CHARTA LEARNING · LESSON NOTES

Trading governance and liquidity risk

Portfolio Management

1 A story: seconds at the school canteen

- A fair canteen has a written rule
- Everyone who asked gets the same share
- Keep a log of who was served and when
- Cheap food does not excuse favourites

IN THE LESSON

- Picture a school canteen with a limited number of second helpings.
- A fair canteen has a rule, written on the wall.
- Everyone who asked gets the same share.
- The cook keeps a log of who was served and when.
- Now suppose the cook quietly gives the extra portions to the children whose parents donate to the school.
- Even if the food was cheap, that canteen has failed.
- A trading desk is the same.
- Imogen Falk is reviewing Bramley Asset Management, which buys and sells shares for Fernhill and for other clients.
- Good governance means a written rule, fair sharing, honest disclosure and a record anyone can check.
- Low cost alone does not make a desk well run.

2 A trading process that checks itself

The work

Written policy → Brokers and venues → Fair allocation

The proof

Records kept → Clients told → Review and fix

IN THE LESSON

- Here is what a well governed desk looks like, drawn as two rows of boxes that run left to right.
- The top row is the work.
- It starts with a written trade policy, which defines what best execution means for the firm and how it will be monitored.
- Then comes execution, where brokers and venues are chosen and reviewed on the quality of what they deliver.
- Then comes allocation, which shares the trades fairly between client accounts.
- The bottom row is the proof.
- The firm keeps records of orders, times, allocations and reasons.
- It discloses its arrangements and conflicts to clients.
- And it reviews the results, which feeds back into the policy.
- Each box is a place where an inspector can check the desk.

3 Example 1: sharing a partial fill

Order 90,000 shares: A 45,000, B 27,000, C 18,000. Filled: 72,000 at 31.50

Fill rate	72,000 ÷ 90,000	**80%**
Account A	45,000 × 80%	**36,000**
Account B	27,000 × 80%	**21,600**
Account C	18,000 × 80%	**14,400**
If A and B are filled first	72,000 − 45,000 − 27,000	**C gets 0**

IN THE LESSON

- Now a worked case.
- Bramley places one block order to buy ninety thousand shares for three accounts.
- Account A wants forty five thousand, B wants twenty seven thousand, and C wants eighteen thousand.
- Only seventy two thousand shares are filled, at an average price of thirty one fifty.
- The fair method is pro rata.
- The fill rate is seventy two thousand over ninety thousand, which is eighty per cent, and every account gets eighty per cent of what it asked for.
- A receives thirty six thousand, B twenty one thousand six hundred, and C fourteen thousand four hundred, all at the same average price.
- Now the unfair alternative.
- If the trader fills A first because A pays a performance fee, then B, account C gets nothing at all.
- That breaches fair dealing.

4 Example 2: an error, and a broker choice

Error: 4,000 shares, sold 0.35 lower. Brokers: X and Y, per share

Trade error loss	4,000 × 0.35	**1,400**
Broker X, all-in	0.02 + 0.05	**0.07**
Broker Y, all-in	0.03 + 0.02	**0.05**
Saving with Y on the fill	0.02 × 72,000	**1,440**
Who pays the error	client did not cause it	**The firm**

IN THE LESSON

- Two more checks from the same desk.
- First, a keying error.
- A trader accidentally buys four thousand extra shares for account C, and they are sold back thirty five cents lower.
- The loss is four thousand times thirty five cents, which is fourteen hundred.
- Policy says the firm pays it, because the client did nothing wrong.
- Second, the broker choice.
- Broker X charges two cents a share in commission, but its fills slip by five cents, so its all in cost is seven cents.
- Broker Y charges three cents, but slips only two cents, so its all in cost is five cents.
- Across seventy two thousand shares, Y saves fourteen hundred and forty.
- Choosing the dearer commission was right, and the reason is written in the file.

5 A governance checklist for Imogen Falk

What a sound desk shows the reviewer

Area	What good looks like
Policy	Written; best execution is a process
Allocation	Pro rata; no favourite accounts
Conflicts and disclosure	Handled in policy; clients told
Records	Orders, times, reasons, costs

IN THE LESSON

- This table is the checklist Imogen Falk takes into the review.
- Policy first.
- It must be written down, and it must define best execution as a process rather than the lowest commission.
- Allocation next.
- Partial fills are shared pro rata, in line with the fair dealing standard, with no favourites.
- Conflicts and disclosure come third.
- The policy has to say how soft dollar arrangements, cross trades and personal dealing are handled, and the firm must tell clients about its arrangements and any material conflict.
- Last, records.
- Orders, timestamps, allocations, the reason each broker was chosen and the cost analysis must all be kept, so that anyone can reconstruct what happened.
- A desk that fails any row fails, however cheap it was.

6 A story: the village water tank

- Liquidity risk: cash needed, assets stuck
- Keep a tank: assets that turn to cash fast
- Forecast the daily use before the dry spell
- Have a plan that avoids selling the well

IN THE LESSON

- A village on a hillside gets its water from a spring, and in a dry summer the spring slows to a trickle.
- Sensible villagers keep a tank.
- They know how much water the village uses each day, and they watch the tank level.
- They also have an emergency plan, such as a borrowed tanker, that does not mean selling the village well for a bad price.
- A large fund with assets that are hard to sell faces the same problem.
- Liquidity risk is the chance of being unable to pay for spending, capital calls or rebalancing without selling something at a loss.
- Imogen Falk wants the tank, the forecast and the emergency plan for Fernhill before the dry summer arrives.

7 Tier assets by time to cash

Fernhill, 1,000m in total, by time to cash

Tier: time to cash	Fernhill
1 Cash, bonds: days	200m
2 Public equity: days, market price	400m
3 Hedge funds: months, notice	100m
4 Private funds: years or discount	300m

IN THE LESSON

- The first tool is to sort the fund into tiers by how fast each part turns into cash.
- Fernhill holds one billion.
- In the first tier are cash and bonds, two hundred million, which can be turned into cash in days.
- In the second tier is public equity, four hundred million.
- It also sells in days, but at whatever the market price happens to be, and in a crash that price can be low.
- The third tier is hedge funds, one hundred million, which need notice and take months.
- The fourth tier is private funds, three hundred million, which take years to return cash, or must be sold at a discount.
- Sorting this way shows how much real cash is on hand, and how much only looks like value on paper.

8 The planning tools

Look ahead

Forecast cash needs → Set a liquid floor → Run a stress test

If it bites

Credit line → Futures overlay → Sell a fund interest

IN THE LESSON

- Tiers are only the start.
- This picture shows how the planning tools fit together.
- The top row is how Imogen Falk looks ahead.
- She forecasts spending needs, and the capital calls and distributions that Fernhill's private funds will make over the next few years.
- A capital call is when a fund manager asks an investor to send cash that it promised earlier.
- Then she sets a minimum share of liquid assets, a floor the fund must never fall below.
- Then she stress tests.
- The stress case is deliberately harsh.
- Markets fall, distributions stop, and calls keep arriving.
- The bottom row shows what she can pull if the stress becomes real.
- Those are the levers, and we take them one at a time.

9 Example 3: the denominator effect

Equity 400, private 300, hedge 100, bonds 150, cash 50 (m); limit 33%

Start	300 ÷ 1,000	**30.0%**
Equity −30%, hedge −10%: total	280+90+300+150+50	**870**
Private share	300 ÷ 870	**34.5%**
After calls 40, spending 45	340 ÷ 825	**41.2%**
Cash and bonds left, in years	115 ÷ (45 + 40)	**1.35**

IN THE LESSON

- Now the stress test in numbers.
- Fernhill has four hundred million in public equity, three hundred in private funds, one hundred in hedge funds, one hundred and fifty in bonds and fifty in cash.
- Private funds are thirty per cent of the fund, under a policy limit of thirty three.
- In the stress, public equity falls thirty per cent, hedge funds fall ten, and private funds are still carried at their old appraisals.
- The fund shrinks to eight hundred and seventy million, and private funds jump to thirty four and a half per cent.
- Nobody bought anything.
- That is the denominator effect, because the total underneath fell.
- Then forty million of calls are paid from cash, and forty five million of spending from bonds.
- Private funds reach forty one point two per cent, and cash and bonds cover only one point three five years of need.

10 The private share creeps up

Private funds share (%)

Start	**30.0**
After the fall	**34.5**
After calls and spending	**41.2**

Policy limit: 33%

IN THE LESSON

- Here is the same story as a picture.
- The vertical axis is the private funds share of the whole fund, in per cent.
- The first bar is the start, thirty per cent, comfortably under the limit of thirty three.
- The second bar is after the market fall, with calls not yet paid, thirty four and a half per cent.
- That is already a breach, and nobody made a decision.
- The third bar is after the calls and the spending, forty one point two per cent.
- The limit looks easy to keep in a calm market, but it is the stressed number that matters.
- This is why the stress test has to include the calls, not just the fall in prices.

11 Levers when liquidity bites

Each lever has a price

Lever	Price paid
Credit line	Interest; may be withdrawn
Futures overlay	Margin and monitoring
Secondary sale of a fund	A discount to value
Slower new commitments	Less private equity later

IN THE LESSON

- When the squeeze arrives, Imogen Falk has four levers, and every lever has a price.
- A credit line lets Fernhill borrow to pay the calls instead of selling.
- It costs interest, and the bank may be less generous in a crisis.
- A derivatives overlay uses futures to adjust exposure to shares or bonds without touching the private holdings, so it can restore risk targets without a sale.
- It needs margin and careful monitoring.
- A secondary sale means selling a stake in a private fund to another investor.
- It brings cash, but usually at a discount.
- The last lever is slower new commitments, which stops the problem growing, but the fund holds less private equity in the years ahead.

12 Example 4: borrow or sell?

Cash needed 50m. Secondary price: 80% of value. Credit line: 6% a year

Value sold at 80%	50 ÷ 0.80	**62.5m**
Value given up	62.5 − 50	**12.5m**
Interest, one year	50 × 6%	**3.0m**
Cheaper by borrowing	12.5 − 3.0	**9.5m**
Lesson	arrange the line early	**Calm weather**

IN THE LESSON

- Suppose Fernhill needs fifty million in cash.
- One route is a secondary sale of a fund interest at eighty per cent of its reported value.
- To raise fifty million at that price, Fernhill must sell sixty two and a half million of reported value, so it gives up twelve and a half million.
- The other route is to draw fifty million on the credit line for one year, at six per cent, which costs three million.
- Borrowing is nine and a half million cheaper, and the fund interest stays in the portfolio, ready to recover.
- The trap is the forced seller.
- A fund that waits until the cash is gone has only the expensive choice, so the credit line should be arranged in calm weather.

13 A story: the orchard

- A farmer waits years for the first fruit
- The patient investor holds what others avoid
- The reward: a premium over liquid assets
- Paid only to those who can truly wait

IN THE LESSON

- A farmer plants apple trees.
- For the first years there is no fruit, and it would be silly to dig the trees up and sell the wood.
- But the farmer who stays gets apples every autumn for decades, and the fruit sells for more than a market stall's one day tomatoes.
- The reward is for patience.
- Some investors are like that farmer.
- A long horizon fund with steady needs, such as Fernhill, can hold private equity, private credit, real estate and infrastructure, which others avoid because they cannot sell them quickly.
- In return, it expects a premium over a comparable liquid asset.
- It is a reward for waiting, and it is paid only to those who can really wait.

14 The premium, net and after a forced sale

Net premium = gross − fees − public return
Gain to recover = 1 ÷ (1 − discount) − 1

Gross private return	Before fees and carry
Fees and carry	Paid to the fund managers
Public equity return	Comparable liquid asset
Net premium	What waiting really pays
Forced sale discount	Price cut when forced to sell

IN THE LESSON

- Two small formulas keep us honest.
- The net premium is the gross return on the private programme, minus the fees and carried interest paid to the fund managers, minus the return on comparable public equity.
- Fees come first, because they are a real cost and they are certain.
- The second formula is the forced sale.
- If an asset is sold at a discount, the gain needed to get back to where you were is one over one minus the discount, minus one.
- A discount needs a bit more than the same percentage to repair, because the gain is measured on a smaller base.
- Together they ask a single question.
- Is the premium big enough to pay for a bad day?

15 Example 5: how thin the premium is

Private 12.5% gross, fees and carry 3.0%; public equity 7.5%; forced sale 15% off

Net private return	12.5 − 3.0	**9.5%**
Net premium	9.5 − 7.5	**2.0%**
Fees' share of gross premium	3.0 ÷ (12.5 − 7.5)	**60%**
Gain to recover a 15% discount	1 ÷ 0.85 − 1	**17.6%**
Years of premium to repay	1.02^n = 1.176	**about 8.2**

IN THE LESSON

- Let us put numbers on Fernhill's private programme.
- It is expected to earn twelve and a half per cent a year before fees.
- Fees and carried interest take three, leaving nine and a half.
- Public equity is expected to earn seven and a half.
- So the net premium is two per cent a year.
- Look at the fees.
- The gross premium was five points, twelve and a half minus seven and a half, and fees took three of them, which is sixty per cent.
- Now a forced sale at a fifteen per cent discount.
- One divided by point eight five, minus one, is seventeen point six per cent to get back.
- At a premium of two per cent a year, that takes about eight years of reward.
- One bad forced sale can erase most of a decade of patience.

16 Appraisals hide the swings

Chart: Value of a private holding vs Time

- Market value: swings
- Appraised value: smooth

IN THE LESSON

- Now a warning about the data.
- The horizontal axis is time.
- The vertical axis is the value of a private holding.
- The wavy green line is what the holding would fetch if it traded every day.
- It swings widely, up in good times and down in bad.
- The flatter gold line is the appraised value that the fund reports.
- Appraisers lean on old information, so their numbers move slowly and lag behind the market.
- A reader who only sees the gold line would conclude that private assets are calm and unrelated to shares.
- That is false comfort.
- Reported volatility and correlation are too low, and the true risk only shows when someone has to sell.

17 Manager choice can beat the premium

Percentage points a year

Net premium	**2.0**
Vintage gap	**6.0**
Manager gap	**12.0**

Vintages 12% vs 6%; managers 14% vs 2%

IN THE LESSON

- This picture shows where the real differences lie.
- The vertical axis is the gap in percentage points a year.
- The first bar is the net premium we computed, two points.
- The second bar is the vintage gap.
- Fernhill's best start year earned twelve per cent and its worst earned six, so the gap is six points.
- Spreading commitments over several vintage years narrows that.
- The third bar is the manager gap.
- In this example a strong manager earns fourteen per cent and a weak one earns two, a gap of twelve points.
- That is six times the premium itself.
- The premium is worth having, but picking managers carefully, and not putting everything into one year, matters more.

18 Habits that earn the premium

Four habits of the patient investor

Habit	Why it matters
Commit steadily by vintage	No single year decides
Select managers with care	The spread is wide
Keep spare liquidity	No forced sale
Check the fees	They take a share

IN THE LESSON

- So how does a patient investor actually collect the premium?
- Four habits.
- Commit steadily across vintage years, so that no single year's market conditions decide the outcome.
- Select managers with care, because their results vary widely and the spread is often larger than the premium.
- Keep spare liquidity, because the premium goes only to someone who is never forced to sell.
- And check the fees, because they took most of the gross premium in our example.
- Without these habits the premium is a marketing line.
- It is not automatic, and it is not guaranteed to every holder of illiquid assets.
- A fund without the patience, the manager skill or the spare cash to hold through stress may collect none of it.

19 Mistakes to avoid so far

- Judging a desk by cost alone
- Filling fee paying accounts first
- Forgetting the denominator effect
- Assuming illiquidity always pays

IN THE LESSON

- Before the last outcome, a pause for the four classic mistakes.
- First, judging a trading desk by cost alone.
- Missing records or unfair sharing of fills fail a desk however cheap the trades were.
- Second, filling the accounts that pay performance fees first.
- Partial fills are shared pro rata, and errors are put right at the firm's own cost.
- Third, forgetting the denominator effect.
- When public markets fall, the private share rises with no purchase at all, and calls keep coming.
- Fourth, assuming illiquidity pays automatically.
- The premium goes only to investors who commit steadily, choose managers well, watch fees and can hold through stress.
- Keep these four in mind and many exam traps disappear.

20 A story: the ship's survey

- Test one: does it earn enough?
- Test two: can it pay in a storm?
- Test three: is the cargo within limits?
- For each gap, size it and propose a fix

IN THE LESSON

- Before a ship sails, a surveyor asks three questions.
- Is the engine strong enough to reach the port on time?
- Is there enough fuel and water for the voyage, even in a storm?
- And is the cargo loaded within the safe limits?
- Reviewing an endowment's asset allocation is the same survey.
- Imogen Falk asks whether the expected return meets the target at an acceptable risk.
- She asks whether liquid assets cover several years of spending plus capital calls in a stress.
- And she asks whether the illiquid holdings sit inside the policy limits.
- Where a test fails, she does not just report it.
- She sizes the gap and proposes an action to close it.

21 The return target

Required return = (1 + spending) × (1 + inflation) × (1 + costs) − 1

Spending rate	Share paid out each year
Expected inflation	Keeps real value intact
Costs	Management and operating
Required return	Compounded, not added

IN THE LESSON

- The first test needs a target.
- For an endowment the required return is the spending rate, plus expected inflation, plus costs.
- Strictly, you combine them by multiplying.
- One plus the spending rate, times one plus inflation, times one plus costs, minus one.
- Why multiply?
- Because inflation applies to the whole fund, spending included, and costs apply to all of that as well.
- The additive shortcut just adds the three rates, and it understates the target a little.
- Where the curriculum asks for the multiplicative form, as here, use it.
- The target is what keeps the fund's real value intact, so that future beneficiaries receive as much as today's.

22 Example 6: Fernhill's target

Spending 4.5%, inflation 2.5%, costs 0.6%

Additive shortcut	4.5 + 2.5 + 0.6	**7.60%**
Spending and inflation	1.045 × 1.025	**1.0711**
Add costs	1.0711 × 1.006	**1.0776**
Required return	1.0776 − 1	**7.76%**
Shortcut misses by	7.76 − 7.60	**0.16**

IN THE LESSON

- Here is Fernhill's target.
- It spends four and a half per cent of assets a year, expects inflation of two and a half, and costs of point six.
- The additive shortcut gives seven point six.
- Now do it properly.
- One point zero four five times one point zero two five is one point zero seven one one.
- Multiply that by one point zero zero six and we get one point zero seven seven six.
- Subtract one, and the required return is seven point seven six per cent.
- The shortcut missed by sixteen hundredths of a point, which sounds small but compounds over decades.
- Seven point seven six is the number against which every allocation for Fernhill will be judged.

23 Fernhill's allocation

Expected returns are after fees

Holding (weight, return)	Adds
Public equity (40%, 7.5%)	3.00
Private funds (30%, 9.5%)	2.85
Hedge funds (10%, 5.5%)	0.55
Bonds and cash (20%, 3.25%)	0.65

IN THE LESSON

- Now the allocation Imogen Falk is reviewing.
- Public equity is forty per cent of the fund, with an expected return of seven and a half.
- Private funds are thirty per cent, expected to earn nine and a half after fees.
- Hedge funds are ten per cent at five and a half.
- Bonds and cash together are twenty per cent, at an average of three and a quarter.
- The last column is what each holding adds to the portfolio's return, weight times expected return.
- Public equity adds three point oh oh.
- Private funds add two point eight five.
- Hedge funds add point five five.
- Bonds and cash add point six five.
- Adding the contributions gives the portfolio's expected return, which is the number to compare with the target.

24 Example 7: test one, the return gap

Target 7.76% from the last example

Expected return	3.00+2.85+0.55+0.65	**7.05%**
Required return	from Example 6	**7.76%**
Gap	7.05 − 7.76	**−0.71**
Shortfall on 1,000m	0.71% × 1,000m	**7.1m a year**
If nobody acts	real value erodes	**Future pays**

IN THE LESSON

- Add the four contributions: three point oh oh, two point eight five, point five five, and point six five.
- The portfolio is expected to earn seven point oh five per cent.
- The target is seven point seven six.
- The gap is minus point seven one of a percentage point.
- On a one billion fund that is about seven point one million a year of return the fund is not expected to earn.
- Over time that means one of three things.
- The fund shrinks in real terms, spending falls, or the fund takes more risk.
- Notice that only the first one is automatic.
- If nobody acts, the endowment quietly shifts wealth from future beneficiaries to today's.
- That is why a gap has to be measured and named.

25 Example 8: test two, liquidity cover

Policy: cash and bonds cover 3 years of spending plus stressed calls

Yearly need	45 + 40	**85m**
Policy requires	3 × 85	**255m**
Held in cash and bonds	150 + 50	**200m**
Years of cover	200 ÷ 85	**2.35**
Shortfall	255 − 200	**55m**

IN THE LESSON

- Test two is liquidity.
- Fernhill's policy says cash and bonds must cover three years of spending plus stressed capital calls.
- Spending is forty five million a year and stressed calls are forty million, so the yearly need is eighty five million.
- Three years is two hundred and fifty five million.
- Fernhill holds one hundred and fifty in bonds and fifty in cash, two hundred million in total.
- Cover is two hundred divided by eighty five, which is two point three five years against three.
- The shortfall is fifty five million.
- Notice that the test passed in calm markets would not catch this.
- It is the stress, with distributions stopped and calls continuing, that shows how thin the tank is.

26 The scorecard

Fernhill against its three tests

Test: target	Fernhill
Return: 7.76%	7.05% short
Liquidity cover: 3.0 years	2.35 years short
Private share: 33% at most	30%; 41% in stress

IN THE LESSON

- Put the three tests on one scorecard.
- The first row is return.
- The target is seven point seven six per cent, and the allocation is expected to earn seven point oh five.
- It falls short.
- The second row is liquidity cover.
- The policy wants three years and the fund has two point three five.
- It falls short again.
- The third row is the limit on private funds.
- Today they are thirty per cent against a limit of thirty three, so the fund passes, but with little headroom.
- In the stress we saw that they reach forty one per cent.
- So this row passes in calm weather and is tight in stress.
- Two gaps and one weak spot.
- Now the question is what to do.

27 Remedies and what each one costs

Match each gap to a remedy and its price

Remedy	Cost or trade-off
Slow new commitments	Less premium later
Raise liquid reserves	Lower expected return
Arrange a credit line	A fee; may be withdrawn
Smoothed spending rule	Pays less today

IN THE LESSON

- Every remedy is a trade between return, liquidity and fairness.
- Slowing the pace of new commitments reduces future calls and stops the private share creeping up, but the fund holds less private equity later, so it gives up some of the premium.
- Raising liquid reserves, by moving money from public equity into bonds, fixes the cover, but it lowers the expected return and widens the first gap.
- A credit line gives cover without selling anything, at the cost of a fee.
- A smoothed spending rule closes the return gap by paying out a little less when the fund is stressed.
- That is fairer to future beneficiaries and tougher on today's.
- Each option should be priced before it is recommended.

28 Example 9: pricing the remedies

Cover shortfall 55m; fee 0.4% a year; public equity 7.5%, bonds 3.5%

Credit line fee	0.4% × 55m	**0.22m a year**
Moving equity to bonds	55m × (7.5 − 3.5)%	**2.2m a year**
Credit line cost vs moving	0.22 ÷ 2.2	**10%**
Target, spending 4.5% to 4.2%	1.042×1.025×1.006 − 1	**7.45%**
Gap left	7.05 − 7.45	**−0.40**

IN THE LESSON

- Let us price two ways to close the fifty five million cover shortfall, and one way to close part of the return gap.
- Moving fifty five million from public equity at seven and a half to bonds at three and a half costs four points on fifty five million, which is two point two million a year in expected return, and it makes the return gap bigger.
- A credit line of fifty five million, with a commitment fee of point four per cent, costs about point two two million a year, one tenth as much.
- Now the return.
- Cutting spending from four and a half to four point two per cent lowers the target to seven point four five.
- The gap narrows to minus point four oh, but does not close.

29 How the spending rate moves the target

Chart: Required return (%, 6 to 8.5) vs Spending rate (% a year, 3 to 5)

- Required return
- Expected 7.05
- Today: 4.5% needs 7.76
- Break-even about 3.8%

IN THE LESSON

- Here is the trade-off as a picture.
- The horizontal axis is the spending rate, from three to five per cent a year.
- The vertical axis is the required return, from six to eight and a half per cent.
- The rising line is the target, because paying out more means the fund must earn more.
- At four and a half per cent, Fernhill's current rate, the line sits at seven point seven six.
- The flat line is what the allocation is expected to earn, seven point oh five.
- Where the lines cross, at about three point eight per cent, spending and earning are in balance.
- Every point to the right of that crossing is a gap, paid for by the future.

30 The recommendation for Fernhill

- Arrange a 55m credit line now
- Pace commitments: private funds at or under 30%
- Smoothed spending, toward 4.2%
- Say plainly that a 0.40 gap remains

IN THE LESSON

- Here is the recommendation Imogen Falk takes to the trustees.
- First, arrange a fifty five million credit line now, in calm weather.
- It closes the cover shortfall at about a tenth of the cost of holding more bonds.
- Second, pace new private commitments so that private funds stay at or below thirty per cent, which keeps the stress case under control.
- Third, move to a smoothed spending rule that brings spending toward four point two per cent.
- That narrows the return gap to point four oh.
- Fourth, tell the trustees plainly that a gap remains, and that closing it means either more risk or lower spending.
- The trade-off is between today's beneficiaries and tomorrow's, and the board should decide it knowingly.

31 Recap: the lesson in five lines

- Governance: written policy, pro rata, records
- Liquidity: tiers, forecasts, stress, credit line
- Premium: thin; needs patience and good managers
- Required return: multiply, do not add
- Size each gap; weigh today against tomorrow

IN THE LESSON

- Let us pull the lesson together.
- First, good trading governance means a written policy, fair pro rata sharing of fills, disclosed conflicts, errors fixed at the firm's cost and full records.
- Best execution is a process, not the lowest commission.
- Second, liquidity tools are tiers, forecasts, a liquid floor, stress tests, credit lines, overlays, secondary sales and slower commitments.
- Watch the denominator effect.
- Third, the illiquidity premium is real but thin, so it is earned by steady vintages, careful managers, low fees and spare liquidity.
- Fourth, analyse an allocation against the required return, the cash cover and the limits.
- Fifth, size each gap and weigh return, liquidity and fairness between generations.

32 Try three quick questions

1. Order: X 6,000, Y 10,000. Fill 8,000. Pro rata for X?
   Answer: Fill rate 50%, so X gets 3,000 shares.
2. Private 10% gross, fees 3%, public equity 6%. Net premium?
   Answer: 10 − 3 − 6 = 1% a year.
3. Spending 4%, inflation 2%, costs 0.5%. Required return?
   Answer: 1.04 × 1.02 × 1.005 − 1 = 6.61%, not the additive 6.5%.

IN THE LESSON

- Now try three quick questions yourself.
- Pause after each one.
- Question one.
- A block order is placed for two accounts, six thousand for X and ten thousand for Y.
- Only eight thousand are filled.
- How many go to X under pro rata?
- The fill rate is one half, and one half of six thousand is three thousand.
- Question two.
- A private programme earns ten per cent gross, fees are three, and public equity earns six.
- What is the net premium?
- Ten minus three minus six is one per cent.
- Question three.
- Spending is four per cent, inflation two, costs half a point.
- What is the required return?
- One point oh four times one point oh two times one point oh oh five, minus one, is about six point six one per cent, which is more than the additive shortcut would give.