Managers, overlays and responsible investing

Portfolio Management

1 A story: choosing a builder

- Three builders want the same big job
- Gifts, family ties and glossy brochures all appear
- Harrowgate will hand a manager 150m to invest
- The process must be fair, not only the outcome

IN THE LESSON

- Imagine you are about to spend a great deal of someone else's money on a new roof.
- Three builders want the job.
- One sends you a gift basket.
- Another turns out to be your cousin's firm.
- A third shows you a glossy brochure with only the best jobs in it.
- None of this proves anything is wrong, but you would want to be careful.
- Imogen Okoye is in the same position.
- Harrowgate plans to give one hundred and fifty million dollars to a new private equity manager, and the finalists know it.
- Her staff are choosing for the beneficiaries, not for themselves, so the way the choice is made matters as much as the result.

2 Standards along a manager search

From offers to a decision

Offers: I(B) → Relationships: VI(A) → Due diligence: V(A)

Then

Committee: I(C) → Duty to beneficiaries: III(A)

IN THE LESSON

- Here are the stages of a search, with the Standard that matters most at each.
- Read the top row first.
- Offers of gifts, travel and entertainment come early, and that is Standard one B, Independence and Objectivity.
- Modest items can be taken, but anything that could reasonably be expected to compromise judgement must be declined.
- Next come relationships, such as a family tie to a firm.
- That is Standard six A, Disclosure of Conflicts, which means disclosing the relationship.
- Then the due diligence, Standard five A, which asks for a reasonable basis.
- On the bottom row, Standard one C, Misrepresentation, covers how results reach the committee, and Standard three A, Loyalty, Prudence and Care, sits over the whole search as the duty to the beneficiaries.

3 Harrowgate's search: what each case needs

Four cases from the search, and the response

Case	Response
Paid golf weekend from a finalist	Decline; employer pays costs
Brother-in-law at a finalist	Disclose; ideally step back
Rushed visit, no references	Full due diligence
Before fees against after fees	Compare like with like

IN THE LESSON

- Now let us apply this to Harrowgate.
- A finalist invites staff member Ruth Pemberton on an all expenses paid golf weekend.
- The right answer is to decline the offer, because a weekend like that could reasonably be expected to compromise her independence.
- If the event is worth attending, her own employer pays her costs, never the finalist.
- Her brother in law is a partner at another finalist.
- The Standards require her to disclose that, and good practice is to put it in writing and step back from judging that firm.
- A rushed visit with no reference checks fails the reasonable basis test.
- And a comparison that sets one manager's returns before fees against another's after fees must be put right.
- Here are the four cases.

4 Example 1: what the mandate is worth

Mandate: 10% of a 1,500m fund; fee 0.80%; weekend 6,000

Mandate size	10% × 1,500m	**150m**
Fee income a year	150m × 0.80%	**1.2m**
Fees over five years	1.2m × 5	**6.0m**
Weekend as share of one year	6,000 ÷ 1.2m	**0.5%**
Verdict	cheap for them, risky for us	**Decline**

IN THE LESSON

- Why would a firm pay for a golf weekend?
- Because of what the mandate is worth.
- Harrowgate would give the winning firm ten per cent of its fifteen hundred million dollars, which is one hundred and fifty million.
- At a fee of point eight per cent, that is one point two million dollars a year, and six million over five years.
- The weekend costs the firm six thousand dollars, which is only half of one per cent of a single year's fee.
- Notice what that tells us.
- To the firm, the gift is cheap against the prize.
- To Ruth, it may feel harmless.
- But that is exactly why the offer is made, and why a gift that could sway judgement must be declined.

5 Example 2: presenting results fairly

Finalist X (gross 9.4%, fee 0.90%) against Y (net 8.7%)

X as pitched, before fees		**9.4%**
X after its fee	9.4 − 0.90	**8.5%**
Y after fees		**8.7%**
Misleading gap	9.4 − 8.7	**+0.7**
Fair gap, both after fees	8.5 − 8.7	**−0.2**

IN THE LESSON

- The second example is about Standard one C.
- Finalist X shows Imogen's committee a gross return of nine point four per cent.
- Its fee is point nine per cent, so after fees it earned eight point five.
- Finalist Y reports eight point seven per cent, already after fees.
- If the committee sees nine point four beside eight point seven, X seems to lead by point seven of a point.
- That is a misleading picture.
- On a like for like basis, X trails Y by point two.
- Whoever prepares the committee papers should show both managers on the same footing, and say how the figures were calculated.
- Presenting them side by side as they stand risks a misrepresentation under that Standard.

6 The trap: it was decided on merit

- The test is the effect on judgement, not the result
- Decline gifts that could sway; accept only modest items
- Disclose ties; ideally step back
- Keep a record of the checks made

IN THE LESSON

- There is one excuse that the Standards do not accept.
- Someone says, I took the weekend, but I chose the manager on merit.
- The Standards do not ask whether the right firm won in the end.
- They ask whether the gift could reasonably be expected to compromise independence and objectivity, and whether anyone looking at the process could trust it.
- So the safe path is to decline, to disclose relationships and ideally put them in writing, to let the committee decide with the facts, and to keep a record of the checks.
- A good manager will not mind.
- And if the committee knows about a tie, it can protect itself.
- Hiding it removes that protection from the beneficiaries.

7 A story: two doors to one room

- Cash market: buy or sell the real assets
- Derivatives: same exposure, holdings untouched
- Side door is quick and cheap, but it has a rent
- Choose by how long the change should last

IN THE LESSON

- Think of a house with two doors into the same room.
- The front door is the cash market.
- You walk through it by buying or selling the actual shares or bonds.
- It is solid and permanent, but you pay a toll each time, the stairs are slow, and a crowd can block you.
- The side door is the derivatives market.
- A futures contract, a forward, a swap or an option gives you the same exposure to the room without moving any furniture.
- It is quick and cheap, and the holdings stay where they are.
- But somebody expects a deposit every day, and the door has to be repainted at every expiry.
- Imogen Okoye must choose which door to use.

8 Derivatives against cash trades

Two routes to the same exposure

Feature	Derivatives or cash
Speed and trading cost	Derivatives: low
Disturbs holdings, taxes	Cash: yes
Roll, basis, margin, counterparty	Derivatives: yes
Spread, impact, delay	Cash: yes

IN THE LESSON

- Here is the comparison on one page.
- Derivatives change exposure quickly and cheaply, they need little cash up front, and they leave the holdings alone.
- That matters when assets are illiquid, run by outside managers, or would trigger taxes if sold.
- The costs are the roll at every expiry, basis risk when the contract does not track the exposure exactly, margin and collateral that must be paid in cash, counterparty risk on contracts traded privately, and hidden leverage.
- Cash trades are simple and permanent, with no roll or basis problem.
- Their costs are spreads, market impact, taxes, and delay when the assets are hard to sell.
- Neither side wins every time.

9 Example 3: cutting equities for six months

Cut 100m of equity for six months; costs are each way

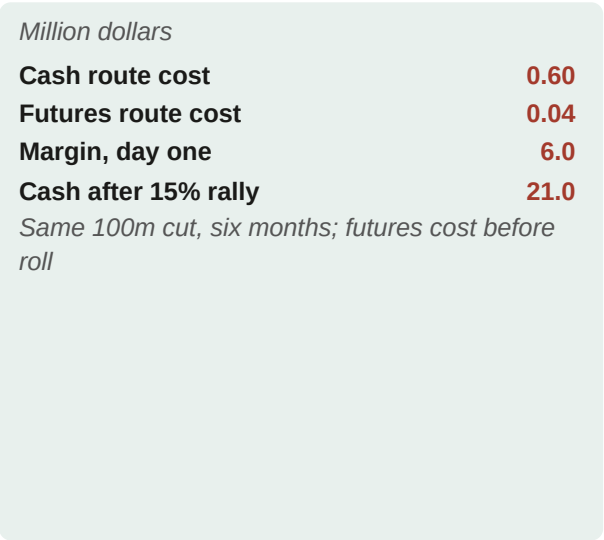
Cash route cost	100m × 0.30% × 2	**600,000**
Futures route cost	100m × 0.02% × 2	**40,000**
Saving before roll and basis	600,000 − 40,000	**560,000**
Initial margin	100m × 6%	**6m**
Margin call if equities rally 15%	100m × 15%	**15m**

IN THE LESSON

- Let us put numbers on it.
- Imogen wants to cut Harrowgate's public equity by one hundred million dollars for about six months, then restore it.
- Selling the shares and buying them back would cost point three per cent each way, so six hundred thousand dollars.
- Selling index futures would cost point oh two per cent each way, so forty thousand.
- The saving is five hundred and sixty thousand.
- But the futures need initial margin of six per cent, six million dollars, on the first day.
- And if equities rally fifteen per cent, the short position loses fifteen million, paid in cash as variation margin.
- The cost saving is real, and so is the cash call.

10 Cheap to trade, hungry for cash

Million dollars



Cash route cost	**0.60**
Futures route cost	**0.04**
Margin, day one	**6.0**
Cash after 15% rally	**21.0**

Same 100m cut, six months; futures cost before roll

IN THE LESSON

- This picture shows the two sides of the same trade.
- The vertical axis is millions of dollars.
- The first two bars are the trading costs.
- The cash route costs point six million, the futures route only point oh four, so the second bar is almost too small to see.
- That is the benefit.
- Now look at the third bar.
- It is the six million dollars of initial margin, locked up on day one.
- The fourth bar is the cash needed after a fifteen per cent rally, six plus fifteen, twenty one million.
- The tiny cost bar and the tall cash bar belong to the same trade.
- A manager who looks only at the first has forgotten about the second.

11 Example 4: how long should the change last?

Roll 0.04% (40,000) every three months; cash 0.30% one way

Six months by futures	20,000 × 2 + 40,000	**80,000**
Six months by cash	round trip	**600,000**
Permanent change by cash	100m × 0.30%, once	**300,000**
Break-even length	(300,000 − 20,000) ÷ 160,000	**1.75 years**
Verdict	short: futures; lasting: cash	**Match the term**

IN THE LESSON

- How long the change lasts decides the winner.
- Suppose the futures are rolled every three months at a cost of point oh four per cent, forty thousand dollars a time.
- For the six month cut, the futures cost twenty thousand to enter, twenty thousand to leave and one roll, eighty thousand in all, still well below six hundred thousand for the round trip in cash.
- Now suppose the change is meant to be permanent.
- Selling the shares once costs three hundred thousand.
- The futures cost twenty thousand to enter and one hundred and sixty thousand a year in rolls.
- Setting those equal gives a break even of one point seven five years.
- Beyond that, the cash trade is cheaper.

12 What can go wrong with the derivative route

- Basis risk: the contract may not track the exposure
- Collateral: margin calls arrive when cash is scarce
- Counterparty risk on privately traded contracts
- Leverage hides inside a small deposit

IN THE LESSON

- Four risks sit behind the cheap price.
- The first is basis risk.
- The contract may not track the exposure exactly, so the hedge or the tilt leaks.
- The second is collateral.
- Margin and variation margin are paid in cash, and a crisis is when cash is hardest to find.
- In the worst case an overlay forces the sale of other assets at poor prices.
- The third is counterparty risk on swaps and forwards traded privately.
- The fourth is hidden leverage, since a small deposit controls a large exposure, so the total exposure must be watched, not just the cash.
- Imogen needs a written plan for each of the four before she uses the side door.

13 Which door for which case

If the investor's problem is ..., then use ...

If the problem is ...	Then use ...
Tilt for a few months	Futures, hold cash
Lasting policy change	Cash trades
Illiquid or outside managers	Overlay
Large gains, tax on sale	Futures or swaps

IN THE LESSON

- To finish this outcome, here is a quick guide, written as if the investor has this problem, then use this tool.
- A temporary tilt of a few months, such as the cut we just priced: futures, with cash held for margin.
- A lasting change to the strategic policy: cash trades, because there is no roll or basis and the one off cost is soon repaid.
- Illiquid holdings or outside managers the fund does not want to disturb: an overlay.
- Large unrealised gains that would trigger tax if sold: futures or swaps.
- Those are the four cases to remember.

14 A story: a thin layer on top

- Physical holdings are the cake
- Futures are a thin layer of icing on top
- Job one: shift 5% of the fund between asset classes
- Job two: quick rebalancing to policy weights

IN THE LESSON

- Picture a cake with a thin sheet of icing.
- The cake is the physical portfolio: the shares, bonds and private funds that outside managers look after.
- The icing is the overlay: a layer of futures run by Imogen Okoye's own team, which changes the taste of the cake without touching what lies underneath.
- An overlay can do two jobs.
- It can implement a tactical shift, such as moving five per cent of the fund from bonds to equities for a while because she expects equities to do better.
- And it can rebalance, bringing the fund back to its policy weights quickly after a market move.
- Both jobs need arithmetic, and a plan for the cash.

15 Sizing the overlay

Equity futures = ((βtarget − βcurrent) ÷ βfutures) × (V ÷ contract)
Bond futures = BPV gap ÷ BPV per contract

Beta gap	Target beta less current beta
Futures beta	Beta of the futures contract
Value ÷ contract value	Money moved ÷ one contract
Basis point value gap	Value of a basis point to change
Value per futures contract	Taken from the futures contract

IN THE LESSON

- There are two parts to the sizing.
- For the equity leg, the number of contracts is the gap between the target beta and the current beta of the money being moved, divided by the beta of the futures, then multiplied by the amount of money divided by the value of one contract.
- When we move money from bonds, where the equity beta is nought, to equities at a target beta of one, the gap is one.
- For the bond leg, we match basis point value, not the amount of money.
- Bond futures follow a particular bond, whose duration differs from the portfolio's.
- So we divide the basis point value to be changed by the value of one basis point on a single futures contract.

16 Example 5: moving five per cent to equities

Move 75m, bonds (duration 6) to equities; contract 250,000; BPV 80

Amount to move	5% × 1,500m	**75m**
Equity futures bought	(1 ÷ 1) × 75m ÷ 250,000	**300**
Bond BPV to remove	75m × 6 × 0.0001	**45,000**
Bond futures sold	45,000 ÷ 80 = 562.5	**563**
Margin on the equity leg	5% × 75m	**3.75m**

IN THE LESSON

- Now size Harrowgate's overlay.
- Imogen moves five per cent of fifteen hundred million, which is seventy five million dollars, from bonds to equities.
- An equity index future has a contract value of two hundred and fifty thousand dollars and a beta of one.
- The beta gap is one over one, so the equity leg is seventy five million over two hundred and fifty thousand, three hundred contracts bought.
- The bonds being left have a modified duration of six, so their basis point value is seventy five million times six times point oh oh oh one, forty five thousand dollars.
- Each bond future is worth eighty.
- Forty five thousand over eighty is five hundred and sixty two point five, so she sells five hundred and sixty three.
- The equity leg also needs margin of five per cent, three point seven five million dollars.

17 An overlay, step by step

Set up the overlay

Measure the gap → Size the legs → Post the margin

Keep it running

Roll at expiry → Review and unwind

IN THE LESSON

- The calculation sits inside a process, so here is the sequence.
- Read the top row first.
- Imogen measures the gap between the effective exposure and the target.
- Then she sizes the equity and bond legs, as in the last example.
- Then she posts the margin, using cash set aside before the trade, not cash begged on the day.
- On the bottom row, she rolls both legs at every expiry, and then she reviews.
- The overlay is never finished at the moment of the trade.
- It carries on until it is removed or becomes physical.
- At that point the physical rebalance happens, perhaps through the managers' own cash flows, and the futures are closed.

18 Effective weights move, holdings do not

Share of fund (%)

Equity: held	**50%**
Equity: effective	**55%**
Bonds: held	**30%**
Bonds: effective	**25%**

5% (75m) moves; other holdings stay at 20%

IN THE LESSON

- Here is the result as a picture.
- The vertical axis is the share of the fund, in per cent, and the starting weights are made up for the illustration: fifty per cent in equities, thirty in bonds and twenty in other holdings.
- The first pair of bars is the equities.
- Physically, Harrowgate still holds fifty.
- With the futures, its effective exposure is fifty five.
- The second pair is the bonds.
- Physically still thirty, but effective exposure is now twenty five.
- Five per cent has moved, seventy five million dollars of exposure, and not one share or bond was sold.
- The other holdings, at twenty, are not shown, and are untouched by the overlay.

19 Example 6: rebalancing with a corridor

Policy 50/30/20, corridor ±3; drifted to 56/24/20

Equity excess over policy	(56% − 50%) × 1,500m	**90m**
Equity futures sold	90m ÷ 250,000	**360**
Bond BPV to add	90m × 6 × 0.0001	**54,000**
Bond futures bought	54,000 ÷ 80	**675**
Verdict	on policy in a day	**Rebalanced**

IN THE LESSON

- Now the second job.
- Harrowgate's policy says fifty per cent equities, thirty bonds and twenty other, with a corridor of three points either side.
- After a strong year, equities have drifted to fifty six per cent and bonds have slipped to twenty four.
- That breaches the corridor, since fifty six is more than three points above fifty.
- The excess is six per cent of fifteen hundred million, ninety million dollars.
- Selling ninety million over two hundred and fifty thousand gives three hundred and sixty equity futures sold.
- Buying the same amount of bond exposure takes ninety million times six times point oh oh oh one, fifty four thousand, over eighty, six hundred and seventy five bond futures bought.
- The fund is back on policy within a day, with no sales of private holdings.

20 Example 7: the cash the overlay needs

Tilt of 75m; equities fall 20%; cash buffer 40m

Initial margin, equity leg	5% × 75m	**3.75m**
Loss if equities fall 20%	20% × 75m	**15m**
Cash call in total	3.75m + 15m	**18.75m**
Cash buffer set aside	illustrative	**40m**
Buffer ÷ cash call	40 ÷ 18.75	**2.1 times**

IN THE LESSON

- The trap with overlays is forgetting the cash.
- Go back to the tactical shift of seventy five million dollars.
- The equity leg needs initial margin of five per cent, three point seven five million.
- Now suppose equities fall twenty per cent.
- The long futures lose twenty per cent of seventy five million, fifteen million, and that is paid in cash at once.
- The total cash call is eighteen point seven five million dollars.
- Harrowgate sets aside a buffer of forty million in cash and short term bills, which covers the call about two point one times.
- If the buffer were smaller than the call, Imogen would have to sell other assets at the worst moment.
- The bond leg could also call for cash, if yields fall.

21 Mistakes to avoid so far

- Excusing a gift because the choice was on merit
- Comparing results before fees with results after fees
- Counting trade cost but not margin calls
- Using futures for a lasting change; ignoring the break-even
- Bond futures sized by money; no overlay cash buffer

IN THE LESSON

- Let us stop and collect the mistakes so far.
- First, excusing a gift because the decision was made on merit.
- Second, comparing one manager before fees with another after fees.
- Third, looking only at the trading cost of futures and forgetting margin, which is a cash need.
- Fourth, using futures for a lasting change, where the rolls add up and the cash trade wins after the break even point.
- Fifth, sizing the bond leg by money instead of basis point value, and running an overlay with no cash buffer, which can force sales of other assets in a crisis.
- Each of these is a slip that careful people still make.

22 A story: the owner who stays

- A long-horizon owner cannot easily leave the system
- Climate and systemic risks cannot be diversified away
- Stakeholders expect investing to fit the mission
- ESG factors are the way both enter the portfolio

IN THE LESSON

- A person owns a house for a time and can move away if the neighbourhood goes bad.
- A university endowment may need to last for centuries, and it owns a small slice of almost every part of the economy.
- If the climate, the financial system or the law changes for the worse, the endowment cannot diversify its way out, because it is exposed to the whole system.
- Its students, staff and donors also care how it invests.
- Environmental, social and governance factors, called ESG, are how both concerns enter the portfolio.
- Imogen Okoye hears two things from the Harrowgate board: protect the long term, and be able to explain how we invest.

23 Ways to apply ESG, from selling to staying

- Exclusion
- Best in class
- Integration
- Thematic, impact
- Active ownership

IN THE LESSON

- Here are five common approaches on one line.
- On the far left is the exclusionary screen: the fund simply does not hold certain companies, such as tobacco makers.
- Next is best in class, which keeps the leaders on ESG measures within each sector.
- In the middle is integration, which uses ESG factors alongside the usual analysis of a security's risk and return.
- Then comes thematic or impact investing, which targets a theme such as clean energy or a measurable social result.
- On the far right is active ownership, where the fund stays invested and uses its votes and conversations to push companies to change.
- Which is best depends on what the fund wants to achieve.

24 What each approach does

Four of the approaches and what each does

Approach	What it does
Exclusionary screen	Removes whole groups of firms
Integration	ESG as risk and return data
Thematic or impact	Targets a theme or result
Active ownership	Votes and engages

IN THE LESSON

- This table spells out what each approach does for the portfolio.
- Exclusion removes companies on values or risk grounds, which is simple but narrows the opportunity set.
- Integration treats ESG as information about risk and return, in the same way as debt levels.
- Thematic and impact investing aim at a theme or a measurable result, sometimes accepting a different risk profile.
- Active ownership uses voting and engagement.
- The fund keeps its seat at the table, though results can be slow.
- A fund also asks its outside managers how they apply ESG, when selecting and monitoring them.

25 Example 8: divest or engage?

6% energy at 600; 4% utilities at 900; 90% others at 60

Today	6%×600 + 4%×900 + 90%×60	**126**
Sell the energy producers	4%×900 + 96%×60	**93.6 (−26%)**
Real emissions after selling	same companies, new owner	**Unchanged**
Engage; utilities cut by a third	6%×600 + 4%×600 + 90%×60	**114 (−10%)**
Decide by the objective	risk, values or impact	**Their interests**

IN THE LESSON

- A board member says, let us sell the dirty companies.
- Imogen tests it with the measure of carbon intensity, in tonnes of carbon dioxide per million dollars of revenue, averaged by portfolio weight.
- Harrowgate holds six per cent in energy producers at six hundred, four per cent in utilities at nine hundred, and ninety per cent in other holdings at sixty.
- That averages one hundred and twenty six.
- If it sells the energy producers and moves the money into other holdings, the average falls to ninety three point six, down twenty six per cent on paper.
- But the shares now belong to someone else, and the real emissions have not changed.
- If instead it engages and the utilities cut their intensity by a third, the average is one hundred and fourteen, down about ten per cent, and the companies themselves emit less.

26 Divest or engage

Tonnes of CO_2 per $1m revenue

Today	**126**
Sell energy	**93.6**
Engage utilities	**114**

Illustrative portfolio

IN THE LESSON

- Here are the three results side by side.
- The vertical axis is the weighted average carbon intensity, in tonnes per million dollars of revenue.
- The first bar is Harrowgate today, one hundred and twenty six.
- The middle bar is the portfolio after selling the energy producers, ninety three point six, the lowest bar, and the one that looks best in a report.
- The third bar is after successful engagement, one hundred and fourteen, a smaller fall.
- The difference is what lies behind each bar.
- The middle one changes what the fund owns and nothing else.
- The right one changes the companies.
- If the aim is a clean looking report, sell.
- If the aim is a cleaner economy, the fund needs to stay.

27 Example 9: two ratings, one company

Northvale Foods, two providers, scores out of 100

Provider A score		**78**
Provider B score		**44**
Gap between providers	78 − 44	**34**
Average hides the split	(78 + 44) ÷ 2	**61**
Response	ask what each measures	**Check the method**

IN THE LESSON

- Measuring ESG is harder than it sounds, because rating providers often disagree.
- Suppose Provider A scores a listed company, Northvale Foods, seventy eight out of one hundred, while Provider B scores it forty four.
- The gap is thirty four points.
- The average, sixty one, hides the fact that one provider counts its supply chain practices heavily and the other barely counts them.
- A committee that picks one number has simply chosen a provider.
- Imogen's response is to ask what each score measures, to use the underlying disclosed data where it can, and to write down in advance which measure will judge success.
- The same questions apply when she reviews a manager's ESG claims.

28 Fiduciary duty and a recommendation

- State the objective first: risk, values or impact
- Justify each choice by the beneficiaries' interests
- Integrate and engage; exclude only where needed
- Ask managers how they apply ESG; agree the measure

IN THE LESSON

- To close this outcome, here is the recommendation Imogen could defend.
- First, state the objective before the tool: is the aim better risk and return, expressing the institution's values, or changing the world?
- Second, justify each choice by the beneficiaries' interests, which is the fiduciary test.
- Third, keep the toolkit wide.
- Integrate ESG into analysis, engage the holdings it can, and use exclusions only where a firm is truly out of line with the mission.
- Fourth, ask the outside managers how they apply ESG when she hires them and as she monitors them, and agree how success will be measured.
- What could go wrong is a narrow opportunity set from heavy exclusion, and ratings that disagree.

29 Recap: the lesson in five lines

- Conduct: decline, disclose, check, compare fairly
- Derivatives: cheap and quick, but margin, roll and basis
- Overlay: beta for equity legs, basis point value for bonds
- Keep a cash buffer; the overlay can call for cash
- ESG: objective first; divest or engage on purpose

IN THE LESSON

- Let us pull the lesson together.
- First, the people who choose managers must decline gifts that could sway them, disclose ties in writing, carry out proper due diligence and show results fairly.
- Second, derivatives are quick and cheap for changing exposure, but they bring margin, roll and basis risk, so match the tool to how long the change should last.
- Third, an overlay of futures shifts exposure without trading the holdings, sized by beta for equities and by basis point value for bonds.
- Fourth, the overlay needs a cash buffer, whether it is used for a tilt or a rebalance.
- Fifth, ESG offers several tools, and the objective, not habit, should choose between selling and engaging.

30 Try three quick questions

1. May an analyst take a free weekend if the choice is made on merit?
   Answer: No. Test: could it sway judgement? Decline or pay own way.
2. Move 40m, bonds duration 5, to equities (contract 250,000; BPV 80). Contracts?
   Answer: 40m ÷ 250,000 = 160 equity; 40m × 5 × 0.0001 = 20,000; ÷ 80 = 250 bond.
3. 10% at 500, 90% at 50. Sell the 10% into 50s. New average?
   Answer: Before 0.1×500 + 0.9×50 = 95; after 50. Emissions unchanged.

IN THE LESSON

- Now try three quick questions yourself.
- Pause after each one.
- Question one.
- A finalist offers your analyst a free weekend away, and the analyst says the choice will be made on merit anyway.
- May the analyst accept?
- No.
- The test is whether the gift could sway judgement, not whether the result was fair.
- Decline it.
- Question two.
- Move forty million dollars from bonds of duration five to equities.
- Equity contracts are worth two hundred and fifty thousand dollars, bond futures eighty dollars per basis point.
- How many?
- Forty million over two hundred and fifty thousand is one hundred and sixty equity futures bought.
- The bond value of a basis point is twenty thousand dollars, so twenty thousand over eighty gives two hundred and fifty bond futures sold.
- Question three.
- Ten per cent of a portfolio sits in firms at five hundred, and ninety per cent in firms at fifty.
- Sell the ten per cent into the fifty ones.
- The average falls from ninety five to fifty, though the firms are the same.