CHAPTER 32
REAL ESTATE INVESTMENTS

1. (A) **market value.**

Explanation

All assets and liabilities of a company are taken at current market value when calculating NAVPS. NAVPS is a superior measure of a company's net worth when compared to its book value per share.

(Module 32.3, LOS 32.l)

Related Material

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2. (C) **$70**

Explanation

FFO/share = FFO / Shares outstanding = $630,000/90,000 shares = $7/share.

The relevant subsector average P/FFO multiple is the value for industrial properties of 10x.

FFO/share x P/FFO multiple = $7.00 x 10x = $70.00

(Module 32.3, LOS 32.m)

Related Material

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3. (C) **5.0%.**

Explanation

Using your TI BAII Plus:

[CF] [2nd] [CLR WORK]

600,000 [+/–] [ENTER] [↓]

70,000 [ENTER] [↓] [↓]

50,000 [ENTER] [↓] [↓]

565,000 [ENTER] [↓] [↓] (note: CF3 = 65,000 + 500,000)

[IRR] [CPT] = 5.0056 percent

(Module 32.2, LOS 32.j)

Related Material

SchweserNotes – Book 4

4. (A) **Diversification by geography and property type is facilitated.**

Explanation

One of the advantages of publicly traded real estate securities is that they offer investors greater potential for diversification by geography, property, and property type. Disadvantages of publicly traded real estate securities include the costs of maintaining a publicly traded corporate structure, and the potential for structural conflicts of interest that can occur between the partnership and REIT shareholders under an UPREIT or DOWNREIT structure.

(Module 32.1, LOS 32.a)

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5. (C) **Direct ownership of real estate properties.**

Explanation

Real estate investments take four major forms: private equity, publicly traded equity, private debt, and publicly traded debt. Private equity investment in real estate refers to direct ownership of real estate properties. Mortgage lending by banks or insurance companies is best described as private debt. Indirect ownership of real estate through equity securities such as REITs is an example of publicly traded equity.

(Module 32.1, LOS 32.a)

Related Material

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6. (A) **$1,687,500.**

Explanation

Gross income multiplier technique: MV = gross income x income multiplier.

MV = $150,000 x 11.25 = $1,687,500

(Module 32.2, LOS 32.i)

Related Material

SchweserNotes - Book 4

7. (A) **non-cash rent while FFO does not.**

Explanation

AFFO is FFO adjusted to remove straight-line rent and to provide for leasing costs and maintenance-type capital expenditures. FFO is accounting net earnings excluding deferred tax charges, depreciation, and gains or losses on sales of property and debt restructuring.

(Module 32.3, LOS 32.m)

Related Material

SchweserNotes - Book 4

8. (C) time lag.

Explanation

Appraisal-based indices tend to lag transaction-based indices, as appraised values adjust only slowly to sudden shifts in the market.

Appraisal-based indices are "smoothed" by this lag, which causes appraisal-based indices to appear to have lower volatility and lower correlation with other assets than a transaction-based index would.

(Module 32.1, LOS 32.e)

Related Material

SchweserNotes - Book 4

9. (A) frequent secondary equity offerings compared to other kinds of companies.

Explanation

Because REITs are not able to retain earnings as other companies do, REITs make frequent secondary equity offerings, in order to finance growth and property acquisitions. REITs' required distributions result in a dividend yield that is significantly higher than those of most other publicly-traded equities. REITs' focus on income from rental properties leads to low volatility of reported income.

(Module 32.3, LOS 32.k)

Related Material

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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

10. (B) 19.2%.

Explanation

Net operating income	€264,000,000
Annual debt service	€121,220,135
Cash flows (PMT) for 10 years	€264,000,000 – €121,220,135 = €142,779,865
Cash initial outflow year 0 (PV)	€2,350,000,000 x 0.40 = €940,000,000
Terminal value (FV) in 10 years	€2,800,000,000 – €909,893,015 = €1,890,106,985

PMT = €142,779,865; PV = - €940,000,000; FV = €1,890,106,985; N = 10; Solve for I/Y. Internal rate of return is 19.23%.

(Module 32.2, LOS 32.j)

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11. (A) **€2.40 billion.**

Explanation

The estimated market value is the net operating income divided by the capitalization rate. We determine the rate using comparable properties, and we have three of them.

Property A the cap rate is €192 million/€1,600 million = 12.0%.

Property B the cap rate is €550 million/€5,500 million = 10.0%.

Property C the cap rate is €715 million/€6,500 million = 11.0%.

The average cap rate is 12.0% + 10.0% + 11.0% / 3 = 11.0%.

Market value = NOI / capitalization rate = €264 million / 11.0% = €2.40 billion. 4J

(Module 32.2, LOS 32.g)

Related Material

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12.

(A)	Buyout	Venture capital

Explanation

Data on management, sales strategy, working capital, exit strategy, and risk suggest Belgarrique is a buyout candidate and KinderWerks is a venture capital candidate. Data on the companies' chief goals is inconclusive. Data on company financing is a red herring, as companies active in capital markets tend to be better candidates for buyouts than venture capital. However, five of the seven pieces of information in the relevant table above reflect characteristics that suggest Belgarrique is a buyout candidate, while KinderWerks is a better target for venture capital.

(Module 33.1, LOS 33.c)

Related Material

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13. (C) **Pipeline analysis.**

Explanation

The major due diligence factors that are likely to affect the value of a property include: operating expenses; structural integrity; environmental issues; leases and lease history; lien, ownership, and property tax history; and compliance with relevant regulations and laws.

(Module 32.1, LOS 32.d)

Related Material

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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. (A) $140.

Explanation

We estimate the value of the operating real estate using the familiar NOI/cap rate formula = 420,000 / 6% = $7,000,000

We then have to add the tangible assets (in this case cash and receivables) and subtract the liabilities (be careful not to subtract DTL, if any, as this is an accounting provision and not a tangible economic liability) = 7,000,000 + 734,000 – 1,870,000 = $5,864,000.

The NAV per share is 5,864,000 / 42,000 = $139.62

(Module 32.3, LOS 32.l)

Related Material

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15. (A) $137.

Explanation

We first compute estimated FFO/share for the Healthcare REIT = 401,000 / 42,000 = $9.55.

We then multiply this by the P/FFO multiple for the Healthcare subsector = $9.55 x 14.30 = $136.53

(Module 32.3, LOS 32.m)

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16. (A) $116.

Explanation

We first compute the AFFO for the multi-family REIT = FFO – non-cash rents – recurring maintenance expenditure = 363,000 – 19,000 – 65,000 = $279,000.

We then compute estimated AFFO/share = 279,000 / 35,000 = $7.97

We then multiply AFFO/share by the P/AFFO multiple for the multi-family subsector = $7.97 x 14.6 = $116.36

(Module 32.3, LOS 32.m)

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17. (A) **Both analysts are correct.**

Explanation

Both analysts are correct. FFO is readily available through, say, Bloomberg or Thomson Reuters, which facilitates the computation of P/FFO. However, FFO does not adjust for the impact of recurring capital expenditures for maintenance purposes.

(Module 32.3, LOS 32.m)

Related Material

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18. (A) **$2,309,237.**

Explanation

Market extraction technique = NOI/MV

$$C_A = \frac{NOI_A}{MV_A} \frac{200,000}{2,250,000} = 8.89\%$$

$$C_B = \frac{NOI_B}{MV_B} \frac{220,000}{2,000,000} = 11.0\%$$

$$C_C = \frac{NOI_C}{MV_C} \frac{250,000}{2,500,000} = 10.0\%$$

Estimated capitalization rate: $C_D = \frac{8.89 + 11.0 + 10.00}{3} = 9.96\%$

Then, using the direct income capitalization approach we have:

$$MV_D = \frac{NOI_D}{C_D} \frac{230,000}{0.0996} = 2,309,236.95$$

(Module 32.2, LOS 32.i)

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19. (A) **$10.00**

Explanation

NAVPS per share can be calculated by beginning with assets, subtracting liabilities, and then dividing the result by the number by shares outstanding. Thus, $3,000,000 – $2,000,000 = $1,000,000 and $1,000,000/100,000 = $10.00 per share.

(Module 32.3, LOS 32.l)

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20. (B) **unusual properties.**

Explanation

The cost approach is typically used for unusual properties, for which market comparables are difficult to obtain; the cost approach estimates a property's value based on adjusted replacement cost. Single-family homes are commonly valued using the sales comparison approach, where sales data for reasonable comparables is available, and because income is not relevant. A commercial (income-producing) property is most likely to be valued using an income approach.

(Module 32.2, LOS 32.f)

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21. (A) **Income growth is equal to expense growth.**

Explanation

DCF valuation often assumes that income growth is same as expense growth (and hence same as the NOI growth assumed). When they differ, an error is made in using DCF method assuming constant growth in NOI. Terminal cap rate should be applied to typical NOI (NOI normally expected) and not to atypical NOI (NOI estimate artificially too high or too low temporarily). If the terminal cap rate and going-in cap rate are inconsistent (based on different set of assumptions), the valuation using DCF will be flawed.

(Module 32.2, LOS 32.g)

Related Material

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22. (A) **Both the gross income multiplier approach and the direct income capitalization approach.**

Explanation

Both valuation approaches are limited to use with income producing properties. Neither approach can provide an accurate value estimate for owner-occupied properties because the benefit derived by the owner is difficult to measure in monetary terms.

(Module 32.2, LOS 32.h)

Related Material

SchweserNotes - Book 4

23. (A) **Hotel and hospitality.**

Explanation

Hospitality properties such as hotels represent relatively risky investments because these properties do not use long-term leases and their performance may be highly correlated with the business cycle. The core commercial income-producing real estate property types are retail, multi family, office, industrial and warehouse.

These "core" property types are the main properties used to create a low-risk real estate portfolio.

(Module 32.1, LOS 32.a)

Related Material

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24. (C) more-volatile returns.

Explanation

Disadvantages of investing in real estate through publicly traded securities include the volatile returns that result from pricing that is determined by the stock market. Publicly traded real estate securities offer investors the advantages of superior liquidity, and liability that is limited to the amount invested.

(Module 32.1, LOS 32.a)

Related Material

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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. (B) private equity.

Explanation

The category that 3CC would most likely recommend as first choice is private equity option. Chekov prefers equity to debt option and Chanwit prefers private over public option. Clarkson wants to eliminate private debt option. Their statements are also consistent with the real estate market expectations.

(Module 32.1, LOS 32.a)

Related Material

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

Explanation

All real estate values are affected by cost and availability of capital. Apartments and other multi-family units are considered commercial real estate. Hotels require more active management making them more risky ventures as more operational expertise is needed. This additional risk requires a higher rate of return.

(Module 32.1, LOS 32.a)

Related Material

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27. (A) cap rate.

Explanation

The cap rate is NOI for next year divided by the current value. Since the asking price for both properties is same, higher NOI for Green Oaks hotel would have to have a higher cap rate. Net operating income is not calculated using the debt service. The amount owed at the end of a loan is determined by the interest rate, term of the loan and the amount borrowed. The discount rate is the sum of the cap rate and growth rate. The growth rate is not determined by the amount owed at the end of a loan period.

(Module 32.1, LOS 32.a)

Related Material

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28. (A) Clarkson's statement.

Explanation

Clarkson's concerns about Lincoln Hedonic Index if individual properties don't sell more than once are unfounded. Hedonic Index construction does not require multiple sales of the same property.

(Module 32.1, LOS 32.a)

Related Material

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29. (C) Sensitivity to the credit market.

Explanation

Real estate values are sensitive to the cost and availability of debt capital since large amounts of borrowing are required to purchase real estate properties. Real estate is heterogeneous, as no two properties are the same. Direct ownership of real estate properties is management intensive. Other unique characteristics possessed by real estate properties include: fixed location, high unit value, depreciation, high transaction cost, illiquidity, and difficult to value.

(Module 32.1, LOS 32.a)

Related Material

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30. (C) it may be difficult to obtain the necessary data to determine the appropriate capitalization rate.

Explanation

The gross income multiplier approach does not use a capitalization rate.

(Module 32.2, LOS 32.h)

Related Material

SchweserNotes - Book 4

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

Explanation

$$MV = \frac{NOI}{r - g} = \frac{NOI}{C}$$

where:

MV = estimated market value

NOI = the net operating income from a real estate investment.

r = the rate that equity investors require from a real estate investment.

g = the growth rate of NOI (assumed to be constant).

C = r – g = the market capitalization rate.

From this relationship, we see that:

As the growth rate of NOI increase, capitalization rates decline and value estimates will rise,

- the capitalization rate is the spread between r and g. Thus, as the spread widens, value estimates decline, and
- holding r constant, value is directly related to g.

The effect of inflation on value estimates depends on its combined effect on the required return (r) and the growth rate (g). If the net result is to decrease (increase) the capitalization rate, value estimates will rise (fall).

(Module 32.2, LOS 32.h)

Related Material

SchweserNotes - Book 4

32. (C) Depreciation expense

Explanation

Depreciation on real estate is excluded from FFO because most investors believe that real estate maintains its value to a greater extent than does other types of

long-term business assets. Therefore, taking depreciation deductions, which reduce the value of the real estate, does not represent economic reality. FFO is accounting net earnings excluding depreciation charges on real estate, deferred tax charges, and gains or losses from sales of property and debt restructuring. Property operating expenses and property taxes are both normal rental expenses deducted to arrive at operating income.

(Module 32.3, LOS 32.m)

Related Material

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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.

33. (B) BGN 35,000.

Explanation

Rental income at full occupancy 10 units x BGN 500 pcm x 12 months = BGN 60,000

Other income 12 months x BGN 400 = BGN 4,800

Potential gross income = 60,000 + 4,800 = BGN 64,800

Vacancy loss = 10% x 64,800 = BGN 6,480

Effective gross income = 64,800 – 6,480 = BGN 58,320

Operating expenses = 40% x 58,320 = BGN 23,328 (notice operating expenses should be estimated on the basis of effective not potential income)

NOI = 58,320 – 23,328 = BGN 34,992

(Module 32.2, LOS 32.g)

Related Material

SchweserNotes - Book 4

34. (A) BGN 770,000.

Explanation

We first obtain the cap rate based on the comparable properties by dividing their respective NOI by their respective value as shown in the table below.

Property	A	B	C
NOI	45,000	88,000	102,000
Value	780,000	1,200,000	1,600,000
Cap rate (NOI/Value)	5.77%	7.33%	6.38%

We then take an arithmetic average: (5.77 + 7.33 + 6.38)/3 = 6.49%

We then apply this cap rate to Valery's estimate of NOI: 50,000/6.49% = BGN 770,117. Notice that the provision of a 2% growth in NOI is a distracter. Remember: capitalization rate = discount rate – growth rate, so no further application of a growth rate is required in solving this problem.

(Module 32.2, LOS 32.i)

Related Material

SchweserNotes - Book 4

35. (C) BGN 973,000.

Explanation

The terminal value at Year 4 is estimated using NOI from Year 5: [53,000 (1.03)]/5% = BGN 1,091,800

The undiscounted cash flows are then present valued using the discount rate of 8%.

	Year 1	Year 2	Year 3	Year 4
NOI				53,000
Terminal Value	50,000	51,000	52,000	1,091,800
PV	46,296	43,724	41,279	841,462
NPV	972,761			

(Module 32.2, LOS 32.i)

Related Material

SchweserNotes - Book 4

36. (B) BGN 509,000.

Explanation

Based on LTV, the bank would extend 60% x 900,000 = BGN 540,000. Based on DSCR, the maximum debt service that will satisfy a DSCR of 1.8 is NOI/DSCR = 55,000/1.8 = BGN 30,556. As the mortgage is interest-only, this means a loan value of 30,556/6% = BGN 509,259. The typical conservative lender will extend the lower of the values based on LTV and DSCR.

(Module 32.2, LOS 32.j)

Related Material

SchweserNotes - Book 4

37. (A) greater liquidity.

Explanation

One of the main advantages of investing in publicly traded equity real estate securities stems from the fact that these securities trade on stock exchanges, which results in greater liquidity compared with buying and selling real estate directly. The downside of trading on a stock exchange is that publicly traded equity real estate securities have greater price volatility than do directly owned properties. Another disadvantages of publicly traded real estate securities is that they offer investors little to no control over investment decisions.

(Module 32.1, LOS 32.a)

Related Material

SchweserNotes - Book 4

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

Explanation

Mortgage REITs are publicly traded securities that make loans secured by real estate, therefore they are publicly traded debt investments. REOCs are classified as equity (not debt) securities, while bank debt is classified as a private rather than public investment.

(Module 32.1, LOS 32.a)

Related Material

SchweserNotes - Book 4

39. (B) cost approach.

Explanation

Three main methods are used by appraisers to estimate value: cost, income, and sales comparison. The cost approach is based on replacement cost, and is usually used for unusual properties for which comparable market prices are not available. The sales comparison approach estimates a property's value based on what comparable properties are selling for. The income approach uses net operating income to value a property.

(Module 32.2, LOS 32.f)

Related Material

SchweserNotes - Book 4

40. (C) Direct mortgage lending.

Explanation

The main types of publicly traded real estate securities are REITs (real estate investment trusts), REOCs (real estate operating companies), and RMBS and CMBS (residential and commercial mortgage-backed securities). Direct mortgage lending is most likely to be a private rather than public investment.

(Module 32.1, LOS 32.a)

Related Material

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41. (A) Real estate tends to be homogenous

Explanation

Investment in real estate is complicated by difficulty in valuing real estate, indivisibility of real estate investment (high unit value) and heterogeneity of different real estate properties even within the same class/geographical location.

(Module 32.1, LOS 32.b)

Related Material

SchweserNotes - Book 4

42. (A) industrial REIT.

Explanation

Other than retail REITs, retail sales growth is an important factor driving economic value of industrial REITs.

(Module 32.1, LOS 32.b)

Related Material

SchweserNotes - Book 4

43. (A) -CAD202,569.

Explanation

$$PVCF_1 = \frac{70,000}{1.08} = 64,814.81$$

$$PVCF_2 = \frac{50,000}{(1.08)^2} = 42,866.94$$

$$PVCF_3 = \frac{65,000}{(1.08)^3} = 51,599.09$$

$$PV_{ER} = \frac{300,000}{(1.08^3)} = 238,149.67$$

NPV = – 600,000 + 64,814.81 + 42,866.94 + 51,599.09 + 238,149.67

= – CAD202,569.48

Or, using your TI BAH Plus: [CF] [2nd] [CLR WORK]

600,000 [+/–] [ENTER] [↓]

70,000 [ENTER] [↓] [↓]

50,000 [ENTER] [↓] [↓]

365,000 [ENTER] [↓ [↓] (note: CF3 = 65,000 + 300,000)

[NPV] {8} [ENTER] [↓]

[CPT] = –CAD202,569.48

(Module 32.2, LOS 32.j)

Related Material

SchweserNotes - Book 4

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

Explanation

Because active private markets for real estate assets exist, REITs lend themselves to a net asset value approach to valuation. NAV reflects the estimated value of REIT assets to a private market buyer, however this may be different from the value that public equity investors would attach to the REIT. REITs have historically traded at a large premium or discount to NAV.

(Module 32.3, LOS 32.l)

Related Material

SchweserNotes - Book 4

45. (A) Investment return exceeds cost of debt.

Explanation

Leverage results in higher returns to equity investors when the return on investment exceeds the cost of debt. Even if debt is cheap, low investment returns would not lead to higher returns due to use of leverage. Similarly, even if return on investment is high, as long as it does not exceed the cost of debt, leverage will not generate higher returns.

(Module 32.2, LOS 32.j)

Related Material

SchweserNotes - Book 4

46. (A) Cost approach

Explanation

The cost approach involves an analysis of how much it would cost to buy land and construct a new property that provides the same function as the subject property being appraised. The sales comparison approach simply compares the sales price (after appropriate adjustments) estimated using recent transactions of comparable properties. The income approach estimates the value of a property based on estimated income generated by the property.

(Module 32.2, LOS 32.f)

Related Material

SchweserNotes - Book 4

47. (C) $1,363,636.

Explanation

$$MV = \frac{NOI}{C} = \frac{150,000}{0.11} = \$1,363,636$$

(Module 32.2, LOS 32.i)

Related Material

SchweserNotes - Book 4

48. (C) GBP47,268 18%

Explanation

Using your TI BAH Plus:

[CF] [2nd] [CLR WORK]

–200,000 [+/–] [ENTER] [↓]

90,000 [ENTER] [↓] [↓]

55,000 [ENTER] [↓] [↓]

35,000 [ENTER] [↓] [↓]

125,000 (note: CF4 = 25,000 + 100,000)

[NPV] {8.5} [ENTER] [↓]

[CPT] = GBP 47,267.91

[IRR] [CPT] = 18.39%

(Module 32.2, LOS 32.j)

Related Material

SchweserNotes - Book 4

49. (C) mitigate unforeseen potential problems.

Explanation

Due diligence can be very costly but it can potentially lower risk of unexpected legal and physical real estate problems. Due diligence will usually increase current operating costs. A review of lease and rental history is one example of due diligence not a possible result of due diligence.

(Module 32.1, LOS 32.d)

Related Material

SchweserNotes - Book 4

50. (A) Repeat sales index.

Explanation

Repeat sales index relies on repeat sales of individual properties. Since individual properties have long holding periods, repeat sales index would be least suitable. Hedonic price index relies on transaction data and the regression model explains the variation in transaction prices based on differences between individual properties sold. Appraisal based indices use transaction prices also to estimate value after adjustments for differences. Since there are plenty of transactions, appraisal and hedonic price index have sufficient data to provide good value estimates.

(Module 32.1, LOS 32.e)

Related Material

SchweserNotes - Book 4

51. (C) net operating income.

Explanation

Both the direct capitalization method and the discounted cash flow methods focus on net operating income (a proxy for cash flow) as a key input to the value of a property. In the DCF method, future operating income is discounted to generate a present value. In the direct capitalization method, current NOI is capitalized using the cap rate. An alternative form of direct capitalization uses a gross income multiplier. Terminal valuation under a DCF methodology may use terminal cap rate based on expected NOI at some future horizon. However, this is not used under direct capitalization (of first year NOI).

(Module 32.2, LOS 32.g)

Related Material

SchweserNotes - Book 4

52. (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.

Explanation

The capitalization rate (C) is the rate of return that equity investors require on similar-risk real estate investments (r) net of the expected constant growth rate of net operating income (g). That is, C = r – g.

(Module 32.2, LOS 32.h)

Related Material

SchweserNotes - Book 4

53. (B) $2,415,000.

Explanation

Gross income multiplier technique: MV = gross income x income multiplier.

MV = $230,000 x 10.5 = $2,415,000

(Module 32.2, LOS 32.i)

Related Material

SchweserNotes - Book 4

54. (C) operating flexibility.

Explanation

REOCs have greater operating flexibility to invest in a wide range of real estate than do REITs. REITs offer higher yields compared to REOCs. REITs offer income tax exemption while REOCs generally do not.

(Module 32.3, LOS 32.k)

Related Material

SchweserNotes - Book 4

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

Explanation

$$MV = \frac{NOI}{r - g} = \frac{NOI}{C}$$

where:

MV = estimated market value

NOI = the net operating income from a real estate investment.

r = the rate that equity investors require from a real estate investment.

g = the growth rate of NOI (assumed to be constant).

C = r – g = the market capitalization rate.

As the riskiness of a real estate investment increases, the uncertainty of its future cash flows increases. This has the effect of increasing investors' required return (r) and increasing the capitalization rate. As cap rates rise, values decline.

(Module 32.2, LOS 32.h)

Related Material

SchweserNotes - Book 4

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

Explanation

In discounted cash flow REIT models, investors generally use intermediate-term cash flow projections and a terminal value based on historical cash flow multiples. FFO does not adjust for the impact of recurring capital expenditures needed to keep properties operating. AFFO adjusts for routine maintenance type capital expenditures, but assumptions and estimates (which may vary widely) are required in the calculation of AFFO.

(Module 32.3, LOS 32.n)

Related Material

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