

Real Estate & REIT Modeling:

– Quiz Questions

Module 5 – Real Estate & REIT Valuation

- 1. Which of the following criteria listed below would you NOT use to select public comps when valuing an equity REIT?**
 - a. Total Revenue.
 - b. Funds from Operations.
 - c. EBITDA.
 - d. Adjusted Funds from Operations.
 - e. Net Operating Income.
 - f. Gross Real Estate Assets.

- 2. When reviewing public comps for REITs, which of the following metrics and multiples are likely to be correlated in the analysis?**
 - a. Equity Value and NOI.
 - b. Equity Value / FFO and FFO growth rates.
 - c. Book Cap Rates and FFO and AFFO multiples.
 - d. Equity Value / FFO and the Gross Real Estate Assets growth rate.
 - e. Cap Rate Implied by Stock Price and FFO or AFFO growth rates.
 - f. NOI Margins and Equity Value / FFO.

3. As shown in the example below, most REITs do disclose Funds from Operations (FFO) in their filings and show how they calculate it:

Funds From Operations and Normalized Funds From Operations
(Amounts in thousands)

Net income	\$ 295,983	\$ 382,029	\$ 436,413	\$ 1,047,356
Adjustments:				
Net (income) loss attributable to Noncontrolling Interests:				
Preference Interests and Units	-	(9)	(15)	(441)
Partially Owned Properties	726	558	(2,650)	(2,200)
Premium on redemption of Preference Interests	-	-	-	-
Depreciation	656,633	559,271	536,283	509,358
Depreciation – Non-real estate additions	(6,788)	(7,355)	(8,269)	(8,279)
Depreciation – Partially Owned and Unconsolidated Properties	(1,619)	759	4,157	4,379
Net (gain) on sales of unconsolidated entities	(28,101)	(10,689)	(2,876)	(2,629)
Discontinued operations:				
Depreciation	16,770	41,104	66,625	107,056
Net (gain) on sales of discontinued operations	(297,956)	(335,299)	(392,857)	(933,013)
Net incremental gain (loss) on sales of condominium units	1,506	(385)	(3,932)	20,771
FFO (1)(3)	637,154	629,984	632,879	742,358
Adjustments:				
Asset impairment and valuation allowances	45,380	11,124	116,418	-
Property acquisition costs and write-off of pursuit costs (other expenses)	11,928	6,488	5,760	1,830
Debt extinguishment (gains) losses, including prepayment penalties, preferred share redemptions and non-cash convertible debt discounts	8,594	34,333	(2,784)	24,004
(Gains) losses on sales of non-operating assets, net of income and other tax expense (benefit)	(80)	(5,737)	(979)	(34,450)
Other miscellaneous non-comparable items	(6,186)	(171)	(1,725)	(5,767)
Normalized FFO (2)(3)	\$ 696,790	\$ 676,021	\$ 749,569	\$ 727,975
FFO (1)(3)	\$ 637,154	\$ 629,984	\$ 632,879	\$ 742,358
Preferred distributions	(14,368)	(14,479)	(14,507)	(22,792)
Premium on redemption of Preferred Shares	-	-	-	(6,154)
FFO available to Common Shares and Units (1)(3)(4)	\$ 622,786	\$ 615,505	\$ 618,372	\$ 713,412
Normalized FFO (2)(3)	\$ 696,790	\$ 676,021	\$ 749,569	\$ 727,975
Preferred distributions	(14,368)	(14,479)	(14,507)	(22,792)
Premium on redemption of Preferred Shares	-	-	-	(6,154)
Normalized FFO available to Common Shares and Units (2)(3)(4)	\$ 682,422	\$ 661,542	\$ 735,062	\$ 699,029

Can you simply use these FFO numbers as-is in a public comps analysis when using this REIT as one of the comparable public companies?

- a. Yes.
- b. No.

- 4. Normally in a precedent transactions analysis, you should NOT mix acquisitions for 100% of companies with asset sales or minority stake acquisitions. Why might you see such a mix of deals in a REIT precedent transactions analysis, despite this rule of thumb?**
- a. Because while FFO and AFFO would not be meaningful for asset deals, you could still calculate the Implied Cap Rate for both REIT-to-REIT M&A deals and asset deals.
 - b. Because REITs are just portfolios of real estate properties, so all the same metrics and multiples can be used to value both individual assets and entire REITs.
 - c. Because the presence of Redeemable Noncontrolling Interests for many REITs allows you to normalize between different deal types more easily.
 - d. Because there are very few publicly traded REITs and there may be minimal REIT-to-REIT M&A deal activity each year – so you might have to look at asset deals so you can include more than 1 or 2 transactions in the set.

5. Which of the following statements are TRUE regarding the underlying theory and mechanics of a Net Asset Value (NAV) model for REITs?

- a. A NAV model is a form of relative valuation analysis for REITs.
- b. The underlying idea is that local, private markets price real estate assets more quickly than the public markets, so you can use going rates in these local markets to determine if an entire REIT is priced correctly.
- c. A NAV model assumes that a REIT’s assets will eventually “wear down” and that its revenue will fall to \$0 – you project out decades into the future until that happens and then determine the NPV of cash flows in between.
- d. In the NAV model, you apply Cap Rate(s) to the entire REIT’s NOI, or to segments of the REIT’s NOI, and you then use those to determine what its real estate-related assets may be worth.
- e. In addition to valuing the REIT’s real estate assets, you also add in the value of its other assets and subtract its liabilities to calculate the Net Asset Value.

6. Please consider the screenshot below, which depicts the beginning portion of a NAV model for a REIT:

ACME REIT - Net Asset Valuation							
(\$ in Millions)							
	Historical			Projected			
December 31,	Hist. Year 3	Hist. Year 2	Hist. Year 1	Forward Year 1	Forward Year 2	Forward Year 3	Forward Year 4
Capitalized Income:							
Forward Property Net Operating Income:	\$ 539	\$ 561	\$ 622	\$ 662	\$ 701	\$ 744	\$ 787
Assumed Cap Rate:	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Forward Management Fees NOI:	7	7	7	7	7	7	7
Assumed Cap Rate:	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Value of Capitalized Income:	9,016	9,393	10,406	11,068	11,720	12,442	13,147
Plus Market Value of Other Real Estate Assets:							
Construction in Progress, Including Land:	867	531	310	310	310	310	310
Adjustment for NPV of Construction:	110.0%	110.0%	110.0%	110.0%	110.0%	110.0%	110.0%
Market Value of Construction in Progress:	954	584	341	341	341	341	341
Land Held for Development:	239	237	184	184	184	184	184
Adjustment for NPV of Land:	105.0%	105.0%	105.0%	105.0%	105.0%	105.0%	105.0%
Market Value of Development Land:	251	249	193	193	193	193	193
Real Estate Assets Held for Sale:	241	118	-	-	-	-	-

As you can see in this screenshot, we are applying a single Cap Rate to the forward NOI of the REIT's entire portfolio.

While this method isn't "wrong," we would like to make the analysis more complex by applying different Cap Rates to different segments of the REIT's business. Which of the following steps represent the BEST ways to do this, for both the Income Statement and Balance Sheet line items?

- a. Segment the NOI by region and apply different Cap Rates based on the local property markets and trends there.
 - b. Split out the NOI by business segment (e.g. Same-Store, Acquisitions, Development, and Dispositions) and apply different Cap Rates based on what properties in those different business segments are worth.
 - c. Split out the rest of the Assets and Liabilities, including Other Real Estate Assets, by geography or business segment, and adjust the value of each line item separately.
 - d. Even if you split the NOI into different segments, still keep the Assets and Liabilities grouped together, as shown in the screenshot above.
- 7. In the screenshot above, note how we're using a 20% Cap Rate for the Management Fees, but only a 6% Cap Rate for the Property NOI. Why are we assuming a much higher Cap Rate for the Management Fees?**
- a. Because they're significantly more valuable than the property NOI and less subject to market fluctuations.
 - b. Because the Management Fees are cancellable and therefore less predictable than rental income, so they will inevitably be valued at a lower multiple.
 - c. This is an error and highly unusual – we should be assuming much more similar Cap Rates for both income sources.
 - d. It's not 100% clear from this screenshot, but in all likelihood the Management Fees were derived from a geography where properties and the fees associated with managing them were worth much less.

8. Please review the screenshot below, which shows the next step of this NAV model: adjusting the values of several other assets on this REIT's Balance Sheet.

ACME REIT - Net Asset Valuation								
(\$ in Millions)								
December 31,	Historical			Projected				
	Hist. Year 3	Hist. Year 2	Hist. Year 1	Forward Year 1	Forward Year 2	Forward Year 3	Forward Year 4	
Plus Non-Real Estate Assets:								
Cash & Cash-Equivalents:	65	106	306	50	50	50	50	
Cash in Escrow:	193	211	173	175	176	178	179	
Resident Security Deposits:	30	24	22	29	30	32	34	
Deferred Financing Fees, Net:	31	35	33	36	38	40	42	
Deferred Development Costs:	57	88	77	39	43	46	48	
Prepaid Expenses & Other Assets:	94	87	132	114	122	129	138	
Investments in Equity Interests:	55	75	122	143	164	185	206	
Adjustment for Eq. Int. Capitalized Inc.:	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Market Value of Equity Interests:	55	75	122	143	164	185	206	
Total Tax-Exempt Bonds:	701	792	727	695	690	685	691	
Total Debt, Net of Discounts:	3,655	3,975	4,068	3,661	3,631	3,607	3,637	
Tax-Exempt Bonds % Debt:	19.2%	19.9%	17.9%	19.0%	19.0%	19.0%	19.0%	
Tax-Exempt Debt Subsidy %:	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	
Cap Rate:	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	
Benefit of Tax-Exempt Debt:	124	140	128	123	122	121	122	
Market Value of Assets:	\$ 11,110	\$ 11,108	\$ 11,934	\$ 12,309	\$ 12,998	\$ 13,757	\$ 14,501	

Currently, we are assuming that “Investments in Equity Interests” are worth 100% of their Balance Sheet value. What’s the MOST likely reason why we might assume they are worth LESS than that?

- If the NOI from these Equity Interests has already been included in the NOI from the previous step – where we applied a Cap Rate to it – then we should assume these Equity Interests are worth \$0 to avoid double-counting them.
- The true market value of Equity Interests is almost always less than what’s recorded on the Balance Sheet because they almost always represent publicly traded entities.
- You need to apply a liquidity discount to Equity Interests because it’s very difficult to sell these interests, especially if the ownership percentage is above 20%.
- We need to do this because Investments in Equity Interests on the Balance Sheet represent 100% of the value of the underlying entities, but the REIT owns a much smaller portion of each entity.

- 9. Why is there a line item for the Benefit of Tax-Exempt Debt for this REIT? After all, REITs do not pay corporate taxes, so how could tax-exempt debt possibly benefit them?**
- a. It only benefits the REIT if the requirements to maintain REIT status are not maintained and it ends up owing corporate taxes as a result.
 - b. It may benefit the REIT because, as shown above, this tax-exempt debt is actually an ASSET – in other words, debt that the REIT has invested in and is earning interest on – and since it's tax-exempt, the issuer can pay a higher interest rate.
 - c. While REITs may not pay traditional federal corporate taxes, they may still have to pay state/local taxes and other fees associated with the debt – so a tax-exempt bond could still save them something.
 - d. None of the above – this is not a real line item that applies to all REITs, but just something we inserted for teaching purposes.

10. Please see the screenshot below, which shows the next and final step in this process of calculating NAV for an equity REIT:

ACME REIT - Net Asset Valuation								
(\$ in Millions)								
	Historical			Projected				
December 31,	Hist. Year 3	Hist. Year 2	Hist. Year 1	Forward Year 1	Forward Year 2	Forward Year 3	Forward Year 4	
Less Total Liabilities:								
Total Debt, Net of Discounts:	\$ 3,655	\$ 3,975	\$ 4,068	\$ 3,661	\$ 3,631	\$ 3,607	\$ 3,637	
Dividends Payable:	208	73	77	76	89	98	105	
Construction Payables:	64	50	34	34	34	34	34	
Accrued Expenses & Other Liabilities:	218	229	247	254	272	289	308	
Accrued Interest Payable:	33	35	32	50	44	42	44	
Resident Security Deposits:	39	34	34	40	43	45	48	
Liabilities for RE Assets Held for Sale:	31	6	-	-	-	-	-	
Total Liabilities:	4,248	4,402	4,492	4,116	4,113	4,116	4,177	
Less Claims on Equity:								
Noncontrolling Interests:	-	-	5	4	3	2	0	
Preferred Stock:	-	-	-	-	-	-	-	
Total Claims on Equity:	-	-	5	4	3	2	0	
Net Asset Value:	\$ 6,862	\$ 6,706	\$ 7,437	\$ 8,190	\$ 8,882	\$ 9,639	\$ 10,323	
Share Count:								
Basic Shares Outstanding:	76.8	80.0	83.9	85.9	88.0	90.1	92.2	
DownREIT Units:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
RSU:	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
Options - A:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Options - B:	0.0	-	-	0.1	0.2	0.3	0.4	
Diluted Shares Outstanding:	77.1	80.2	84.1	86.4	88.5	90.7	92.9	
NAV Per Share:	\$ 89.05	\$ 83.61	\$ 88.41	\$ 94.84	\$ 100.31	\$ 106.23	\$ 111.13	
Current Stock Price:	\$ 60.58	\$ 82.11	\$ 120.08	\$ 120.08	\$ 120.08	\$ 120.08	\$ 120.08	
Premium / (Discount) to NAV Per Share:	(32.0%)	(1.8%)	35.8%	26.6%	19.7%	13.0%	8.1%	
Cap Rate Implied by Stock Price:			4.8%	5.0%	5.2%	5.5%	5.7%	

Which of the following statements is TRUE regarding how Redeemable Noncontrolling Interest factor into the NAV calculation?

- Redeemable NCI should ALWAYS be included with the other Liabilities, and then subtracted from the Total Market Value of Assets when calculating Net Asset Value.
- Redeemable NCI should ALWAYS be excluded completely when calculating Net Asset Value.
- The proper treatment of Redeemable NCI in a NAV model depends on how the Operating Partnership (OP) Units are treated in the diluted shares calculation.
- None of the above – there is no separate treatment for Redeemable NCI in a NAV model since they are already counted within Noncontrolling Interests in the Equity section of the Balance Sheet.

11. As you can see in the screenshot above, this REIT currently trades at a 35.8% premium to its NAV Per Share. There is a premium over the next 4 years as well. What does this tell you about the REIT's valuation?

- a. It's overvalued since the market is valuing the REIT well-above its intrinsic value.
- b. The REIT may be overvalued, but it's hard to tell just based on this one figure – other factors may explain why it's valued at a premium.
- c. It depends on what the rest of the REITs in our set of public comps are trading at – if they're all valued at 30-40% premiums to intrinsic value, this one may not necessarily be overvalued.
- d. Something may be wrong with the assumptions in the NAV analysis since, historically, REITs have never traded outside of a 20% discount or premium to NAV Per Share.

12. Which of the followings statements regarding the Discounted Cash Flow (DCF) analysis and Dividend Discount Model (DDM) for equity REITs are TRUE?

- a. A Levered FCF (Free Cash Flow to Equity) analysis is often more relevant for a REIT than an Unlevered FCF analysis, given its capital structure and the importance of debt.
- b. You will typically calculate the Terminal Value based on an EV / EBITDA multiple, simply because that's the standard method used in any DCF analysis.
- c. A Levered DCF and a Dividend Discount Model will often produce very similar values for an equity REIT because it issues most of its available Free Cash Flow in the form of dividends.
- d. Since you always have to project changes in cash and debt and the net interest expense in an operating model for an equity REIT, you can simply link in all the figures as-is in a Levered DCF analysis, regardless of whether you assume that "debt repayments" are comprised only of mandatory debt repayments, mandatory + optional debt repayments, or net debt repayments.
- e. Just as with the Dividend Discount Model used for financial institutions such as commercial banks, equity REITs must maintain a minimum level of regulatory capital and you must factor this in when projecting dividends issued.
- f. A Levered DCF and Dividend Discount Model are more likely to produce similar values than an Unlevered DCF and Dividend Discount Model.

13. Which of the following statements represent TRADE-OFFS of the Net Asset Value (NAV) model for an equity REIT compared to the Dividend Discount Model (DDM)?

- a. The NAV model is less dependent on future assumptions because you only use the 12-month forward-NOI and management fee income, plus the current Balance Sheet values – as opposed to a DDM, where 5-year projections are often used.
- b. The NAV model is not dependent on future assumptions at all, since you can also simply use the 12-month trailing NOI instead of the forward NOI.
- c. While the NAV model is arguably more grounded in reality, it also requires more upfront data gathering because you have to use accurate Cap Rates.
- d. In a DDM, it's much easier to determine the proper discount rate and terminal multiple and/or long-term growth rate than it is to determine the proper Cap Rate(s) in a NAV model.
- e. One advantage of the NAV model is that most of a REIT's value will come directly from what's on its current Balance Sheet, as opposed to a DDM where much of the value will come from the Present Value of the Terminal Value.

14. Normally in a DCF analysis, you will use either Cost of Equity or WACC for the discount rate depending on whether it is a Levered or Unlevered analysis. Would you expect Cost of Equity and WACC to be more DIFFERENT or CLOSER TOGETHER for equity REITs, as compared to normal companies?

- a. They will be more different for normal companies, since Cost of Equity for a REIT already factors in the risk of debt – but it may not do so for normal companies.
- b. They will be more different for normal companies, since normal companies tend to carry less debt as a percentage of their total capital structures.
- c. They will be more different for REITs, since REITs always tend to have a high percentage of debt in their capital structures.
- d. It's impossible to answer this question because WACC is meaningless for REITs – you can only calculate Cost of Equity since their operational activities cannot be separated from their financing activities.

15. Which of the following statements are TRUE regarding how you might use a replacement cost analysis when valuing a property?

- a. The replacement cost analysis allows you to determine if the property's asking price is in-line with what it would cost to rebuild the property from scratch.
- b. It allows you to work backwards to calculate the rent you would need to charge to achieve your targeted "yield on cost."
- c. It allows you to determine the NOI margin or vacancy rate required to achieve your targeted yield.
- d. None of the above – replacement cost analysis is not meaningful for individual properties and should only be used for entire REITs.
- e. Since the replacement cost analysis is based on the actual price required to reconstruct a building, it's therefore more reliable than methodologies such as Cap Rates, the NAV model, or the DCF analysis.
- f. The replacement cost analysis is often used as a "sanity check" in real estate valuation, as opposed to a primary methodology you rely on to value assets.

16. Which of the following statements are TRUE regarding how you could use the replacement cost methodology for entire REITs, as opposed to individual properties?

- a. You can sum up the replacement costs for the REIT's property portfolio and compare that to the book value of the REIT's gross real estate operating assets.
- b. You can use replacement cost to work backwards to calculate what the REIT itself would cost to "replicate."
- c. While construction costs for individual properties vary a lot, making the replacement cost method less reliable there, it is more reliable for REITs since you are aggregating replacement costs across a portfolio of hundreds or thousands of properties.
- d. It could be used as a "sanity check" for public comps, precedent transactions, and the NAV and DCF/DDM analyses.
- e. Replacement cost is even more grounded in reality than a NAV model for REITs, since it is not at all dependent on future assumptions.