CHARTA LEARNING · LESSON NOTES

Private Markets Investing

FRM Part II

1 A story: a pension plan with time to wait

- Ashgrove: a $10,000m plan, promises over decades
- Little need for cash next year
- Private markets: lock-ups, capital calls, thin information
- Question: what is Ashgrove paid for accepting that?

IN THE LESSON

- Meet Ashgrove Pension Fund, a made up plan with ten thousand million dollars of assets.
- Its promises to members stretch over decades, so it has little need for cash next year.
- Its trustees are looking at private markets: stakes in private companies, private loans, and real assets such as infrastructure, none of which trade on an exchange.
- Money is locked up for years.
- It is drawn in capital calls, when the manager finds deals, not when Ashgrove chooses.
- And information is thin, with no daily market price.
- So the trustees ask a fair question.
- What is Ashgrove paid for accepting all that?

2 Three reasons to invest

- 1. A return premium: illiquidity or complexity premium
- Long horizon, little cash need: paid to wait
- 2. Access: companies, loans and assets that never list
- Managers add value: control, restructuring, operations
- 3. Reported diversification: low volatility and correlation

IN THE LESSON

- There are three main reasons.
- First, an expected return premium over comparable public assets, called the illiquidity or complexity premium.
- Investors with long horizons and little need for cash, like Ashgrove, are paid for tying money up.
- Second, access.
- Many companies, loans and real assets never trade publicly, so private markets widen the opportunity set, and skilled managers can add value through control, restructuring and operational work.
- Third, reported diversification.
- Private assets are valued by appraisal, and appraised returns are smooth, showing low volatility and low correlation with listed assets.
- Hold on to the word reported.
- That third benefit is the one to doubt.

3 Example 1: the premium, net and risk-adjusted

PE: 15% gross, fees 4%, reported vol 8%. Public equity: 8%, vol 16%. Risk-free 3%

Net private equity return	15% − 4%	**11%**
Premium over public equity	11% − 8%	**3%**
Sharpe on reported vol	(11% − 3%) ÷ 8%	**1.00**
Sharpe on true vol of 16%	(11% − 3%) ÷ 16%	**0.50**
Sharpe of public equity	(8% − 3%) ÷ 16%	**0.31**

True volatility of 16% is derived later, in Example 9

IN THE LESSON

- Private equity should earn fifteen per cent gross, and fees and carried interest take four.
- Its reported volatility is eight per cent.
- Public equity should earn eight per cent, with a volatility of sixteen, and the risk free rate is three.
- The net private equity return is fifteen minus four, eleven per cent.
- The premium over public equity is eleven minus eight, three per cent.
- The Sharpe ratio, excess return per unit of volatility, is eleven minus three, over eight, one point zero zero on the reported volatility.
- On the true volatility of sixteen per cent it halves, to point five zero.
- Public equity's is eight minus three, over sixteen, about point three one.
- The premium survives, but it is smaller than the reported numbers suggest.
- The sixteen per cent is derived later, in Example nine.

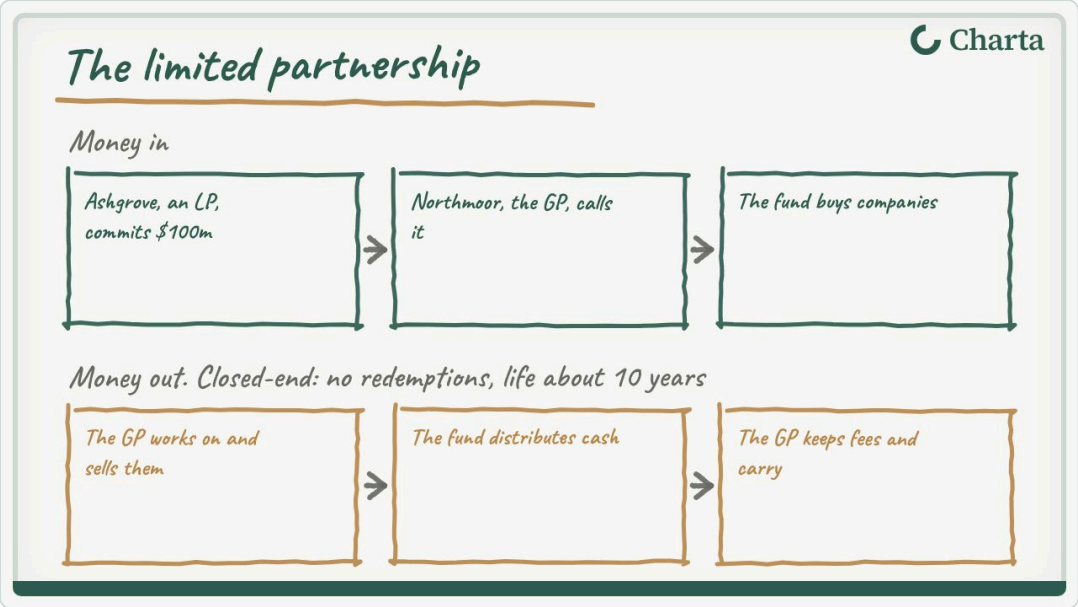
4 The exam point: judge the premium properly

- Reported risk understates economic risk
- Unsmoothed: diversification and the Sharpe ratio shrink
- Fees eat into the premium
- Wide dispersion between managers: the choice matters
- Judge the premium net of fees, for the risk actually borne

IN THE LESSON

- Here is the exam point.
- The usual mistake is to take reported diversification at face value.
- Reported risk understates economic risk.
- Once returns are unsmoothed, volatility and correlation with listed assets rise, so the diversification benefit and the Sharpe ratio shrink, as Ashgrove's fell from one to one half.
- Fees eat into the premium: four of the fifteen points went to the manager.
- And returns differ widely between managers, so the average premium is not what any one investor earns.
- The choice of manager matters.
- The premium must be judged net of fees, and for the risk actually borne.

5 The limited partnership



IN THE LESSON

- How can Ashgrove hold private assets?
- The standard route is a closed-end limited partnership.
- Look at the first row.
- Ashgrove becomes a limited partner, an L P, and commits one hundred million dollars to Northmoor Fund Three, a made up private equity fund.
- Northmoor Capital is the general partner, the G P, which manages it.
- The G P calls the money in stages as it finds deals, and the fund buys companies.
- In the second row, the G P works on the companies and sells them, and the fund distributes the cash.
- Along the way the G P keeps a management fee and a share of profits called carried interest.
- Closed-end means no redemptions, and the fund lives about ten years.

6 Fees, carry and the waterfall

- Fee, often on commitments: 2% × $100m = $2m a year
- Carry: usually 20% of profits above a preferred return
- Whole-fund (European): after LP capital + pref. return
- Deal-by-deal (American): carry on each deal as it exits
- Clawback: GP returns early carry that proves excessive

IN THE LESSON

- How is the G P paid?
- First, a management fee, often charged on commitments rather than on money invested.
- At two per cent of Ashgrove's one hundred million, that is two million dollars a year from the start.
- Second, carried interest, usually twenty per cent of profits above a preferred return, a minimum return the limited partners earn first.
- The order in which cash is shared is the waterfall.
- In a whole-fund, or European, waterfall, the G P earns carry only after the limited partners get back all their paid-in capital plus the preferred return, across the whole fund.
- In a deal-by-deal, or American, waterfall, carry is paid on each deal as it exits.
- If early carry proves excessive, a clawback makes the G P give it back.

7 Example 2: carry in a whole-fund waterfall

Fund 2: paid in $100m, $180m back before carry. Carry 20%; hurdle 8% a year, 5 years

Profit before carry	180 − 100	**$80m**
Preferred return hurdle	100 × 1.08^5	**$146.9m**
Hurdle met?	180 > 146.9	**Yes**
Carry, with full catch-up	20% × 80 (enough cash)	**$16m**
Ashgrove receives	180 − 16	**$164m**

Multiple 180 ÷ 100 = 1.80 gross; 164 ÷ 100 = 1.64 net

IN THE LESSON

- Ashgrove was also in Northmoor's previous fund, Fund Two, now closed.
- It paid in one hundred million dollars and got one hundred and eighty million back before carry.
- Carry was twenty per cent over an eight per cent preferred return, compounded for five years.
- Profit before carry is one hundred and eighty minus one hundred, eighty million.
- The hurdle is one hundred times one point zero eight to the power five, about one hundred and forty six point nine.
- One hundred and eighty is above it, so the hurdle is met.
- With a full catch-up, the G P then takes twenty per cent of the whole profit, sixteen million.
- Full catch-up means the G P receives all the cash above the hurdle until it holds twenty per cent of the total profit.
- Ashgrove receives one hundred and eighty minus sixteen, one hundred and sixty four million.
- Its multiple is one point eight zero gross, but one point six four net.

8 Example 3: deal by deal, and the clawback

Fund 2's two deals: A, $50m in, $150m out early; B, $50m in, $30m out later

Deal A profit, paid early	150 − 50	**$100m**
Deal-by-deal carry on A	20% × 100	**$20m**
Deal B result, later	30 − 50	**– $20m**
Whole-fund carry	20% × (100 − 20)	**$16m**
Clawback owed by the GP	20 − 16	**$4m**

IN THE LESSON

- Fund Two made two deals of fifty million dollars each.
- Deal A was sold early for one hundred and fifty million, and Deal B later for only thirty million.
- Suppose the terms had been deal by deal, with Deal A easily clearing its own hurdle.
- Deal A's profit is one hundred and fifty minus fifty, one hundred million, and the G P takes twenty per cent of it at once, twenty million.
- Then Deal B comes in at thirty, a loss of twenty million.
- Over the whole fund the profit is one hundred minus twenty, eighty million, so the right carry is twenty per cent of eighty, sixteen million.
- The clawback makes the G P repay twenty minus sixteen, four million.
- Deal by deal pays the G P sooner.
- Whole fund protects the limited partners.

9 Other ways to hold private assets

Each structure trades liquidity, fees and control differently

Structure	Gain	Cost
Evergreen fund	Periodic entry and exit	Mismatch; gating
Listed vehicle	Daily liquidity	NAV premium or discount
Fund of funds	Diversification	Second layer of fees
Separate account	Control, customisation	Scale; governance
Direct, co-investment	No fund fees	In-house capability

IN THE LESSON

- Each alternative trades liquidity, fees and control differently.
- An open-ended or evergreen fund allows periodic subscriptions and redemptions, but it suffers a liquidity mismatch, so it may have to gate, which means limiting redemptions.
- A listed vehicle gives daily liquidity, but trades at a premium or discount to net asset value, N A V, and moves with equity markets.
- A fund of funds adds diversification, at the cost of a second layer of fees.
- A separate account, run for one investor, gives control and customisation, but needs scale and brings a governance burden.
- Direct and co-investment avoid fund fees, but need in-house capability.

10 Example 4: a gate and a discount

Evergreen fund: NAV $1,000m, gate 5% of NAV a quarter. Listed trust: NAV $20, price $17

Redemption requests	this quarter	**$120m**
Paid under the gate	5% × 1,000	**$50m**
Left waiting in the queue	120 − 50	**$70m**
Listed trust: discount to NAV	(20 − 17) ÷ 20	**15%**

IN THE LESSON

- Northmoor also runs an evergreen fund with a net asset value of one thousand million dollars, which may gate redemptions at five per cent of N A V a quarter.
- After a market fall, investors ask for one hundred and twenty million this quarter.
- Under the gate the fund pays five per cent of one thousand, fifty million, and one hundred and twenty minus fifty, seventy million, waits in the queue.
- Quarterly liquidity was not what it seemed.
- Now a listed private equity trust, with a net asset value of twenty dollars a share, trades at seventeen.
- The discount is twenty minus seventeen, over twenty, fifteen per cent.
- Daily liquidity is real, but the exit price is the market's, not the N A V.

11 The internal rate of return

0 = Σ CF(t) ÷ (1 + IRR)^t
Still running: count today's NAV as a last inflow

Cash flow in year t	Calls −, distributions +
Internal rate of return	Rate that sets NPV to zero
Time, t	Years since the first call
Net asset value still held	Value still held, at the end

IN THE LESSON

- Now performance.
- The internal rate of return, I R R, is the discount rate that sets the net present value of the cash flows to zero.
- The flows are seen from the limited partner's side: calls are negative and distributions positive.
- Each is discounted by one plus the I R R, to the power t, the years since the first call.
- For a fund still running, the net asset value still held is counted as a last inflow on the measurement date.
- The strength of the I R R is that it respects timing.
- Money returned sooner counts for more than the same money returned later.

12 Example 5: Fund 3's IRR after five years

Ashgrove in Fund 3: calls $60m, $40m; distributions $50m, $70m; NAV $50m in year 5

Year 0: capital call	paid in	**−$60m**
Year 1: capital call	paid in	**−$40m**
Year 3: distribution	cash back	**+$50m**
Year 5: distribution + NAV	70 + 50	**+$120m**
IRR	rate that sets NPV to 0	**14.3%**

Check: NPV at 10% = +$15.7m; at 20% = −$16.2m

IN THE LESSON

- Back to Ashgrove's one hundred million dollar commitment to Fund Three, five years on.
- In year zero Northmoor called sixty million, and in year one the other forty.
- In year three Ashgrove received a distribution of fifty million.
- In year five it received seventy million, plus a net asset value of fifty, so year five counts as one hundred and twenty.
- The rate that sets the net present value to zero is fourteen point three per cent, the I R R.
- As a check, at ten per cent the net present value is about plus fifteen point seven million, and at twenty per cent about minus sixteen point two million, so the root lies between.
- Note that fifty of the one hundred and twenty is the manager's valuation, not cash.

13 Example 6: the cash multiples

Fund 3 after 5 years: paid in $100m; distributed $50m + $70m; NAV $50m

DPI: realised	(50 + 70) ÷ 100	**1.20x**
RVPI: unrealised	50 ÷ 100	**0.50x**
TVPI: total	1.20 + 0.50	**1.70x**

TVPI = DPI + RVPI. None of the three looks at timing

IN THE LESSON

- Now the multiples for the same fund.
- The realised multiple, D P I, is distributions over paid-in capital: fifty plus seventy, one hundred and twenty, over one hundred, one point two zero times.
- The unrealised multiple, R V P I, is residual net asset value over paid-in capital: fifty over one hundred, point five zero times.
- It rests on Northmoor's own valuation.
- The total multiple, T V P I, adds the two: one point two zero plus point five zero, one point seven zero times.
- Multiples are simple to compare, but none of the three looks at timing.
- One point seven times in five years and one point seven times in twelve years look the same.

14 Where IRR and multiples mislead

- IRR as compound return: reinvested at the IRR
- An interpretation, not a realised return
- IRR is unreliable for young funds
- Multiples ignore timing: 2.0x in 4 years or in 10
- 2^{1/4} − 1 = 18.9% a year; 2^{1/10} − 1 = 7.2%

IN THE LESSON

- Reading the I R R as a compound return implies that interim cash is reinvested at the I R R itself.
- Ashgrove's fifty million from year three did not go on earning fourteen point three per cent.
- That is an interpretation and a limit on comparing funds, not a return anyone realised.
- The I R R is also unreliable for young funds.
- Multiples have a different problem: they ignore timing.
- Two funds each double the money.
- One takes four years: two to the power one quarter, minus one, about eighteen point nine per cent a year.
- The other takes ten years: two to the power one tenth, minus one, about seven point two per cent a year.
- Same multiple, very different result.

15 Example 7: a credit line flatters the IRR

A Fund 3 deal: $100m in at year 0, $150m out at year 3. Credit line costs 5% a year

Called at once: IRR	1.5^{1/3} − 1	**14.5%**
Called in year 1 to repay line	100 × 1.05	**$105m**
With the line: IRR	(150 ÷ 105)^{1/2} − 1	**19.5%**
Multiple without the line	150 ÷ 100	**1.50x**
Multiple with the line	150 ÷ 105	**1.43x**

IN THE LESSON

- Take one Fund Three deal: one hundred million dollars in at year zero, one hundred and fifty million out at year three.
- Called at once, the I R R is one point five to the power one third, minus one, fourteen point five per cent.
- Now Northmoor borrows on a credit line at five per cent and calls Ashgrove's money a year later to repay it: one hundred times one point zero five, one hundred and five million.
- With the line, the I R R is one hundred and fifty over one hundred and five, to the power one half, minus one, nineteen point five per cent.
- But the multiple falls, from one hundred and fifty over one hundred, one point five zero, to one hundred and fifty over one hundred and five, one point four three times, because Ashgrove paid the interest.

16 The public market equivalent

KS PME = PV(distributions + NAV) ÷ PV(calls)
Each flow discounted at the index's return
Above 1: the fund beat the index; below 1: the index did better
Direct alpha: annualised excess return = IRR of index-adjusted flows

Distributions	Cash returned to the LP
Final net asset value	Value still held at the end
Capital calls	Cash paid in by the LP
Index return	Actual return of the index

IN THE LESSON

- Neither measure says whether Ashgrove beat the stock market.
- A public market equivalent, P M E, does.
- The Kaplan-Schoar version imagines investing the same cash flows in a public index.
- Distributions and the final net asset value are discounted at the index's actual return, and so are the capital calls.
- The ratio is the present value of distributions plus N A V, over the present value of calls.
- Above one, the fund beat the index.
- Below one, the index would have done better.
- Direct alpha turns the comparison into an annualised excess return: the I R R of the cash flows after adjusting them by the index.

17 Example 8: did Fund 3 beat the index?

Fund 3's flows as in Example 5. The public index returned 10% in every year

Calls at the index rate	60 + 40 ÷ 1.1	**$96.4m**
Inflows at the index rate	50 ÷ 1.1^3 + 120 ÷ 1.1^5	**$112.1m**
Kaplan-Schoar PME	112.1 ÷ 96.4	**1.16**
Adjusted flows, years 0, 1, 3, 5	−60, −36.4, +37.6, +74.5	**CF ÷ 1.1^t**
Direct alpha	IRR of adjusted flows	**3.9% a year**

Check: 1.143 ÷ 1.10 − 1 = 3.9%

IN THE LESSON

- Let us benchmark Fund Three, assuming the index returned ten per cent every year.
- Discount the calls at the index return: sixty, plus forty over one point one, about ninety six point four million.
- Then the inflows: fifty over one point one cubed, plus one hundred and twenty over one point one to the power five, about one hundred and twelve point one million.
- The Kaplan-Schoar ratio is one hundred and twelve point one over ninety six point four, about one point one six.
- Above one, so the fund beat the index.
- Dividing every flow by one point one to the power t gives adjusted flows at years zero, one, three and five of minus sixty, minus thirty six point four, plus thirty seven point six and plus seventy four point five.
- The direct alpha, the I R R of these adjusted flows, is three point nine per cent a year.
- As a check, with a constant index return it equals one point one four three over one point one zero, minus one.

18 Comparing the measures

Never rank funds on one measure

Measure	Strength	Weakness
IRR	Respects timing	Credit lines; young funds
DPI	Cash actually returned	Ignores timing and NAV
RVPI	Shows value still held	Rests on the GP's valuation
TVPI	Total value	Ignores timing
PME, direct alpha	Benchmarks to an index	Needs a suitable index

IN THE LESSON

- Here are the measures side by side, under the rule at the top of the board: never rank funds on one measure.
- The I R R respects timing, but credit lines can lift it, and it is unreliable for young funds.
- D P I counts cash actually returned, but ignores timing and the value still held.
- R V P I shows the value still held, but rests on the G P's valuation.
- T V P I gives the total value, but ignores timing.
- The public market equivalent and direct alpha benchmark against an index, so they need a suitable index.
- Use the I R R and T V P I together, and benchmark with a P M E.

19 Risks the structure creates

- Market, credit and operational risk, as for any investor
- Liquidity and funding risk from unfunded commitments
- Calls come on the GP's schedule, often in a downturn
- Denominator effect: pushed above the target weight
- Valuation risk: NAVs are appraisal-based and lagged

IN THE LESSON

- Private market investors face the market, credit and operational risks of any investor, and the structure adds more.
- First, liquidity and funding risk, from unfunded commitments: money Ashgrove has promised but Northmoor has not yet called.
- Calls arrive on the G P's schedule, often when public assets have fallen and distributions have dried up, so cash must be found at the worst time.
- Those conditions also create the denominator effect.
- Public assets shrink, the private weight rises, and the portfolio is pushed above its target weight.
- Then there is valuation risk.
- Net asset values are based on appraisals and lag the market, so reported returns are smoothed.

20 More risks, and how to measure them

- Manager and key-person risk; concentration; leverage
- Vintage-year risk and the J-curve
- Measure: unsmooth the reported returns
- Commitment-based cash-flow models; liquidity stress tests
- Exposure = NAV + unfunded commitments

IN THE LESSON

- There are more.
- Manager and key-person risk: the result may depend on one firm, or even one person.
- Concentration: a fund may hold relatively few companies.
- Leverage, since many private deals are financed with borrowed money.
- Vintage-year risk: a fund's result depends on the year it started investing, and the prices it paid then.
- And the J-curve, the early dip in value that we draw later.
- How are these risks measured?
- First, by unsmoothing reported returns.
- Then by commitment-based cash flow models, which project calls and distributions, and by liquidity stress tests.
- And exposure is counted as net asset value plus unfunded commitments, because promised money is also at risk.

21 Unsmoothing reported returns

Reported(t) = a × Reported(t−1) + (1 − a) × True(t)
True vol ≈ Reported vol × √((1 + a) ÷ (1 − a))
a = 0: factor 1; a toward 1: factor grows without limit
Correlation with public markets is also understated

Smoothing weight	Weight on last reported return
Reported volatility	Volatility of reported returns
True volatility	Volatility of true returns

IN THE LESSON

- Here is the unsmoothing tool.
- Appraisers anchor on the last valuation, so this period's reported return is a blend: a weight ay on the previous reported return, plus one minus ay on the true return.
- The higher ay is, the smoother the series.
- To recover the true volatility, multiply the reported volatility by the square root of one plus ay, over one minus ay.
- When ay is zero the factor is one.
- As ay rises towards one, the factor grows without limit.
- Smoothing also hides correlation with public markets, because reported values catch up with market falls only slowly.
- So both volatility and correlation are understated.

22 Example 9: Ashgrove's private equity, unsmoothed

Reported volatility 8%. Smoothing weight a = 0.6; for contrast a = 0.3

Factor, a = 0.6	√(1.6 ÷ 0.4) = √4	**2.00**
True volatility, a = 0.6	8% × 2	**16%**
Factor, a = 0.3	√(1.3 ÷ 0.7)	**1.36**
True volatility, a = 0.3	8% × 1.363	**10.9%**
Sharpe, a = 0.6	(11% − 3%) ÷ 16%	**0.50**

IN THE LESSON

- Now the sixteen per cent from Example one.
- Ashgrove's private equity shows a reported volatility of eight per cent, and its risk team estimates ay at point six.
- The factor is the square root of one point six over point four, the square root of four, which is two.
- True volatility is eight per cent times two, sixteen per cent, as large as public equity's.
- For contrast, with ay at point three the factor is the square root of one point three over point seven, about one point three six, and true volatility is about ten point nine per cent.
- With ay at point six, the Sharpe ratio is eleven minus three, over sixteen, point five zero, half the reported figure.

23 Example 10: a cash-flow model under stress

Private book: NAV $600m, unfunded $400m. Calls on unfunded; distributions on NAV

Exposure	NAV 600 + unfunded 400	**$1,000m**
Base year: calls	25% × 400	**$100m**
Base year: distributions	15% × 600	**$90m**
Stress year: calls	35% × 400	**$140m**
Stress year: distributions	5% × 600	**$30m**

Net cash needed: base 100 − 90 = $10m; stress 140 − 30 = $110m

IN THE LESSON

- Now Ashgrove's whole private book, across all its funds.
- Net asset value is six hundred million dollars and unfunded commitments are four hundred million, so exposure is one thousand million, not six hundred.
- A commitment-based model projects next year's cash flows: calls as a fraction of unfunded commitments, and distributions as a fraction of N A V.
- In a base year, calls are twenty five per cent of four hundred, one hundred million, and distributions fifteen per cent of six hundred, ninety million.
- In a stress year, calls speed up to thirty five per cent, one hundred and forty million, and distributions dry up to five per cent, thirty million.
- The net cash needed rises from one hundred minus ninety, ten million, to one hundred and forty minus thirty, one hundred and ten million.

24 Example 11: the denominator effect

Plan $10,000m: public $9,400m, private NAV $600m. Target private weight 7%

Private weight before	600 ÷ 10,000	**6.0%**
Public after a 20% fall	9,400 × 0.8	**$7,520m**
Public after stress cash flows	7,520 − 140 + 30	**$7,410m**
Private NAV, lagged	600 + 140 − 30	**$710m**
Private weight after	710 ÷ (7,410 + 710)	**8.7%**

Calls paid from public assets; private NAV not revalued

IN THE LESSON

- Put the stress year into the whole plan.
- Of Ashgrove's ten thousand million dollars, nine thousand four hundred are public and six hundred private, so the private weight is six per cent, below a target of seven.
- Public markets fall twenty per cent: nine thousand four hundred times point eight, seven thousand five hundred and twenty million.
- The stress cash flows come out of the public assets: minus one hundred and forty of calls, plus thirty of distributions, leaves seven thousand four hundred and ten.
- The private N A V is lagged and shows no fall yet: six hundred plus one hundred and forty minus thirty, seven hundred and ten.
- Over a total of seven thousand four hundred and ten plus seven hundred and ten, the private weight is now eight point seven per cent, above target, though Ashgrove made no new commitment.
- The weight rose because public assets fell and the calls were funded, assuming calls come from public assets and the private N A V is not revalued.

25 Co-investing alongside the GP

- Invest directly in one deal, beside the GP's fund
- Usually reduced or no management fee and carry
- Lower fee drag; choose the size of the exposure
- Faster deployment, which can soften the J-curve
- A closer relationship with the GP

IN THE LESSON

- Co-investment means investing directly in a specific deal alongside the G P, outside the fund.
- Suppose Northmoor buys a company called Calloway Foods, a deal too large for Fund Three alone, and invites Ashgrove to invest in it directly.
- Co-investments usually carry a reduced management fee and carry, or none at all.
- The benefits are real.
- Fee drag is lower, and Ashgrove can choose the size of its exposure.
- The money goes to work at once, rather than waiting years to be called, and that faster deployment can soften the J-curve.
- And working on a deal together builds a closer relationship with the G P.

26 Example 12: the fee saving on a co-investment

$50m in Calloway Foods for 1 year at 15% gross. Fund: 2% fee, 20% carry. Co-invest: none

Gross profit	15% × 50	**$7.5m**
Through the fund: fee	2% × 50	**$1.0m**
Through the fund: carry	20% × (7.5 − 1.0)	**$1.3m**
Net through the fund	7.5 − 1.0 − 1.3	**$5.2m = 10.4%**
Net as a co-investment	no fee, no carry	**$7.5m = 15%**

Saving: 7.5 − 5.2 = $2.3m, or 4.6 percentage points

IN THE LESSON

- How big is the saving?
- Ashgrove puts fifty million dollars into Calloway for one year, earning fifteen per cent gross.
- For simplicity, carry is charged on the year's profit and we ignore the preferred return.
- Gross profit is fifteen per cent of fifty, seven point five million.
- Through the fund, the fee is two per cent of fifty, one million, and carry is twenty per cent of seven point five minus one, one point three million.
- Ashgrove keeps seven point five minus one minus one point three, five point two million, ten point four per cent.
- As a co-investment it keeps all seven point five million, fifteen per cent.
- The saving is seven point five minus five point two, two point three million, or four point six percentage points.
- Now the other side.

27 The drawbacks of co-investing

- Adverse selection: deals too big, riskier, hard to place
- Only a few weeks for due diligence
- Concentration: one company replaces a whole portfolio
- Needs its own team, speed and legal capability
- No GP loss-sharing across other deals

IN THE LESSON

- The drawbacks are just as real.
- First, adverse selection.
- The G P may offer deals that are too large for its fund, riskier, or hard to place anywhere else.
- Second, time.
- Ashgrove may have only a few weeks for due diligence, the investigation before investing.
- Third, concentration.
- One company replaces a diversified fund portfolio, so risk is much higher.
- Fourth, Ashgrove needs its own team, able to move fast, with the legal capability to negotiate terms.
- Fifth, there is no loss-sharing with the G P's other deals.
- Inside a fund, a loss on one company is offset by gains on others before carry is paid.
- A co-investment stands alone.

28 Example 13: the same fall, alone or in a fund

Calloway falls 40%. Ashgrove's $50m: co-invested, or in a fund of 20 equal companies

Co-investment: loss	40% × 50	**$20m**
Fund: Calloway's share	50 ÷ 20	**$2.5m**
Fund: loss	40% × 2.5	**$1.0m**
Co-investment loss, share	20 ÷ 50	**40%**
Fund loss, share	1.0 ÷ 50	**2%**

Trap: co-investment is not a free fee saving

IN THE LESSON

- Suppose Calloway falls forty per cent in value instead.
- As a co-investment, Ashgrove's whole fifty million dollars sits in Calloway, so it loses forty per cent of fifty, twenty million.
- Through a fund of twenty equal companies, Calloway's share of Ashgrove's money is fifty over twenty, two and a half million, and the loss is forty per cent of that, one million.
- As shares of the fifty million, the co-investment loses twenty over fifty, forty per cent, and the fund stake one over fifty, two per cent.
- The fee saving was four point six points.
- One bad outcome on a single name, in a deal the G P chose to offer, costs far more.
- The common error is to treat co-investment as a free fee saving.

29 What a pooled fund gives the investor

- Delegation: sourcing, diligence, structuring, monitoring
- Access to deals and managers out of reach alone
- Diversification across many companies or loans
- A modest ticket size
- No need for an in-house deal team

IN THE LESSON

- Step back to the main road into private markets: a pooled vehicle, such as a private equity fund or a private debt fund.
- What does Ashgrove gain?
- It delegates the hard work of sourcing deals, diligence, structuring and monitoring to a specialist G P.
- It gains access to deals and managers it could not reach alone.
- It gets diversification across many companies, or many loans in a debt fund.
- It does so with a modest ticket, since its one hundred million dollars in Fund Three is spread across every deal the fund makes.
- And it needs no in-house deal team, the very capability a co-investor must build.

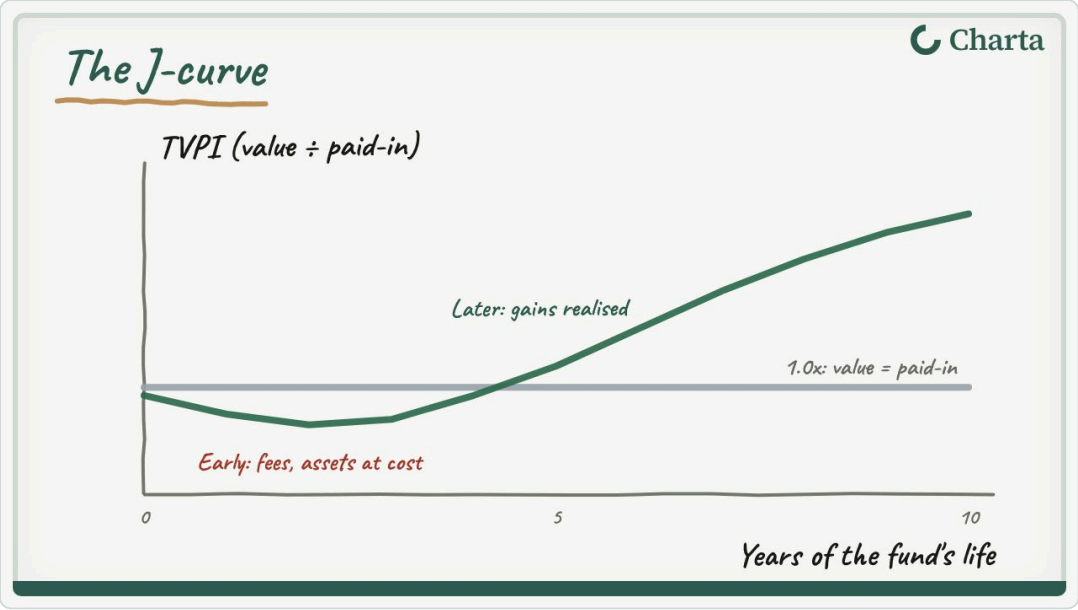
30 What the pooled investor gives up

- Fees: management fee on commitments, plus carry
- Fund of funds: an extra layer of fees
- Blind pool: commit before the deals are known
- Little control; long lock-up; secondary-market exit
- Uncertain timing of calls and distributions

IN THE LESSON

- First, fees: a management fee on commitments, plus carried interest.
- Second, in a fund of funds, an extra layer of fees on top.
- Third, a blind pool.
- Ashgrove committed to Fund Three before any of its investments were known, so it is trusting the G P, not choosing companies.
- Fourth, little control over decisions, and a long lock-up, with no way out except selling the stake to another investor on the secondary market.
- Fifth, uncertain cash flows.
- Ashgrove does not know when calls will come or when distributions will arrive, so it must keep cash ready for calls it cannot predict.

31 The J-curve



IN THE LESSON

- Fees charged from the start create the J-curve.
- This sketch is not drawn to scale.
- Along the bottom are the years of a fund's life, from zero, through five, to ten.
- Up the side is the total value multiple, T V P I.
- The grey line marks one times: value equal to paid-in capital.
- The green curve starts just below it and dips further in the first years.
- Early on, fees are charged on commitments while new investments are held at cost, so reported value falls below paid-in capital.
- Later, as companies are improved and sold, the curve turns up, crosses the line, and climbs as gains are realised.
- A low early figure is normal, another reason a young fund's I R R is unreliable.

32 Example 14: what a fund of funds leaves

Underlying funds as in Example 1. Fund of funds: 1% fee, then 10% carry on what is left

Net of the underlying funds	15% − 4%	**11%**
After the fund-of-funds fee	11% − 1%	**10%**
Fund-of-funds carry	10% × 10%	**1%**
Net to Ashgrove	10% − 1%	**9%**
Fees in total	15% − 9%	**6 points**

Premium over public equity: 9% − 8% = 1 point, down from 3

IN THE LESSON

- Suppose Ashgrove reaches private equity through a fund of funds instead, to spread a smaller ticket across many managers.
- The underlying funds earn fifteen per cent gross and, as in Example one, fifteen minus four, eleven per cent net.
- The fund of funds charges a fee of one per cent, leaving ten.
- On top, it takes carry of ten per cent of what is left: ten per cent of ten per cent, one point.
- Ashgrove keeps ten minus one, nine per cent.
- Fifteen minus nine, six points, have gone in fees.
- And the premium over public equity, nine minus eight, is one point, down from three.
- The net return, not the gross return, is what the investor earns.

33 Mistakes to avoid

- Smoothed volatility at face value: 8% was really 16%
- Premium judged gross: 15% became 11%, then 9%
- Ranking on IRR alone: a credit line added 5 points
- Exposure without unfunded: $1,000m, not $600m
- Co-investment as a free fee saving: one bad name ends it

IN THE LESSON

- Five mistakes come up again and again.
- First, taking smoothed volatility at face value: Ashgrove's eight per cent was really sixteen.
- Second, judging the premium gross: fifteen per cent became eleven through a fund, then nine through a fund of funds.
- Third, ranking funds on the I R R alone, when a credit line added five points while the multiple fell.
- Fourth, leaving out unfunded commitments: Ashgrove's exposure was one thousand million dollars, not the six hundred million of N A V.
- Fifth, treating co-investment as a free fee saving, when one bad outcome on a single name can wipe out the saving.

34 Try three quick questions

1. Paid in $80m, distributions $60m, NAV $56m. DPI and TVPI?
   Answer: DPI 60 ÷ 80 = 0.75x. TVPI (60 + 56) ÷ 80 = 1.45x.
2. Reported vol 6%, smoothing weight a = 0.5. True volatility?
   Answer: √(1.5 ÷ 0.5) = √3 ≈ 1.73. 6% × 1.73 ≈ 10.4%.
3. A co-investment with no fee and no carry. Why is it not free?
   Answer: Adverse selection, and single-company concentration.

IN THE LESSON

- Now try three quick questions.
- Pause the video, think, then listen to the answers.
- Question one.
- A limited partner has paid in eighty million dollars, received distributions of sixty million, and holds a net asset value of fifty six million.
- What are the D P I and the T V P I?
- The D P I is sixty over eighty, point seven five times.
- The T V P I is sixty plus fifty six, over eighty, one point four five times.
- Question two.
- A fund's reported volatility is six per cent and its smoothing weight ay is point five.
- What is its true volatility?
- The factor is the square root of one point five over point five, the square root of three, about one point seven three, so true volatility is about ten point four per cent.
- Question three.
- A G P offers a co-investment with no fee and no carry.
- Give two reasons it is not free.
- Adverse selection, and concentration in a single company.