CHARTA LEARNING · LESSON NOTES

GIPS returns, valuation and composites

Performance Measurement

1 A story: the fair race

- Clients add and withdraw money at will
- The manager does not control that timing
- A record should show the manager's decisions
- So client cash flows are taken out of the return

IN THE LESSON

- Picture a relay team and a coach who is judged on the team's time.
- Now suppose the owner may add a fresh runner halfway round, or pull one out, whenever the owner likes.
- If the stopwatch is all we read, the coach gets praise or blame for choices the owner made.
- Investing has the same problem.
- A client can add money just before a rally, or pull it out just before a fall, and the manager never chose that timing.
- A prospective client reading a track record wants to see what the manager's own decisions earned.
- So the rules for calculating returns are built to take the client's cash flows out of the number, and to be clear about which costs were deducted along the way.

2 Time-weighted, and the narrow exception

- Time-weighted return strips out client cash flows
- Value at least monthly and on any large flow date
- Money-weighted: only narrow cases, like closed-end funds
- Allowed where the firm controls the flows

IN THE LESSON

- The method that removes the flows is the time-weighted return.
- You split the period wherever a large external cash flow happens, value the portfolio on that day, calculate a return for each piece, and link the pieces.
- An external cash flow is a contribution or withdrawal made by the client, not a trade the manager makes.
- The standards require valuation at least monthly, and also on the date of any large external cash flow, where the firm defines large in its own written policy.
- The other method, the money-weighted return, lets the size and timing of the flows change the answer.
- It is allowed only in narrow cases, such as closed end, fixed life or illiquid strategies, where the firm itself controls the flows.
- For an ordinary open portfolio, think time-weighted.

3 Time-weighted return, linked

R = (1 + r1) × (1 + r2) × … − 1

Sub-period return	Gain over start value, one piece
Linked return	Multiply growth factors, less one
Valuation date	Value the day money moves

IN THE LESSON

- Here is the rule as a formula.
- Take each sub-period on its own.
- Its return, written little r, is the ending value minus the beginning value, divided by the beginning value, where the beginning value already includes any flow that opened the period.
- Then link the sub-period returns geometrically.
- Add one to each return, multiply them all together, and take one away.
- Geometric linking matters because each period's gain builds on the one before it, and simply adding the returns would ignore compounding.
- The key discipline is the valuation date.
- The portfolio must be valued on the day money arrives or leaves, otherwise you cannot say how much was earned before the flow and how much after.

4 Break the month at the flow

Meadowbrook, one month

Start to day 15: 10.0m to 10.4m, +4.00% →

Client adds 5.0m on day 15 →

Day 15 to end: 15.4m to 15.2m, −1.30%

IN THE LESSON

- Here is a month for the Meadowbrook Pension Fund, one of Larkspur's clients, in three boxes, read left to right.
- The first box is the stretch from the start of the month to day fifteen.
- The portfolio grows from ten to ten point four million, a gain of four per cent, all of it earned on money the manager actually held.
- The middle box is the client's contribution, five million, arriving on day fifteen.
- None of that counts as performance, which is why the portfolio is valued on that very day.
- The third box runs from the flow to the month end.
- The value goes from fifteen point four, the old value plus the new money, down to fifteen point two, a loss of one point three per cent.
- Two honest pieces, ready to link.

5 Example 1: link the two pieces

Start 10.0m; day 15: 10.4m, adds 5.0m; end 15.2m; fee 0.05%

Before the flow	10.4 ÷ 10.0 − 1	**+4.00%**
After the flow	15.2 ÷ 15.4 − 1	**−1.30%**
Time-weighted	1.040 × 0.987 − 1	**2.65%**
Modified Dietz, no valuation	0.2 ÷ (10.0 + 0.5 × 5.0)	**1.60%**
Net of the monthly fee	1.0265 × 0.9995 − 1	**2.60%**

IN THE LESSON

- Example one, with the same month.
- Before the flow the return is ten point four over ten, minus one, which is four per cent.
- After the flow it is fifteen point two over fifteen point four, minus one, a loss of one point three per cent.
- Link them: one point zero four zero times point nine eight seven, minus one, gives two point six five per cent.
- That is the manager's time-weighted return.
- A cruder method called modified Dietz skips the mid-month valuation.
- It divides the gain of point two by the starting money plus half of the contribution, and gets only one point six per cent, because the flow's timing distorts it.
- Finally, a monthly fee of point zero five per cent takes the net return to two point six per cent.
- Each step is simple arithmetic, so take your time with it.

6 Cash counts as part of the return

- Cash and cash equivalents sit inside the portfolio
- Holding cash is an investment decision
- So its return, interest included, is in the total
- Never calculate on the invested part alone

IN THE LESSON

- Next, cash.
- Suppose a manager keeps a slice of a portfolio in cash because the market looks expensive.
- Is that cash part of the return, or a bystander?
- Dana's answer is that it counts.
- Cash and cash equivalents held in the portfolio belong in its return, because choosing to hold cash is an investment decision, and the manager owns that decision.
- If the firm calculated returns only on the invested part, a manager who sat in cash through a crash would look brilliant on the invested slice and the client would never see the cost of the idle money in a rally.
- The return you show must be the return on everything the client handed over, the cash included, with the interest on the cash included too.

7 Example 2: what cash does to the return

90% equities returning 8.0%, 10% cash returning 2.0%

Equity slice	0.90 × 8.0%	**7.20%**
Cash slice	0.10 × 2.0%	**0.20%**
Total portfolio return	7.20 + 0.20	**7.40%**
Equity only, wrongly	ignores the cash	**8.00%**
Overstatement	8.00 − 7.40	**0.60%**

IN THE LESSON

- Example two.
- A Larkspur portfolio holds ninety per cent in equities, which return eight per cent, and ten per cent in cash, which returns two per cent.
- The equity slice contributes point nine times eight, which is seven point two.
- The cash slice contributes point one times two, which is point two.
- Add them and the portfolio return is seven point four per cent.
- If the firm had quoted only the equity slice, it would have shown eight per cent, overstating the result by point six of a percentage point.
- That gap is the drag from holding cash, and it is exactly the cost of the manager's own decision to hold it.
- The standards do not let that cost be hidden.

8 Gross and net of fees

What each version deducts

Version	Deducts
Gross of fees	Trading costs
Net of fees	Plus all fees
Performance fee	Net only
Bundled fee	Deduct it

IN THE LESSON

- Now fees and expenses.
- A gross-of-fees return deducts actual trading costs, such as commissions and the cost of dealing, and nothing else.
- A net-of-fees return goes further and also deducts the management fee and any performance fee.
- Firms often show both, so a client can see what the strategy earned and what the client kept.
- There is one awkward case.
- Some clients pay a single bundled fee that covers trading costs, management and more.
- If the trading costs cannot be separated out, the firm deducts the whole bundled fee, or at least the part that contains the trading costs, from the gross return.
- The reasoning is simple.
- A gross return must never be flattering, so when in doubt the firm deducts more, not less.

9 Example 3: from gross to net

Gross 12.0% after trading costs; fee 1.5%; performance fee 20%

Gross of fees	after trading costs	**12.0%**
Management fee	taken off	**−1.5%**
Performance fee	20% × (12.0 − 1.5 = 10.5)	**−2.1%**
Net of fees	12.0 − 1.5 − 2.1	**8.4%**
Total fee drag	1.5 + 2.1	**3.6 points**

IN THE LESSON

- Example three.
- A Larkspur strategy earns twelve per cent gross, after actual trading costs have already come out.
- The management fee is one and a half per cent.
- The performance fee is twenty per cent of the gain left after the management fee.
- That gain is twelve minus one and a half, which is ten and a half, and twenty per cent of it is two point one.
- So the net return is twelve, minus one and a half, minus two point one, which is eight point four per cent.
- Total fee drag is three point six points.
- The trap is to stop after the management fee and call ten and a half the net return.
- That forgets the performance fee, and a net figure must include it.
- For simplicity the fees here are taken as flat deductions.

10 A story: pricing a house and a share

- Returns are only as good as the values behind them
- Fair value is required, an order of inputs is recommended
- Listed shares: a price anyone can see
- Private holdings: judgement creeps in

IN THE LESSON

- How much is your neighbour's house worth?
- You could look at the sale price of an identical house on the same street last week.
- If there is none, you look at similar houses nearby.
- If the street has not seen a sale for years, you fall back on rents and building costs, and finally on your own opinion.
- Each step gives you less certainty and takes more judgement.
- Investment values work the same way.
- Returns are only as reliable as the values they are calculated from.
- The standards require fair value, and they recommend an order of preference for the inputs.
- Listed shares sit at the top.
- Many private holdings sit near the bottom.
- The rest of this section walks down that order.

11 Down the valuation hierarchy

Quoted prices

Identical, active market → Similar, active market → Not an active market

Inputs

Observable: curves, spreads → Subjective: unobservable

IN THE LESSON

- Read the top row first, then the bottom.
- The best evidence of fair value is an unadjusted quoted price for the identical investment in an active market on the valuation date.
- Next best is a quoted price for a similar investment in an active market.
- After that come quoted prices in markets that are not active, whether for identical or similar investments.
- When there are no usable prices, the value is built from other observable market inputs, such as yield curves and credit spreads.
- Only at the very end come subjective inputs that nobody outside the firm can observe.
- Each step along the way adds judgement, and more judgement calls for a documented policy, applied consistently, with independent review and disclosure.

12 The hierarchy with examples

Four groups, from least to most judgement

Inputs used	Example
Identical quote, active	Listed share
Similar or thin quotes	Rare-trading bond
Observable inputs	Curve + spread
Subjective inputs	Own forecasts

IN THE LESSON

- Here is the order grouped into four rows, each with an example from Larkspur's book.
- At the top, a listed share quoted on a busy exchange: take the unadjusted closing price.
- Second, a bond that rarely trades, valued from the quoted price of a very similar bond, or from quotes in a market that has gone quiet, where the prices you can find are thin or stale.
- Third, a privately placed loan valued with a discount rate built from the government yield curve plus a credit spread seen in the market.
- Fourth, a stake in a private company valued from the firm's own forecasts, which no outsider can check.
- The lower the row, the more the value depends on opinions, and opinions can be wrong or can be bent.

13 Example 4: a private bond with no price

3-year bond, coupon 5%; government 3.0%; market spread 2.0%

Quoted price	none, identical or similar	**none**
Observable inputs	3.0% + 2.0% = 5.0%	**yield 5.0%**
Value at 5.0%	5 + 5 + 105, discounted	**100.00**
Manager's spread of 1.5%	yield 4.5%	**101.37**
Flattery: 20m in 200m	1.37% × 10%	**+0.14%**

IN THE LESSON

- Example four.
- Larkspur holds a privately placed three-year bond with a five per cent annual coupon.
- It never trades and no similar bond is quoted, so the top rungs are closed.
- Dana moves down to observable inputs.
- The government yield is three per cent, and listed bonds of the same rating trade at a spread of two per cent, so the discount rate is five per cent, and the bond is worth exactly one hundred.
- The portfolio manager argues for a spread of only one and a half per cent.
- That gives a yield of four and a half and a value of one hundred and one point three seven.
- The gap is one point three seven, and on a twenty million holding in a two hundred million fund it flatters the return by point one four of a percentage point, which is a small flattery from one little holding.

14 Example 5: stale values hide the risk

Four quarters: true marks against smoothed marks

True quarterly returns	8, −6, 10, −4	**mean 2.0%**
True volatility	standard deviation	**8.2%**
Smoothed returns	3, 1, 3, 1	**mean 2.0%**
Apparent volatility	standard deviation	**1.2%**
Risk understated by	1 − 1.2 ÷ 8.2	**85%**

IN THE LESSON

- Mispricing has a second cost, and it hits risk rather than return.
- Larkspur holds an illiquid real estate fund whose true quarterly returns, if it were marked to market, would be eight, minus six, ten and minus four per cent.
- The average is two per cent, and the volatility, measured as a standard deviation, is about eight point two.
- But the value is only reviewed once a year, and the quarterly marks are smoothed to three, one, three and one per cent.
- The average is still two, yet the volatility shrinks to about one point two.
- Same money, same average, far less apparent risk.
- A client comparing this fund with a listed one would believe it was safe, and that is exactly the harm the hierarchy and its documented policies are meant to prevent.

15 Mistakes to avoid so far

- Money-weighted return for an ordinary open portfolio
- No valuation on the date of a large flow
- Leaving cash out of the portfolio return
- Net of fees without the performance fee
- Subjective inputs when observable ones exist

IN THE LESSON

- Let us stop and collect the common mistakes.
- First, using a money-weighted return for an ordinary open portfolio.
- It is allowed only where the firm controls the flows.
- Second, valuing only at month end and skipping the valuation on the date of a large external cash flow.
- Third, leaving cash out of the portfolio return, because holding cash is the manager's decision.
- Fourth, calling a figure net of fees when the performance fee has not been deducted.
- And fifth, jumping to subjective inputs for a holding when observable inputs such as a curve and a spread are available.
- The order of preference exists so that judgement is the last resort, never the first.

16 A story: one number for a whole strategy

- A composite groups portfolios run to one strategy
- A prospect wants one number for the strategy
- Big accounts should count for more than small ones
- So composite returns must be asset-weighted

IN THE LESSON

- Imagine Larkspur runs a balanced strategy for dozens of clients, each with a separate account.
- A prospective client does not want dozens of numbers.
- They want one: what did this strategy earn?
- That one number is the composite return, built from all the discretionary portfolios in the composite.
- Now how should we average them?
- Think of a school reporting the average pocket money of its pupils.
- If one rich pupil has a hundred times more than the rest, a simple average of the amounts says little.
- It is the same with accounts.
- A small account that happened to do well should not count as much as a huge one.
- So the standards demand that composite returns be asset-weighted, by the money in each portfolio.

17 The composite return

Composite = Σ weight × portfolio return

Asset weight	Portfolio's share of the assets
Portfolio return	Time-weighted, one per portfolio
Composite return	Sum of the weighted returns

IN THE LESSON

- Here is the idea as a formula.
- The composite return equals the sum, over every portfolio in the composite, of its weight times its return.
- The weight is the portfolio's share of the composite's total assets.
- If a portfolio holds a small share of the money, its return gets a small weight, and the weights across the composite add up to the whole.
- The portfolio returns are the time-weighted returns we just calculated, one per portfolio.
- Notice what this protects against.
- A tiny account with a lucky month cannot drag the composite up on its own, and a very large account cannot be hidden.
- The only open question is how exactly to measure each portfolio's weight, and that is where the three permitted methods differ.

18 The three permitted weightings

Asset-weighted, three ways; equal-weighted is not one of them

Method	Weights
Beginning value	Start money
Start + weighted flows	Flow by time held
Aggregate	One big portfolio
Equal-weighted	Supplemental only

IN THE LESSON

- There are three permitted ways to asset-weight.
- Method one uses the beginning-of-period value of each portfolio.
- It is the simplest and ignores what happens during the period.
- Method two uses the beginning value plus the time-weighted external cash flows.
- A contribution received halfway through the period counts for half its size, since it was invested for half the period.
- Method three, the aggregate method, treats all the member portfolios as though they were one big portfolio and calculates a single return from the combined assets and flows.
- The equal-weighted average, where every portfolio counts the same, is not permitted as the composite return.
- It may appear only as supplemental information, clearly labelled.

19 Monthly, linked, and the membership rules

- From 2010: composite returns at least monthly
- Monthly composite returns are linked geometrically
- Membership follows written inclusion and exclusion rules
- No adding or dropping accounts after the fact

IN THE LESSON

- A few more rules finish the picture.
- For periods from twenty ten onward, composite returns must be calculated at least monthly, and the monthly composite returns are linked geometrically to give the return for a year or longer.
- Before that date the rules were looser, but a modern exam question assumes monthly.
- Which portfolios belong in the composite is not left to taste.
- It follows the firm's documented inclusion and exclusion policies, written down in advance and applied the same way every time.
- A firm cannot add a flattering account after the fact or drop an unflattering one.
- A portfolio comes in when it first meets the composite's definition, and it leaves for a documented reason, not because it had a poor quarter.

20 Example 6: asset-weighting two portfolios

Small 20m returned 5%; large 80m returned 2%

Weights	20 ÷ 100 and 80 ÷ 100	**20% and 80%**
Small contributes	0.20 × 5.0%	**1.00%**
Composite: asset-weighted	1.00 + 1.60	**2.60%**
Equal-weighted, supplemental	(5.0 + 2.0) ÷ 2	**3.50%**
Flattery of equal weights	3.50 − 2.60	**0.90**

IN THE LESSON

- Example six.
- Larkspur's composite has two portfolios.
- The small one holds twenty million and returned five per cent.
- The large one holds eighty million and returned two per cent.
- The weights are twenty per cent and eighty per cent of the total of one hundred million.
- The composite return is point two times five plus point eight times two, which is one plus one point six, or two point six per cent.
- Compare the equal-weighted average.
- Five plus two, divided by two, gives three point five per cent.
- That overstates what the typical dollar actually earned, because the small account happened to do better.
- Showing three point five as the composite would flatter the strategy by point nine of a percentage point, so it can only ever be supplemental.

21 Same two accounts, different averages

Return for the month (%)

Small account	**5.0**
Large account	**2.0**
Asset-weighted	**2.6**
Equal-weighted	**3.5**

Illustration: small 20m, large 80m

IN THE LESSON

- Here are those numbers as bars, in per cent.
- The height of each bar is a return for the month.
- The first bar is the small account, which returned five.
- The second is the large account, which returned two.
- The third bar is the asset-weighted composite return of two point six, close to the large account, because the large account holds most of the money.
- The fourth is the equal-weighted average, three point five, which sits between the two accounts and well above the composite.
- The gap between the third and fourth bars is the flattery that comes from letting a small, lucky account count as much as a big one.
- This is why the equal-weighted figure can appear only as supplemental information.

22 Weights when money arrives mid-period

Weight = (BV + weighted flow) ÷ total

Beginning value	Money held on the first day
Weighted cash flow	Flow × share of period held
Total of the weights	Same sum across all portfolios

IN THE LESSON

- When a portfolio receives money during the period, the second method adjusts its weight.
- A portfolio's weight is its beginning value plus its weighted cash flow, divided by the same total for all the portfolios.
- Each cash flow is weighted by the fraction of the period it was in the account.
- Money that arrives halfway through counts for half its size.
- Money that arrives at the very start counts in full, and money that arrives on the last day hardly counts.
- Withdrawals work in reverse and reduce the weight.
- Why bother?
- Because a portfolio that received a large contribution held more money at work during the period than its beginning value alone suggests, so its return should carry more influence in the composite.

23 Example 7: weights with a mid-month flow

C: 40m, adds 10m mid-month, returns 3.0%; D: 60m returns 1.0%

Beginning value weights	0.40 × 3.0% + 0.60 × 1.0%	**1.80%**
C's money, flow-weighted	40 + 0.5 × 10	**45**
Total of the weights	45 + 60	**105**
Beginning value plus flows	45/105 × 3.0% + 60/105 × 1.0%	**1.86%**
Equal-weighted, supplemental	(3.0% + 1.0%) ÷ 2	**2.00%**

IN THE LESSON

- Example seven.
- Account C starts the month at forty million, receives a contribution of ten million halfway through, and returns three per cent.
- Account D starts at sixty million, has no flows, and returns one per cent.
- Beginning-value weights are forty and sixty per cent, which give point four times three plus point six times one, or one point eight per cent.
- With flows, C's money is forty plus half of ten, which is forty five, against sixty for D, out of one hundred and five.
- That makes C's weight forty five out of the total, and the composite one point eight six per cent, a little higher, because C's higher return had more money behind it.
- The equal-weighted figure is two per cent, which only belongs in the supplemental information.

24 A story: the chef and the pantry

- Discretionary: the firm can implement its strategy
- A restriction that blocks this: non-discretionary
- Write the definition down and apply it consistently
- Test: does the restriction materially prevent it?

IN THE LESSON

- Suppose you hire a chef to cook a signature menu, and then say two things.
- Please avoid peanuts, and you must serve the dish I made yesterday and check with me before you cook each plate.
- The first rule is easy to follow and the menu is still the chef's menu.
- The second makes the signature menu impossible.
- Portfolios work the same way.
- A portfolio is discretionary when the firm can implement its intended strategy.
- A client restriction that stops it doing so makes the portfolio non-discretionary.
- The firm must write its definition down in advance and apply it consistently, and the test is always the same: does the restriction materially prevent the strategy?

25 Does the restriction stop the strategy?

Restriction that leaves the strategy intact

Tobacco screen → Strategy still runs → Discretionary: can join a composite

Restriction that blocks it

Approve each trade first → Strategy blocked → Out of composites, in firm assets

IN THE LESSON

- Follow the top row first.
- Dana starts with a client restriction, here a tobacco screen.
- She asks the one test question: can the firm still run its intended strategy with that restriction in place?
- She answers it with the written policy, the same way for every client, never account by account to suit the results.
- Here the strategy still runs, so the portfolio is discretionary and can join a composite, perhaps one defined to include that kind of restriction.
- Now the bottom row.
- This restriction is different: the client must approve each trade.
- The strategy is blocked, so the portfolio is non-discretionary and is left out of every composite.
- But it does not vanish.
- Its assets still count in total firm assets, because the firm is still managing that money for the client.

26 Judging typical restrictions

Does the restriction materially block the strategy?

Restriction	Verdict
Bars tobacco stocks	Discretionary
Keep a big legacy stake	Non-discretionary
Approve each trade first	Non-discretionary
Frequent, erratic withdrawals	Non-discretionary

IN THE LESSON

- Here are typical restrictions and how Dana would judge them.
- A client who bars tobacco from a broad equity mandate removes a small slice of the universe.
- The firm can still run the strategy, so the account stays discretionary, perhaps joining a composite with that restriction.
- A client who forbids selling a legacy holding that forms a large part of the account blocks implementation, because that holding dominates the risk, so the account is likely non-discretionary.
- A client who requires approval before each trade stops the firm acting on its own decisions, so non-discretionary.
- A client who makes frequent, unpredictable withdrawals prevents the firm from staying invested, so likely non-discretionary.

27 Example 8: four accounts, one composite

Balanced strategy: four accounts reviewed

A: 30m, no tobacco	strategy still runs	**In**
B: 25m, legacy stake 45%	dominates the risk	**Out**
C: 12m, trade approval	firm cannot act	**Out**
D: 18m, monthly report	information only	**In**
Composite 48m; firm 85m	30+18; 30+25+12+18	**48m, 85m**

IN THE LESSON

- Example eight.
- Dana reviews four accounts in the balanced strategy.
- Account A, thirty million, excludes tobacco.
- Account B, twenty five million, must keep a legacy holding worth forty five per cent of the account.
- Account C, twelve million, requires approval before every trade.
- Account D, eighteen million, asks for a monthly report of trades.
- A and D are discretionary: the strategy still runs.
- B and C are not.
- The balanced composite therefore holds A and D, which is thirty plus eighteen, forty eight million.
- But total firm assets include all four, which is eighty five million.
- Excluded accounts leave the composite, not the firm's asset total.

28 The trap: small, large, and cherry-picking

- Judge the size and frequency of the restriction
- Small legacy stake: usually still discretionary
- Never label accounts after seeing their results
- Excluded accounts stay in total firm assets

IN THE LESSON

- Now the trap in this outcome.
- It is tempting to treat any restriction as disqualifying, or to treat none as disqualifying.
- Both are wrong.
- Size matters.
- A tiny legacy holding is a nuisance, while one that is nearly half the account is a different portfolio altogether.
- Frequency matters too.
- A single planned withdrawal can be managed, but frequent unpredictable ones may force the firm to hold extra cash, which stops the strategy.
- The second trap is cherry-picking.
- A firm may not call an account non-discretionary just because it lagged, or discretionary only because it shone.
- The definition is written down first, applied the same way every time, and the exam answer should point to a restriction that materially prevents the strategy.

29 Recap: the lesson in four lines

Four rules, in teaching order

Time-weighted return	Link sub-periods, flows removed
Valuation order	Quoted first, subjective last
Asset-weighted composite	By money, never head count
Discretion test	Does it block the strategy?

IN THE LESSON

- Let us pull the lesson together.
- Returns are time-weighted, with the portfolio valued monthly and on the date of any large external cash flow, and the sub-period returns linked geometrically.
- Cash counts in the return.
- Gross returns deduct trading costs, net returns also deduct management and performance fees.
- Fair value is required, with an order of preference from quoted identical prices down to subjective inputs, and more judgement needs more documentation.
- Composite returns are asset-weighted by beginning value, by beginning value plus weighted flows, or by the aggregate method, never by a plain equal average, and calculated monthly.
- A portfolio is discretionary when no restriction materially blocks the strategy.

30 Try three quick questions

1. Composite: 30m returned 4%, 70m returned 6%. Asset-weighted return?
   Answer: 0.3 × 4 + 0.7 × 6 = 5.4% (equal average 5.0% is supplemental).
2. A private loan has no quoted price. Which inputs come next?
   Answer: Observable inputs, a curve and spread, before subjective ones.
3. Client approves each trade first. Discretionary? In firm assets?
   Answer: No, left out of the composite, but in total firm assets.

IN THE LESSON

- Now try three quick questions yourself.
- Pause after each one.
- Question one.
- A composite holds thirty million that returned four per cent and seventy million that returned six per cent.
- What is the asset-weighted composite return?
- Point three times four plus point seven times six is five point four per cent, and the equal average of five per cent is only supplemental.
- Question two.
- A private loan has no quoted price at all.
- Which inputs come next in the order of preference?
- Observable inputs such as a yield curve and a credit spread, before any subjective inputs.
- Question three.
- A client requires approval before each trade.
- Is the account discretionary, and is it in total firm assets?
- No, it is non-discretionary and out of the composite, but it still counts in total firm assets.