B) $140.
    (C) $148.

16. Based on Exhibits 1 and 2, the estimated value per share of the Multi-family REIT using the method suggested by Meething is closest to:
    (A) $116.
    (B) $120.

(C) $144.

17. How do you evaluate the comments made by the two analysts?
    (A) Both analysts are correct.
    (B) Only Ko is correct.
    (C) Only Meethong is correct.

18. Suppose you have collected the information in the table below for four comparable properties.

Property	Net Operating Income (NOI)	Selling Price
A	$200,000	$2,250,000
B	$220,000	$2,000,000
C	$250,000	$2,500,000
D	$230,000	?

Using the market extraction method in conjunction with an average capitalization rate, the market value (MV) for Property D is estimated to be closest to:
    (A) $2,309,237.
    (B) $2,090,909.
    (C) $2,300,000.

19. If a REIT has assets with a current market value of $3,000,000, liabilities with a current market value of $2,000,000, and 100,000 shares outstanding, what is the NAVPS per share?
    (A) $10.00
    (B) $30.00
    (C) $50.00

20. Regarding valuation of private real estate investments, the cost approach is most likely to be used to value:
    (A) commercial properties.
    (B) unusual properties.
    (C) single-family homes.

21. Which one of the following is least likely an error in using DCF method of real estate valuation?
    (A) Income growth is equal to expense growth.
    (B) Terminal cap rate and going-in cap rate are not consistent
    (C) Terminal cap rate applied to atypical NOI.

22. Which of the following valuation approaches is only applicable in its application to income-generating properties?
    (A) Both the gross income multiplier approach and the direct income capitalization

approach.

(B) Only the direct income capitalization approach.

(C) Only the gross income multiplier approach.

23. Which of the following most accurately identifies non-core real estate property types?

(A) Hotel and hospitality.

(B) Retail and multi-family residential.

(C) Office and industrial.

24. Which of the following most accurately identifies one of the disadvantages of investing in real estate through publicly traded securities? Compared to other real estate investment vehicles, publicly traded securities expose investors to:

(A) unlimited liability.

(B) inferior liquidity.

(C) more-volatile returns.

Kent Clarkson, Tony Chekov and Peter Chanwit are investment consultants for a large public pension fund. They are partners in Clarkson, Chekov and Chanwit Consulting also known as 3CC. From previous meetings with the pension board, it has been established there will be an increase in exposure to real estate for the overall portfolio. Because of the defined benefit plan's significant size and their staffs expertise, the pension fund can invest and manage all forms of real estate investments. Partners of 3CC are to recommend a form of real estate investments, and recommend potential investments.

Expected Real Estate Market Conditions

Both residential and commercial real estate prices have fallen over the last five years. This trend is not expected to persist. It is a 'buyer's market' — the current supply exceeds the current demand and prices are lower than the intrinsic value. Although interest rates have fallen to historically low rates, the volume of real estate transactions remains low. Current average 20-year commercial mortgage rates are 3.75% and expected to stay relatively flat for at least 7 more years.

Loan underwriting standards have become more stringent and loan-to-value (LTV) ratios are expected to be lower than the earlier average rate of 80%.

The four forms of real estate under consideration as an investment choice for the pension fund are:

- Private: equity option is to buy commercial properties and manage them; debt option is to directly lend to commercial property investors.
- Public: equity option is to buy equity REITs; debt option is to buy mortgage REITs

or CMOs.

The following information was collected by 3CC partners to aid their analysis. The returns and standard deviations of the four possible forms of real estate investments considered are listed in Exhibit 1. Correlations of real estate index with Treasury bill returns, US aggregate bond returns and US stock returns are listed in Exhibit 2.

Exhibit 1: Returns and Standard deviation (past 20 years)

	Returns	σ
Private Equity	9.5%	6.5%
Private debt	5.5%	8.5%
Public Equity	11.5%	21.0%
Public Debt	6.2%	22.5%
Treasuries	3.5%	0.6%

Exhibit 2: Correlation of Real Estate Index With Other Asset Classes (past 20 years)

Real Estate Index Correlations	ρ
US Treasuries	0.35
US Aggregate Bonds	–0.05
US Stocks	0.25

The partners make the following statements:

Kent Clarkson: We should eliminate the private debt option from consideration. Returns for private debt are likely to be low since interest rates are likely to remain low and the amount of underwriting that is going to be required as a lender doesn't seem worth it.

Tony Chekov: I like the equity options better than the debt options based on Clarkson's private debt expectations.

Peter Chanwit: I prefer the private option over the public option since the pension fund staff can better actively manage the real estate projects and possibly outperform the index.

The partners have identified specific REIT managers who have consistently outperformed their indices for the public option. They have also contacted potential high creditworthy borrowers in case of private debt. For the private equity option, the partners are looking at different commercial properties. They have narrowed their choices to hotels and multi-family units.

Peter Chanwit is analyzing two specific buildings. Green Oaks Hotel and Blue Ridge Apartments are next to each other; have exactly the same number of units, same amenities; were built 10 years ago by the same construction company; and managed by the same property management company. They are currently owned by different entities that are also looking to provide the financing on the following basis.

Green Oaks Hotels		Blue Ridge Apartments	
Asking Price	$25,000,000	Asking Price	$25,000,000
Annual NOI End of Year 1	$2,187,500	Annual NOI End of Year 1	$2,125,000
LTV	750%	LTV	70.0%
Loan Interest Rate	4.00%	Loan Interest Rate	3.50%
Monthly Debt Service	$113,621	Monthly Debt Service	$101,493
Loan Term	20 Years	Loan Term	20 Years
Expected Sales Price in 10 Yrs	$30,000,000.00	Expected Sales Price in 10 Yrs	$30,000,000.00
Principal Owned at End of 10 Yrs	$11,222,397	Principal Owned at End of 10 Yrs	$11,144,755

The pension fund can buy one or both buildings provided they meet the minimum criteria of a debt service coverage ratio of at least 1.50X and a levered IRR of at least 17.5%.

The indices under consideration as the benchmark for private real estate equity investing are:

- Jackson Property Index (JPI) is an appraisal based index.
- Taft's Sales Index (TSI) is a repeat sales index.
- Lincoln Hedonic Index (LHI) is a hedonic index.

Concerns regarding the index choice were verbalized at a 3CC meeting:

Kent Clarkson: I'm worried about Lincoln Hedonic Index. This index may adjust for differences in property characteristics but I'm not sure it can be effective given that some properties may not sell more than once during the index's coverage period.

Tony Chekov: I don't like the Jackson Property Index. Appraisals are estimates; there haven't been many transactions lately so I question the reliability of the returns.

Peter Chanwit: I'm not sure about Taft's Sales Index. It relies on actual transactions but there are so few sales recently so how reliable are the returns?

25. Based on projected real estate conditions and the partners' discussion given in the vignette, 3CC's top recommendation would most likely be:

(A) public equity.

(B) private equity.

(C) public debt.

26. If the pension fund chooses to invest in hotels over apartments, one possible reason for this is that hotels:

(A) are not affected by cost and availability of debt capital.

(B) are commercial properties while apartments are residential properties.

(C) may offer higher rates of returns because of higher operational risk.

27. Compared to Blue Ridge Apartments, Green Oaks Hotel has higher:
(A) cap rate.
(B) discount rate because the amount of principal owed is higher.
(C) net operating income because of the higher debt service.

28. Which statement regarding issues with indices is least likely correct?
(A) Clarkson's statement.
(B) Chekov's statement.
(C) Chanwit's statement.

29. Which of the following most accurately identifies one of the characteristics of a private equity investment in income-producing real estate?
(A) Homogeneity.
(B) Passive management.
(C) Sensitivity to the credit market.

30. All of the following are limitations to the gross income multiplier approach for real estate valuation EXCEPT:
(A) gross rental income may be inappropriate when building-to-land ratios are different among otherwise comparable properties.
(B) sales prices for comparable properties may not be current.
(C) it may be difficult to obtain the necessary data to determine the appropriate capitalization rate.

31. A real estate market is characterized by frequent transactions. However, individual properties have long holding periods. Which real estate pricing index would be least suitable in such an environment?
(A) Repeat sales index.
(B) Appraisal based index.
(C) Hedonic price index.

32. In appraising a commercial property, both the direct capitalization method and the discounted cash flow methods are most likely to use as a primary input the:
(A) gross income multiplier.
(B) terminal cap rate.
(C) net operating income.

33. Which of the following statements most accurately describes the capitalization rate used for

real estate valuation?

(A) The capitalization rate is the rate of return that equity investors require on similar-risk real estate investments.

(B) The capitalization rate is the rate of return that equity investors require on similar-risk real estate investments net of the expected constant growth rate of net operating income.

(C) The capitalization rate is one plus the constant growth rate of net operating income.

34. Assume that a property that you are evaluating has a gross annual income equal to $230,000, and that comparable properties are selling for 10.5 times gross income. The gross income multiplier approach provides a market value for this property that is closest to:

(A) $2,190,000.

(B) $2,415,000.

(C) $2,303,000.

35 Compared with REITs, real estate operating companies (REOCs) are most likely to feature higher:

(A) yields.

(B) levels of income tax exemption.

(C) operating flexibility.

36. All of the following statements accurately describe the real estate capitalization rate EXCEPT:

(A) holding all else constant, market value estimates increase as the growth rate in net operating income increases.

(B) there is an inverse relationship between estimated market values and capitalization rates.

(C) holding all else constant, the risk of a real estate investment is directly related to its estimated value.

37. Which of the following most accurately describes an approach to REIT valuation?

(A) The discounted cash flow approach typically consists of intermediate-term cash flow projections plus a terminal value based on cash flow multiples.

(B) The P/AFFO approach avoids estimates and assumptions in its calculation.

(C) The P/FFO approach adjusts for the impact of recurring capital expenditures needed to keep properties operating smoothly.

38. Which of the following statements is most accurate regarding real estate capitalization rates?

(A) As the difference between the required return on equity capital and the growth rate in NOI (g) increases, value estimates will also increase.

(B) If during periods of rising inflation, there is an increase in net operating income (NOI) and the growth rate of NOI, capitalization rates and value estimates will increase.

(C) Generally, as interest rates increase, capitalization rates increase and value estimates decline.

39. Which of the following is an expense normally deducted from accounting net earnings but not from FFO?

(A) Property operating expenses

(B) Property taxes

(C) Depreciation expense

Anton Lilov, a high net worth individual, is considering diversifying his traditional portfolio by gaining exposure to the real estate market. He has identified a rental, multi-family property consisting of ten identical apartment units in the seaside resort of Balchik, located in the northeastern part of Bulgaria. Lilov believes that affluent Romanian and Russian tourists will be a major driver for the growth of this area.

Lilov believes he can let each unit at BGN 500 per calendar month (pcm) and offer additional services such as breakfast and underground parking for BGN 400 for the entire property (pcm). Lilov estimates vacancy losses at 10% and all other operating expenses at 40% of effective gross income. As Lilov plans to demand payment in advance, he estimates no collection loses.

One thing Lilov is still unsure of is whether he should purchase the property with a mortgage or simply use his own equity. After careful research, he has identified that the Greek Beta Bank is offering the most attractive product on the market, subject to meeting certain loan to value (LTV) and debt-service-coverage ratio (DSCR) criteria. The following table summarizes his findings and the Bank's estimates for the property:

Exhibit 1 (all figures in BGN)

Lender	Beta Bank
Mortgage type	Interest only
Rate	6%
Max LTV	60%
Min DSCR	1.8
Estimated value	900,000
Forecast NOI	55,000

Valery has also studied two valuation methods: the direct capitalization approach and the DCF approach, and he is eager to apply his knowledge to this valuation. Valery is able to gather data on three comparable recent transactions summarized in Exhibit 2. For the direct capitalization approach, Valery estimates the first year NOI of BGN 50,000 and constant annual growth of NOI of 2%. Valery wants to use the average cap rate derived from three comparable properties shown in Exhibit 2.

Exhibit 2 (all figures in BGN)

Property	A	B	C
Forecast NOI	45,000	88,000	102,000
Value	780,000	1,200,000	1,600,000

For the DCF part of the analysis, Valery has compiled the following estimates:

Exhibit 3 (all figures in BGN)

Year 1	Year 2	Year 3	Year 4	
Estimated NOI	50,000	51,000	52,000	53,000
Terminal cap rate	5%			
Discount rate	8%			

From the end of year 4 it is assumed that NOI will grow at 3% per annum into perpetuity.

40. Based on Anton's estimates, the net operating income for the multi-family property investment in Year 1 is closest to:
    (A) BGN 32,000.
    (B) BGN 35,000.
    (C) BGN 38,000.

41. Based on the direct capitalization approach, the value of the property is closest to:
    (A) BGN 770,000.
    (B) BGN 942,000.
    (C) BGN 1,110,000.

42. Based on the DCF approach, the value of the property is closest to:
    (A) BGN 798,000.
    (B) BGN 857,000.
    (C) BGN 973,000.

43. Based on Exhibit 1, the maximum loan that Beta Bank will extend is closest to:

(A) BGN 465,000.

(B) BGN 509,000.

(C) BGN 540,000.

44. Which of the following is the most likely to represent an advantage of investing in publicly traded real estate securities over direct ownership of property? Publicly traded real estate securities offer:

(A) greater liquidity.

(B) more control over investment decisions.

(C) lower price volatility.

45. Which of the following is most likely to represent a publicly traded real estate debt investment?

(A) A mortgage real estate investment trust (Mortgage REIT).

(B) Secured bank debt collateralized by real estate.

(C) A real estate operating company (REOC).

46. An appraiser who wishes to value an unusual property is most likely to estimate the value of the property using the:

(A) sales comparison approach.

(B) cost approach.

(C) income approach.

47. Which of the following least accurately identifies a type of publicly traded real estate security?

(A) Investment trusts.

(B) Operating companies.

(C) Direct mortgage lending.

48. Which of the following is least likely a difference between real estate investments and traditional asset classes like stocks and bonds?

(A) Real estate tends to be homogenous

(B) Real estate tends to be difficult to value

(C) Real estate tends to be indivisible

49. Retail sales growth is most likely to be a top economic factor affecting the economic value of a(n):

(A) industrial REIT.

(B) health care REIT.

(C) residential REIT.

50. A real estate investment is expected to have cash flows after taxes in each of the next three years equal to CAD70,000, CAD50,000, and CAD65,000, respectively. The initial equity investment in this property is CAD600,000 and the equity at the end of year-three is estimated to be CAD300,000. Assuming a required return on equity of 8 percent, the net present value (NPV) for this investment is closest to:

(A) -CAD202,569.

(B) -CAD238,150.

(C) CAD220,360.

51. The net asset value approach to valuation makes sense for REITs because:

(A) there exist active private markets for real estate assets.

(B) the price at which a REIT trades very closely tracks NAV.

(C) NAV equals the value that public equity investors attach to a REIT.

52. Leverage results in higher returns when:

(A) Investment return exceeds cost of debt.

(B) Asset prices are increasing.

(C) Debt is cheap.

53. An investor in rental apartments is evaluating the acquisition of an older apartment building. The investor contacts a local builder for an estimate for constructing a property that would house a similar number of renters and generate an amount of rental income comparable to that of the subject property being appraised.

In valuing the subject property, he is most likely using the:

(A) Cost approach

(B) Sales comparison approach

(C) Income approach

54. Assume that a property has an estimated net operating income (NOI) equal to $150,000. Further assume that comparable properties have a capitalization rate of 11%. The direct income capitalization approach provides a market value for this property that is closest to:

(A) $1,500,000.

(B) $13,636,363.

(C) $1,363,636.

55. A real estate investment is expected to have cash flows after taxes in each of the next four years equal to GBP90,000, GBP55,000, GBP35,000, and GBP25,000, respectively. The initial

equity investment in this property is GBP200,000 and the equity at the end of year-four is estimated to be GBP100,000. Assuming an after tax return on equity of 8.5%, the net present value (NPV) internal rate of return (IRR) for this investment is closest to:

	NPV	IRR
(A)	GBP41,399	15%
(B)	GBP45,376	16%
(C)	GBP47,268	18%

56. Appropriate due diligence in a private real estate investment is most likely to:
   (A) lower existing operating costs.
   (B) review lease and rental history.
   (C) mitigate unforeseen potential problems.