CHARTA LEARNING · LESSON NOTES

Real estate through listed securities

Alternative Investments

1 A story: the committee that wants property

- Marlow Teachers Pension Fund wants property exposure
- It does not want to run buildings itself
- Idea: buy listed real estate on an exchange
- First question: what exactly can it buy?

IN THE LESSON

- Meet the Marlow Teachers Pension Fund, our made-up example.
- Its investment committee wants more property in the portfolio, but nobody wants to buy, lease and repair buildings.
- Someone suggests listed real estate.
- Shares and bonds that give you a slice of property income, bought and sold on an exchange like any other stock.
- The first question is simple.
- What exactly can you buy?
- The answer is not one product but a family of them, and they behave very differently.
- Some track rents on buildings.
- Some track interest on property loans.
- Some are taxed like ordinary companies.
- The committee must sort them before choosing.
- All figures in this lesson are round numbers made up for teaching.

2 Four ways into listed real estate

Buildings or loans, taxed or not

Security	Gives you
Equity REIT: owns buildings	Rents, values
Mortgage REIT: owns loans	Interest, credit
Operating company: taxed	Rents, trading
Mortgage-backed securities	Loan cash flow

IN THE LESSON

- Here is the family.
- First, the equity REIT.
- REIT stands for real estate investment trust.
- It owns, and usually runs, income producing property, and most specialise: shopping centres, offices, apartments, storage, healthcare or industrial buildings.
- Second, the mortgage REIT.
- It holds property loans or mortgage-backed securities, often with borrowed money, so it behaves like a leveraged bond fund.
- Third, the real estate operating company.
- This is an ordinary taxable company that owns and trades property, and it may keep its earnings and develop freely.
- Fourth, residential and commercial mortgage-backed securities, which give you the debt side directly.
- Notice the question to ask each time: do I own buildings, or do I own loans?

3 The REIT tax bargain

Income taxed once, at the shareholder

Rents and other income → Pay out most of it → No tax at the trust → Holders taxed on dividends

IN THE LESSON

- Why does the REIT exist at all?
- Because of a bargain with the tax authorities.
- A trust collects rent and other income from its buildings.
- If it pays out most of its taxable income to shareholders, at least ninety per cent under United States rules, with other countries setting their own, and if it passes tests on what it owns and what it earns, then it pays no corporate income tax on the income it distributes.
- The tax is paid by the shareholders when they receive the dividends.
- So income is taxed once, not twice.
- The price of the bargain is that the trust cannot keep much of what it earns.
- We will see what that does to growth.

4 Example 1: the payout rule bites

Taxable income $200m, 90% payout rule, $150m development plan

Minimum distribution	90% × 200	**$180m**
Most it can retain	200 − 180	**$20m**
Development plan		**$150m**
Gap to fund from outside	150 − 20	**$130m**

IN THE LESSON

- Let us put numbers on it.
- A United States office REIT has taxable income of two hundred million dollars this year.
- To keep its status it must distribute at least ninety per cent, which is one hundred eighty million.
- So it can retain at most twenty million.
- Now suppose it plans a one hundred fifty million dollar development.
- After using its twenty million of retained income, it is still short by at least one hundred thirty million.
- That must come from new debt or new shares.
- This is the structural point.
- Because a REIT pays out most of its income, growth has to be financed from outside, which is one reason a trust is not the same as a business that keeps its profits.

5 Why a REIT is not a bond

Fall in value (%)

Fall in property value	**10%**
Fall in REIT equity	**16.7%**

Example: $3.0bn of property, $1.2bn of debt, values fall 10%

IN THE LESSON

- Many investors call equity REITs bond substitutes because the dividend yield is high.
- Here is why that is the trap.
- Take our office REIT with properties worth three billion dollars, financed with one point two billion of debt.
- Its equity is the difference, one point eight billion.
- Now suppose property values fall ten per cent, to two point seven billion.
- The debt is still one point two billion, so equity drops to one point five billion.
- That is a fall of sixteen point seven per cent.
- The first bar shows the fall in the buildings, the second the fall in the shares.
- A high dividend does not make the cash flow fixed.
- Equity REIT returns depend on rents and property values.

6 What drives each security

- Equity REIT
- Operating company
- Mortgage REIT
- Mortgage-backed securities

IN THE LESSON

- Here is one more way to sort the family.
- This line runs from returns driven by rents and property values on the left to returns driven by interest rates and credit on the right.
- This is an illustration, not a measurement.
- On the left sit the equity REIT and the real estate operating company, which both own buildings.
- The operating company may sit a little further along because it is free to trade and develop, so more of its result comes from deals.
- In the middle is the mortgage REIT, which holds loans but also borrows heavily.
- Further right are the mortgage-backed securities, which are debt held directly.
- Ask what drives the cash flow, and you know how the security will behave.

7 A story: what would the buildings fetch?

- Buildings trade in a private market
- Cap rate = net operating income ÷ price
- Value the assets, take off the debt
- Compare per-share value with the share price

IN THE LESSON

- Back to Marlow.
- The committee likes one REIT, Harbour Square Properties, a made-up trust.
- Its shares trade at nineteen dollars eighty.
- The analyst asks a question that suits real estate unusually well.
- What would the whole portfolio sell for?
- Buildings have a private market, with observable sale prices and capitalization rates, which is a net operating income divided by price.
- That gives an independent estimate of the assets' worth.
- Take that value, add the other assets, subtract what is owed, and divide by the shares.
- The result is net asset value per share, and you can compare it with the share price to see a premium or a discount.

8 Valuing the property

Property value = next year's NOI ÷ cap rate

Property value	What buyers would pay
Next year's NOI	Cash income expected next year
Cap rate	Rate on similar sales

IN THE LESSON

- First the property itself.
- Value equals the income you expect divided by the rate buyers demand.
- The income is next year's cash net operating income, which is rent less operating costs, counting cash actually received.
- We use next year's because a buyer pays for the future, not the past.
- The cap rate is the rate at which comparable properties are trading, taken from recent sales.
- A lower cap rate means buyers pay more per dollar of income, so value rises.
- This is the same idea as valuing a perpetuity, with growth already built into the next year's income.
- The cap rate comes from the market, not from the REIT's own accounts.

9 Example 2: from income to property value

Last year's NOI $80.0m, acquisitions add $4.0m, growth 2.5%, cap rate 6.0%

Full-year NOI	80.0 + 4.0	**$84.0m**
Next year's NOI	84.0 × 1.025	**$86.1m**
Cap rate on similar sales		**6.0%**
Property value	86.1 ÷ 0.06	**$1,435m**

IN THE LESSON

- Now the steps for Harbour Square.
- Cash net operating income for the last twelve months was eighty million dollars.
- During the year it bought buildings that would have added four million had it owned them all year, so we add that to get a full year of eighty four million.
- Income is expected to grow two point five per cent, so next year's income is eighty six point one million.
- Similar properties trade at a six per cent cap rate.
- Dividing eighty six point one by point zero six gives property worth one thousand four hundred thirty five million dollars.
- Notice that we built it from income and the market rate, not from the balance sheet.

10 From property to NAVPS

NAVPS = (property + other assets − liabilities) ÷ shares

NAVPS	Value of one share
Property value	From income and cap rate
Other assets	Cash, land, receivables
Liabilities	Debt and other debts
Shares outstanding	Number of shares

IN THE LESSON

- Now the rest of the balance sheet.
- Net asset value per share equals the property value, plus the other assets, minus the liabilities, all divided by the shares outstanding.
- Taking the pieces.
- The property value is the figure we just built.
- Other assets are cash, land held for development, receivables and prepaid items, usually taken at book value.
- Liabilities are debt and everything else owed.
- The shares outstanding are the count of shares.
- The top line is the net asset value, the value of the equity.
- Dividing by shares turns it into a figure you can set beside the price.
- Sometimes analysts then add a premium or a discount for management quality or balance sheet risk.

11 Example 3: NAVPS and the discount

Other assets $85m, liabilities $640m, 40m shares, price $19.80

Net asset value	1,435 + 85 − 640	**$880m**
NAVPS	880 ÷ 40	**$22.00**
Share price		**$19.80**
Price against NAVPS	19.80 ÷ 22.00 − 1	**−10%**

IN THE LESSON

- Harbour Square also holds eighty five million dollars of cash, land, receivables and prepaid items.
- It owes six hundred forty million of debt and other liabilities, and it has forty million shares.
- Net asset value is one thousand four hundred thirty five, plus eighty five, minus six hundred forty, which is eight hundred eighty million.
- Divide by forty million shares and net asset value per share is twenty two dollars.
- The shares trade at nineteen dollars eighty, so the price is ten per cent below net asset value.
- That is a discount.
- It might mean the shares are cheap.
- It might also mean investors doubt management, dislike the debt, or expect cap rates to rise.

12 How the cap rate moves the value

Chart: Property value ($m) vs Cap rate (%)

- 6.0%: $1,435m
- 6.5%: $1,325m

IN THE LESSON

- Now a picture of the input that matters most.
- The cap rate runs along the bottom, from five per cent up to eight per cent.
- Property value in millions of dollars is up the side.
- The curve falls from left to right: when buyers accept a lower cap rate, the same income is worth more, and when they demand a higher one, it is worth less.
- Now the two labelled points.
- At a six per cent cap rate, the property is worth one thousand four hundred thirty five million.
- At six and a half per cent, it is worth about one thousand three hundred twenty five.
- A half point move in the cap rate changes the property value by nearly eight per cent.

13 Why book values mislead

Value per share ($)

Share price	**19.80**
NAVPS at 6.0%	**22.00**
NAVPS at 6.5%	**19.24**
NAVPS from book	**8.63**

Same REIT, same shares: only the property figure changes

IN THE LESSON

- Here is the sensitivity as bars, with the trap included.
- The first bar is the share price, nineteen dollars eighty.
- The second is net asset value per share at the six per cent cap rate, twenty two dollars.
- The third is net asset value per share if buyers demand six and a half per cent, nineteen dollars twenty four, which is below the market price.
- So a small change in the cap rate can turn a discount into no discount at all.
- The last bar is the trap.
- Suppose the balance sheet carries the buildings at nine hundred million, cost less depreciation.
- The same arithmetic gives eight dollars sixty three.
- Book values ignore years of property appreciation.

14 A story: the building that gains value

- Accounting depreciates buildings every year
- Good buildings often hold or gain value
- So net income understates recurring earnings
- Fix: funds from operations, then adjusted

IN THE LESSON

- Now a different valuation tool.
- Think of a well-located office block bought twenty years ago.
- Accounting rules say the building wears out, so every year a slice of its cost is deducted as depreciation, and net income shrinks.
- But the building may be worth more today than when it was bought.
- The depreciation is real on paper and absent in the market.
- So net income understates the recurring earnings of a REIT that owns buildings which hold their value.
- Analysts need a measure that corrects for this.
- The industry's answer is funds from operations, and a stricter version, adjusted funds from operations, that moves closer to the cash available for dividends.

15 Funds from operations

FFO = NI + depreciation − gains + losses + impairments

FFO	Recurring earnings measure
Net income	As reported
Real estate depreciation	Add back, non-cash
Gains less losses on sales	Remove gains, add losses
Impairments	Add back write-downs

IN THE LESSON

- Here is the first measure.
- Funds from operations starts from net income.
- Add back real estate depreciation and amortisation, since that is the non-cash charge we just discussed.
- Then adjust for property sales: take off gains on sales and add back losses, because selling a building is a one-off, not recurring earnings.
- Finally add back impairment write-downs, which are non-cash charges against property values.
- What remains measures the earnings from owning and running the portfolio.
- It is the most widely reported earnings figure for REITs.
- Be careful with the sales adjustment.
- A gain is subtracted, a loss is added, and leaving a gain inside is a classic error.

16 Adjusted funds from operations

AFFO = FFO − non-cash rent − recurring capital spending

AFFO	Closer to cash for dividends
FFO	From the last step
Non-cash rent	Straight-line rent gap
Recurring capital spending	Maintenance, tenant costs

IN THE LESSON

- Funds from operations is still not cash for dividends, so a second step.
- Adjusted funds from operations equals funds from operations, minus non-cash rent, minus recurring capital spending.
- Non-cash rent is the straight-line rent adjustment.
- Accounting spreads a lease's rent evenly over its life, so when rents step up during the lease, reported rent runs ahead of the cash actually received, and we deduct the difference.
- Recurring capital spending means maintenance and the costs of keeping buildings let, such as tenant improvements and leasing commissions.
- It does not grow the portfolio, it keeps income where it is.
- The adjusted measure is a better guide to sustainable dividends, but it rests on estimates.

17 Example 4: net income to both measures

Net income $120m: depreciation 90, gain 15, impairment 5, rent gap 8, capex 32

FFO	120 + 90 − 15 + 5	**$200m**
FFO per share	200 ÷ 50	**$4.00**
AFFO	200 − 8 − 32	**$160m**
AFFO per share	160 ÷ 50	**$3.20**

IN THE LESSON

- Let us use our second REIT, Quayside Offices, another made-up trust.
- Net income is one hundred twenty million dollars, after ninety million of real estate depreciation, a fifteen million gain on selling a building, and a five million impairment.
- Funds from operations is one twenty, plus ninety, minus fifteen, plus five, which is two hundred million, or four dollars a share on fifty million shares.
- Its straight-line rent adjustment is eight million and recurring capital spending is thirty two million.
- So adjusted funds from operations is two hundred, minus eight, minus thirty two, which is one hundred sixty million, or three dollars twenty a share.

18 From net income to cash for dividends

Millions of dollars ($m)

Net income	**120**
FFO	**200**
AFFO	**160**
Dividends paid	**144**

Payout: 72% of FFO, 90% of AFFO

IN THE LESSON

- Now the same figures as bars, in millions of dollars.
- The first bar is net income, one hundred twenty.
- The second is funds from operations, two hundred, much higher because depreciation is large.
- The third is adjusted funds from operations, one hundred sixty, lower again once the rent gap and capital spending come out.
- The fourth bar is what Quayside actually pays out in dividends, two dollars eighty eight a share on fifty million shares, which is one hundred forty four million.
- Compare the dividend with each measure.
- It is seventy two per cent of funds from operations, which looks comfortable, but ninety per cent of the adjusted measure, which leaves far less room.

19 Mistakes so far

- High dividend does not make equity REITs bond-like
- NAVPS uses market cap rates, never book values
- NOI: full year of acquisitions, grown a year
- FFO: subtract gains on sales, add back losses
- AFFO: deduct rent gap and recurring capital spending

IN THE LESSON

- Let us stop and collect the mistakes that cost marks.
- First, calling an equity REIT bond-like because it pays a high dividend.
- Its return depends on rents and property values, and debt magnifies the swings.
- Second, using balance sheet book values for net asset value, which ignores years of appreciation.
- Third, using last year's income rather than a full year of recent acquisitions, grown to next year, when dividing by the cap rate.
- Fourth, leaving a gain on a property sale inside funds from operations.
- Fifth, forgetting to deduct recurring capital spending for the adjusted measure.
- Each of these makes the REIT look better than the facts support, which is why examiners like them.

20 A story: three roads to one share

- Assets: net asset value per share
- Relative: peer multiple × FFO or AFFO
- Cash flow: discount dividends and a terminal value
- Close answers build confidence

IN THE LESSON

- Imagine three surveyors asked to value the same house.
- One prices the bricks and takes off the mortgage.
- One looks at what similar houses sell for per unit of rent.
- One adds up the rent the owner will collect over the years.
- They will rarely agree to the cent, but if they come close, you can trust the answer.
- REIT shares have the same three roads.
- The asset route is net asset value per share.
- The relative route applies a multiple from peers to funds from operations or adjusted funds from operations.
- The cash flow route discounts the forecast dividends and a terminal value at the required return.
- We use Quayside, and then see how each road can go wrong.

21 Example 5: relative value, and the trap

Peers: 14× FFO, 17× AFFO. Quayside: FFO $4.00, AFFO $3.20, NAVPS $55.00

Price to FFO value	14 × 4.00	**$56.00**
Price to AFFO value	17 × 3.20	**$54.40**
Trap: AFFO multiple on FFO	17 × 4.00	**$68.00**

IN THE LESSON

- Start with the relative route.
- Peers trade at fourteen times funds from operations and seventeen times adjusted funds from operations.
- Quayside has funds from operations of four dollars and adjusted funds from operations of three dollars twenty a share, and, worked out separately, a net asset value per share of fifty five dollars.
- Fourteen times four is fifty six dollars.
- Seventeen times three twenty is fifty four forty.
- Each multiple goes with its own measure, and the adjusted multiple is higher mainly because the adjusted figure is the smaller number.
- Now the trap.
- Apply the seventeen times multiple to funds from operations and you get sixty eight dollars, more than eleven dollars above everything else.
- The gap is nothing but a mismatch of measures.
- Adjust the multiple for growth, leverage and property quality if Quayside differs from its peers.

22 Discounted cash flow for a REIT

Value = Σ D_t ÷ (1 + r)^t + TV_n ÷ (1 + r)^n

Value per share	Today's value of a share
Dividend in year t	Forecast dividend
Terminal value, year n	Expected price at year n
Required return, r	What investors demand
Last forecast year, n	Years in the forecast

IN THE LESSON

- Now the discounted cash flow route.
- The value of a share equals the present value of each forecast dividend, plus the present value of a terminal value at the end of the forecast.
- Each dividend in year t is divided by one plus the required return, raised to the power t.
- The terminal value is the price you expect the share to fetch at the end of year n, often a multiple of the following year's adjusted funds from operations.
- It is discounted by the same number of years as the last dividend, that is n, not n plus one.
- The required return is the return on equity investors demand for the risk.
- Everything is discounted at that one rate.

23 The timeline for Quayside

Cash to the shareholder, by year

Year 1: $2.90 → Year 2: $3.00 → Year 3: $3.10 + $61.20 sale value

IN THE LESSON

- Here is the timeline as a picture.
- Read the boxes from left to right.
- In year one, Quayside is forecast to pay a dividend of two dollars ninety.
- In year two, three dollars.
- In year three, three dollars ten.
- At the end of year three, we also assume the share is worth a terminal value.
- We set it at seventeen times the adjusted funds from operations expected in year four, which is three dollars sixty.
- Seventeen times three sixty gives sixty one dollars twenty.
- That terminal value is a price at the end of year three, so it sits in the third box beside the third dividend.
- The required return is eight per cent, and everything is discounted at that rate.

24 Example 6: the discounted dividends

Required return 8%; terminal value 17 × year-4 AFFO of $3.60

Terminal value, end of year 3	17 × 3.60	**$61.20**
Years 1 and 2	2.90 ÷ 1.08 + 3.00 ÷ 1.08^2	**$5.26**
Year 3	(3.10 + 61.20) ÷ 1.08^3	**$51.04**
Discounted cash flow value	5.26 + 51.04	**$56.30**

IN THE LESSON

- Now the discounting at eight per cent.
- Year one: two ninety divided by one point oh eight is two dollars sixty nine.
- Year two: three divided by one point oh eight squared is two fifty seven.
- Together that is five twenty six.
- Year three: the dividend of three ten plus the terminal value of sixty one twenty makes sixty four thirty, divided by one point oh eight cubed, which is fifty one dollars oh four.
- Add the two and the discounted cash flow value is fifty six dollars thirty.
- Compare it with the relative values of fifty six and fifty four forty, and the net asset value per share of fifty five.
- All four routes sit within two dollars of each other, which is reassuring.

25 Example 7: the wrong discount period

Terminal value $61.20 is a price at the end of year 3

Correct: discount 3 years	61.20 ÷ 1.08^3	**$48.58**
Wrong: discount 4 years	61.20 ÷ 1.08^4	**$44.98**
Year 3 dividend	3.10 ÷ 1.08^3	**$2.46**
Value using the wrong period	5.26 + 2.46 + 44.98	**$52.70**

IN THE LESSON

- Here is the other common slip.
- The terminal value is based on year four adjusted funds from operations, so some students discount it four years.
- But it is a price at the end of year three, so it must be discounted three years, along with the year three dividend.
- Discount it four years and sixty one twenty becomes about forty four ninety eight, instead of forty eight fifty eight.
- Add the year three dividend, two forty six, and the first two years, five twenty six, and the total falls to about fifty two seventy.
- That is more than three dollars short of the correct fifty six thirty.
- The mistake looks tidy but it is wrong.

26 Four routes, one share

Value per share ($)

NAVPS	**55.00**
14× FFO	**56.00**
17× AFFO	**54.40**
DCF	**56.30**
Mismatch	**68.00**

Four consistent routes, and one built on mismatched measures

IN THE LESSON

- Here are all the routes as bars, in dollars per share.
- Net asset value per share, fifty five.
- Fourteen times funds from operations, fifty six.
- Seventeen times adjusted funds from operations, fifty four forty.
- The discounted dividend model, fifty six thirty.
- They cluster within two dollars, and the clustering is the information.
- The last bar is the mismatch, seventeen times funds from operations, sixty eight dollars, standing far from the rest.
- If one bar stands apart, ask first whether it was built correctly.
- Only then ask whether the REIT differs from its peers in growth, debt or property quality, enough to justify a premium or a discount, and whether the share is cheap or dear against the price.

27 A story: the building and the share

- Same buildings, different wrapper
- Private: control, but locked in and appraised
- Listed: convenient, but no control
- Weigh the trade, and measure risk fairly

IN THE LESSON

- Back to the Marlow committee, which now has to decide between a share in a REIT and a stake in a private property fund.
- The buildings underneath could be the same.
- What changes is everything around them.
- With a private vehicle, you have control and a long-term relationship, but your money is locked in and the price is an appraisal.
- With a listed share, you give up control and gain convenience: you can sell in a day, buy a small amount, and see a price every second.
- Each choice is a trade.
- The committee must weigh the benefits against the costs of each, and not be fooled by the way volatility is measured.

28 What listed shares give you

The pros of listed real estate

Benefit	In practice
Liquidity	Sell in a day
Small minimum	Buy one share
Limited liability	Lose only the price
Diversified, access	Many large buildings; no REIT tax

IN THE LESSON

- First the benefits of holding property through listed securities.
- Liquidity: shares trade daily, so you can leave in a day.
- Small minimums: you can buy one share, not a whole building.
- Limited liability: you can lose only what you paid.
- Access to large, high quality buildings and professional management that a small investor could never afford.
- Diversification: one share spreads exposure over many properties.
- And for a qualifying REIT, no corporate tax on the income it distributes, so more of the rent reaches you.
- Notice that these all describe convenience and access.
- They do not describe a better building.
- The buildings are the same kind, only the wrapper differs.

29 What listed shares cost you

The cons of listed real estate

Drawback	In practice
Moves with stocks	Volatile prices
No control, own costs	Manager decides; fees
Losses stay inside	Not passed on
Payout rule, conflicts	Needs capital; sponsor conflicts

IN THE LESSON

- Now the costs.
- Share prices move with the stock market, and they look far more volatile than appraised values.
- You cannot control property decisions: you cannot choose which buildings to sell, or when.
- A listed structure has its own costs, such as fees and reporting.
- A REIT cannot pass tax losses through to shareholders, so a loss stays inside the trust, where a direct owner could use it.
- Distribution rules limit retained earnings, so growth needs fresh capital, as we saw earlier.
- And structures such as the umbrella partnership structure can create conflicts of interest between the sponsor and ordinary shareholders.
- Each of these is a price of convenience.

30 Example 8: comparing risk fairly

REIT index σ 20%, 40% debt; private fund reports σ 6%, unsmoothing doubles it

REIT, debt removed	20% × (1 − 0.40)	**12%**
Private, reported		**6%**
Private, unsmoothed	6% × 2	**12%**
Like-for-like gap	12 − 12	**none**

IN THE LESSON

- Now the trap.
- A pension committee sees a REIT index with annual volatility of twenty per cent, and a private core property fund, valued by appraisal, reporting six.
- Taken at face value, listed looks more than three times riskier.
- Two adjustments close the gap.
- The REITs finance forty per cent of assets with debt.
- If the debt's value barely moves, equity carries the swings on sixty per cent of the capital, so asset volatility is twenty times point six, twelve per cent.
- And appraisals lag and smooth the market, so reported volatility is too low.
- If unsmoothing doubles it, as an assumption, the private fund is twelve per cent too.
- On these numbers, the gap disappears.

31 Volatility, like for like

Annual volatility (%)

REIT index	**20%**
REIT, debt removed	**12%**
Private, reported	**6%**
Private, unsmoothed	**12%**

Illustration only: the unsmoothing factor is an assumption

IN THE LESSON

- Here are the four volatilities as bars.
- The first is the REIT index at twenty per cent.
- The second is the same index with the debt effect removed, twelve.
- The third is the private fund as reported, six.
- The fourth is the private fund unsmoothed, twelve.
- Compare the first and third bars and listed property looks three times as risky.
- Compare the second and fourth and they are level.
- Listed prices do still move with stock market sentiment over short periods, which is a real cost of the wrapper.
- But most of the headline gap came from how each series is built, not from the buildings.
- So never compare REIT volatility with smoothed, appraisal-based private returns.

32 Recap: the main ideas

- Equity REIT, mortgage REIT, operating company, MBS
- NAVPS: income ÷ cap rate, plus assets, less debts
- FFO then AFFO; match the multiple to the measure
- Listed: liquid and small, but no control

IN THE LESSON

- Let us pull it together.
- Listed real estate includes equity REITs, which own buildings, mortgage REITs, which hold loans, operating companies, which are taxed, and mortgage-backed securities.
- A high dividend does not make an equity REIT bond-like.
- Net asset value per share values the property from next year's income and a market cap rate, adds other assets, takes off liabilities and divides by shares.
- Funds from operations adds back depreciation and adjusts for sales, and the adjusted measure deducts non-cash rent and recurring capital spending.
- A share can be valued by assets, by peer multiples used on the matching measure, or by discounted dividends.
- Listed property trades control for liquidity, and its volatility must be compared fairly.

33 Try three quick questions

1. FFO shows $200m but still includes a $15m gain on a sale. Correct FFO?
   Answer: $200m − $15m = $185m.
2. Next year's NOI is $90m and the cap rate is 6%. Property value?
   Answer: $90m ÷ 0.06 = $1,500m.
3. Terminal value set at end of year 5 from year-6 AFFO. Discount for how many years?
   Answer: Five years: it is a price at the end of year 5.

IN THE LESSON

- Now try three quick questions.
- Pause after each one.
- Question one.
- A trust reports funds from operations of two hundred million dollars, but that figure still includes a fifteen million gain on a property sale.
- What is the correct figure?
- Two hundred minus fifteen, which is one hundred eighty five million.
- Question two.
- Next year's income is ninety million dollars and the cap rate is six per cent.
- What is the property worth?
- One thousand five hundred million.
- Question three.
- A terminal value is set at the end of year five from year six earnings.
- How many years do you discount it?
- Five years, because it is a price at the end of year five.