Alternatives programmes and private wealth

Portfolio Construction

1 A story: the soup

- Soup: copy a neighbour, follow a rule, or taste as you go
- Rowan Hill College: 1,000m endowment, how much to hold?
- Ladder: hold none, rules of thumb, then models
- Models: optimiser, simulation, risk factors

IN THE LESSON

- How much salt goes into the soup?
- You could copy your neighbour's recipe.
- You could follow a rule, a pinch for each person.
- Or you could taste, stir and taste again.
- Kavya Rao faces the same choice for the trustees of Rowan Hill College.
- The endowment holds one thousand million, and the board asks one question: how much should go into alternatives, such as private equity, private credit, real assets and hedge funds?
- The simplest answer is none at all.
- Some investors are too small, too thinly governed, or in need of too much cash.
- Next come rules of thumb, then models: an optimiser, a simulation, a risk factor view.
- Each answers a different question, and each can be fooled.

2 Example 1: copying the peers

Rowan Hill: 1,000m endowment; peers hold 20% in alternatives

Peer average in alternatives	20% × 1,000m	**200m**
Board limit on hard-to-sell	12% × 1,000m	**120m**
Peer rule overshoots by	200m − 120m	**80m**
Yearly spending to fund	5% × 1,000m	**50m**

IN THE LESSON

- Start at the simple end.
- The trustees look at their peers, and the peer average is twenty per cent in alternatives.
- Copying that gives twenty per cent of one thousand million, which is two hundred million.
- But the college's own board has set a limit of twelve per cent on assets that are hard to sell.
- That is one hundred and twenty million.
- So the peer rule overshoots by eighty million.
- There is a second problem.
- The college pays out five per cent of its assets each year, fifty million in cash, and that has to come from something liquid.
- Copying peers is easy, but it ignores the investor's own circumstances.

3 Example 2: the optimiser's inputs

Cash 3%; listed 8%, vol 16%; PE 11%, vol 10% (25% unsmoothed)

Listed equity, Sharpe ratio	(8 − 3) ÷ 16	**0.31**
PE as reported	(11 − 3) ÷ 10	**0.80**
PE unsmoothed	(11 − 3) ÷ 25	**0.32**
Reported against listed	0.80 ÷ 0.31	**2.6 times**

IN THE LESSON

- Now the optimiser.
- Mean-variance optimisation seeks the most return for the risk, and it can include alternatives, but only if its inputs are honest.
- Here are Kavya Rao's inputs.
- Cash returns three per cent.
- Listed equity returns eight per cent, with sixteen per cent volatility.
- Private equity returns eleven per cent, and its reported volatility is ten per cent, because private funds are valued by appraisal, and appraisals move gently.
- Use the Sharpe ratio: return above cash, divided by volatility.
- Listed equity scores point three one.
- Private equity as reported scores point eight zero, which is two point six times better.
- After unsmoothing, the volatility of private equity is twenty five per cent, and its score falls to point three two.
- The advantage was an illusion.

4 Same fund, corrected input

Sharpe ratio

Listed equity	**0.31**
PE reported	**0.80**
PE unsmoothed	**0.32**

PE is private equity, return 11% in both bars

IN THE LESSON

- Here are the three scores as bars.
- The vertical axis is the Sharpe ratio, the reward for each unit of risk.
- The first bar is listed equity at point three one, the college's benchmark.
- The second bar is private equity as the data arrives, point eight zero.
- An optimiser fed those numbers would buy as much as its limits allow.
- The third bar is private equity once its volatility has been unsmoothed, point three two, almost level with listed equity.
- Nothing about the funds changed between the second and third bars.
- Only the input was corrected.
- The honest comparison is between the first and third bars, and it shows no free lunch.

5 Fixes before the optimiser

Adjustments before private data goes in

Adjustment	Effect
Unsmooth the returns	Raises risk
Allow for illiquidity	Lowers return
Cap the weight	Limits the bet
Add a factor view	Shows overlap

IN THE LESSON

- So what has to change before private assets go into an optimiser?
- Four things, and the table lists them.
- First, unsmooth the returns, which raises the measured risk.
- Second, allow for illiquidity, by lowering the expected return or adding a cost, because a private fund cannot be sold or rebalanced like a listed one.
- Third, cap the weight, so the optimiser cannot put most of the portfolio into the one asset whose risk is still understated.
- Fourth, add a risk factor view, which looks through asset labels to the underlying drivers of return, such as equity risk.
- Without these fixes, the optimiser overweights whatever has the most understated risk.

6 How a Monte Carlo simulation works

Monte Carlo for Rowan Hill

Model many paths → Check each path → Share that succeed

IN THE LESSON

- Simulation answers a different question.
- The optimiser gives one answer, built from averages.
- Monte Carlo simulation replays the future thousands of times.
- The first box is the model: how each asset might return, with fat tails if that is more realistic, which means extreme outcomes happen more often than a bell curve says.
- It also holds the college's spending and, for the private funds, the calls and payouts.
- The second box checks each path.
- In one path the college reaches its goal.
- In another, a bad early stretch leaves it short.
- The third box counts the share of paths that succeed.
- That share is the probability of meeting the goal.
- That suits alternatives well.

7 Example 3: how big should it be?

Goal: pay 5% a year and still hold 1,000m after 20 years

Alternatives at 5%	7,600 of 10,000 paths	**76%**
Alternatives at 15%	8,200 of 10,000 paths	**82%**
Alternatives at 30%	7,300 of 10,000 paths	**73%**
Gain, 5% to 15%	82 − 76	**6 points**

IN THE LESSON

- Here is a simulation for Rowan Hill.
- The goal is to pay five per cent a year and still hold one thousand million after twenty years.
- Kavya Rao runs ten thousand paths for three sizes of alternatives.
- At five per cent, seven thousand six hundred paths succeed, seventy six per cent.
- At fifteen per cent, eight thousand two hundred succeed, eighty two per cent.
- At thirty per cent, only seven thousand three hundred succeed, seventy three per cent.
- The middle choice beats the smallest by six points.
- Why does more not keep helping?
- Because at thirty per cent the calls, and the missing payouts in bad paths, force sales of liquid assets at low prices.
- All of this is illustrative, so a careful adviser reruns the test with different inputs.

8 Example 4: looking through the labels

Equity-factor loadings are made-up illustrations

Listed equity, 50%	50% × 1.0	**0.50**
Private equity, 15%	15% × 0.8	**0.12**
Hedge funds, 5%	5% × 0.4	**0.02**
Total equity exposure	0.50 + 0.12 + 0.02	**0.64**
Hidden beyond the label	0.64 − 0.50	**0.14**

IN THE LESSON

- The last method looks through the labels.
- A risk factor approach asks which underlying exposures the portfolio holds, such as equity risk, rather than which names are on the statement.
- Suppose Rowan Hill holds fifty per cent in listed equity, which has an equity factor loading of one.
- It holds fifteen per cent in private equity, whose loading on the equity factor is point eight in this made up example.
- And five per cent in hedge funds, with a loading of point four.
- Multiply each weight by its loading.
- The total equity exposure is point six four.
- The label said fifty per cent equity.
- The factor view says sixty four.
- The extra point one four is equity risk hiding inside the alternatives.

9 A story: the pledge

- A pledge to a charity: promised now, paid when asked
- A private fund calls cash over several years
- It sends money back years later, as distributions
- The unpaid promise is an unfunded commitment

IN THE LESSON

- Imagine you pledge to give a charity money in instalments, paid whenever the charity asks.
- You have not paid yet, but you owe.
- A private fund works the same way.
- When Rowan Hill commits money to a private equity fund, the cash does not leave on day one.
- The manager sends a capital call whenever it finds a deal, and the college has to pay promptly.
- Years later, as the investments are sold, the fund sends money back as distributions.
- In between, the part not yet called is an unfunded commitment, a debt that can be demanded on any day.
- If cash is short when a call arrives, the college may have to sell liquid assets at bad prices, or default on the commitment.
- That is why liquidity planning is central.

10 Cash in, then cash back

Chart: Multiple of commitment vs Fund age (years, 0 to 10)

- Called in: 0.94
- Paid back: 1.28
- Biggest gap: 0.52, year 4

IN THE LESSON

- Here is the cash pattern for one fund.
- The horizontal axis is the fund's age in years, nought to ten.
- The vertical axis is cash, as a multiple of the commitment.
- The red line is cumulative money called, the cash going in.
- It climbs fast over the first four years, then flattens out below the full commitment, at point nine four.
- The green line is cumulative money paid back.
- It hardly moves in the early years, then rises steeply as investments are sold, and ends above the red line at one point two eight.
- The gap between the lines is cash the college has had to find.
- It peaks at point five two, around year four.
- Liquidity planning means knowing that gap in advance, across every fund at once.

11 A simple cash flow model

Call = call rate × unfunded; payout = payout rate × value
Value = old value × (1 + growth) + call − payout

Call rate	Share of unfunded drawn a year
Payout rate	Share of value paid out
Fund value	What the fund is worth now
Growth	Return earned inside the fund

IN THE LESSON

- To project this, investors use a cash flow model, and a well known one is the Takahashi-Alexander model.
- We use a simple version.
- Each year, the fund calls a share of what is still unfunded; that is the call rate.
- It pays out a share of its grown value; that is the payout rate, and it rises with the fund's age as investments mature.
- And the fund's value moves with growth inside the fund, plus the calls, minus the payouts.
- Calls shrink each year, because the unfunded amount shrinks, while payouts build up later.
- Adding the funds up gives the programme's cash profile.
- It is a forecast, not a promise, so its assumptions need stress testing.

12 Example 5: one new fund's calls

Commitment 100m; call rate 25% of the unfunded amount

Year one call	25% × 100m	**25.0m**
Year two call	25% × 75.0m	**18.75m**
Year three call	25% × 56.25m	**14.06m**
Paid in after three years	25 + 18.75 + 14.06	**57.8m**
Still unfunded	100 − 57.8	**42.2m**

IN THE LESSON

- Let us run the model for one new fund.
- Rowan Hill commits one hundred million, and the call rate is twenty five per cent of whatever is still unfunded.
- In year one the call is twenty five per cent of one hundred million, which is twenty five million.
- The unfunded amount falls to seventy five.
- In year two the call is twenty five per cent of seventy five, which is eighteen point seven five million.
- In year three it is twenty five per cent of fifty six point two five, fourteen point zero six million.
- After three years, fifty seven point eight million has been paid in, which leaves forty two point two million still unfunded.
- That money is a bill that can arrive in any month, while almost nothing has come back.

13 Example 6: the denominator effect

Target 15%. Public falls 25%, private marked down 10%

Public assets after the fall	850m × 0.75	**637.5m**
Private after markdown	150m × 0.90	**135m**
Private share now	135 ÷ 772.5	**17.5%**
Calls due next year	distributions stop	**30m**
Calls against public assets	30 ÷ 637.5	**4.7%**

IN THE LESSON

- Now a stress test.
- Before the fall, Rowan Hill holds eight hundred and fifty million in public assets and one hundred and fifty million in private funds, which is its target of fifteen per cent.
- Then public markets fall twenty five per cent, so the public assets are worth six hundred and thirty seven point five million.
- Private funds are valued by appraisal, which lags, so they are marked down only ten per cent, to one hundred and thirty five million.
- The private share is now one hundred and thirty five over seven hundred and seventy two point five, seventeen point five per cent.
- That is above target, though nobody bought anything.
- This is the denominator effect.
- Meanwhile, calls of thirty million are due and distributions have stopped.
- That is four point seven per cent of the public assets, raised from markets that have just fallen.

14 Example 7: why overcommit?

Target 15%; public assets 850m

Private value today	15% × 1,000m	**150m**
Unfunded commitments	still to be called	**100m**
Promised exposure	150m + 100m	**250m**
Share of the endowment	250 ÷ 1,000	**25%**
Unfunded against public assets	100 ÷ 850	**11.8%**

IN THE LESSON

- Why would anyone commit more than the target?
- Because commitments are paid over time, and money comes back.
- Rowan Hill holds one hundred and fifty million of private value, and one hundred million is still unfunded.
- Add them and the promised exposure is two hundred and fifty million, which is twenty five per cent of the endowment, against a target of fifteen.
- That is overcommitting, and it is deliberate.
- Calls are spread over years and distributions recycle cash, so the actual private share should settle near fifteen.
- The risk is paying the unfunded amount if it is called early.
- One hundred million is eleven point eight per cent of the public assets.
- A pacing plan sets new commitments year by year, so the target is reached and kept without a cash crisis.

15 A liquidity plan in four parts

What the plan must cover

Part of the plan	Covers
Model expected calls	Cash out
Model distributions	Cash in
Set a pacing plan	Commitments
Stress test a fall	No payouts

IN THE LESSON

- A liquidity plan has four parts, and the table lists them.
- First, model the expected calls for every fund.
- Second, model the expected distributions, along with the valuations.
- Third, set a pacing plan, which says how much to commit each year so the programme reaches the target allocation and then maintains it.
- Fourth, stress test.
- The test that matters is the one we just ran: public markets fall, calls continue, and distributions dry up.
- If the plan survives that, the college can meet its promises without selling at the bottom.
- Keep the trap in mind: a rising private share after a fall can tempt you to stop committing, but the real job is to keep cash ready for calls already owed.

16 A story: the orchard

- An orchard: trees take years to bear fruit
- Still walk the rows: check the orchard and each tree
- Programme: allocation, pacing, unfunded, liquidity
- Manager: style, people, ownership, operations, fees

IN THE LESSON

- A farmer plants an orchard and does not judge it after the first winter.
- The trees take years to bear fruit.
- But the farmer still walks the rows every season, in case of disease in one tree or a broken fence.
- An alternatives programme is the same.
- Once Rowan Hill has committed its money, the work shifts from choosing to watching.
- There are two levels.
- At the programme level, Kavya Rao tracks the actual allocation against the target, the pace of new commitments, the unfunded commitments and the liquidity to meet them.
- At the manager level, she watches each fund manager for changes that the returns will not show for years.
- And the oldest trap of all is judging a young fund too early.

17 The watch list

What to watch in an alternatives programme

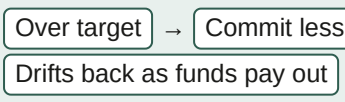
Watch this	Level
Allocation against target	Programme
Pacing and unfunded amounts	Programme
Style drift, key people leaving	Manager
Ownership, operations and fees	Manager

IN THE LESSON

- Here is the watch list.
- At the programme level, compare the actual allocation with the target, since it drifts as funds call and return money.
- And check the pacing and the unfunded commitments against the liquid assets ready to meet them.
- At the manager level, look for style drift: a buyout manager moving into bigger deals or a new strategy.
- Look for key people leaving, because a track record belongs to the people who built it.
- Then look for changes of ownership or organisation, weak operations and controls, and fees that no longer keep the manager's interests lined up with the investor's.
- Most of these show up in due diligence long before they show up in returns.

18 Rebalancing through commitments

Rebalancing by commitments



IN THE LESSON

- What do you do when the programme drifts over target?
- In public markets you would sell.
- Private stakes are slow and costly to sell, so the usual tool is different.
- Follow the boxes.
- The first box: the private share has risen above target.
- The second box: commit less to new funds.
- The third box: the share drifts back down, as older funds pay out and return cash.
- So Rowan Hill rebalances through future commitments, not through sales.
- The same works in reverse.
- The cost of this method is patience.
- It can take years, so pacing has to be reviewed every year.

19 Money-weighted measures

PME = (payouts + final value) ÷ calls, each grown at the index

Payouts plus value	Grown at the index to today
Calls	Grown at the index to today
PME ratio	Above one beats the index

IN THE LESSON

- How do you judge a private fund's performance?
- Not with a time weighted return, the way you would a listed fund.
- The manager, not the investor, decides when money goes in and comes out, so we need a money weighted measure.
- One is the internal rate of return, I R R, the single yearly rate that makes the fund's cash flows worth zero in present value.
- Another is the public market equivalent, P M E.
- It asks: if the same cash had been invested in a public index on the same dates, what would it be worth?
- The ratio is the payouts plus final value, each grown at the index, divided by the calls, grown at the index.
- Above one, the fund beat the index.
- Below one, it trailed.

20 Example 8: has the fund beaten the index?

Index 100, 110, 120, now 130. Calls 10m, 10m; payout 8m; value 20m

Call one, grown	10m × 130 ÷ 100	**13.00m**
Call two, grown	10m × 130 ÷ 110	**11.82m**
Payout, grown	8m × 130 ÷ 120	**8.67m**
Final value	appraisal today	**20m**
PME	(8.67 + 20) ÷ (13 + 11.82)	**1.16**

IN THE LESSON

- Take one of Rowan Hill's funds, now four years old.
- The college paid in ten million at the start and ten million a year later.
- It received eight million in year three, and the fund's reported value today is twenty million.
- A public index stood at one hundred at the start, one hundred and ten after a year, and one hundred and twenty in year three.
- It is one hundred and thirty today.
- Grow each cash flow at the index.
- The first call becomes thirteen million.
- The second becomes eleven point eight two.
- The payout becomes eight point six seven.
- Add the twenty million value to the payout, and divide by the two grown calls.
- The P M E is one point one six, so the fund has done about sixteen per cent better than the index.
- One caution: the twenty million is an appraisal, not a sale price.

21 The J-curve

Chart: IRR since start (%) vs Fund age (years)

- Year 1: 8.5 ÷ 10 − 1 = −15%
- Year 4: 11%
- Zero line

IN THE LESSON

- Why does the same fund look poor early on?
- Look at the J-curve.
- The horizontal axis is the fund's age in years.
- The vertical axis is the internal rate of return since the start, in per cent, with the zero line drawn in.
- At the left, the curve dips.
- In year one, fees and set up costs are charged before any investment has grown, so ten million paid in is worth only eight and a half million.
- That is a return of minus fifteen per cent.
- Then, as the investments mature and are sold, the curve climbs through zero.
- By year four, our fund has an internal rate of return of about eleven per cent.
- Same fund, same manager, a very different story.
- Benchmarks for private assets also lag.
- So never judge a young fund by its early returns.

22 Mistakes to avoid so far

- Copying peers or feeding raw private data to an optimiser
- Treating unfunded commitments as if they were not owed
- Missing the denominator effect when public assets fall
- Rebalancing by selling stakes, not by commitments
- Judging a young fund on its early negative returns

IN THE LESSON

- Here are the common mistakes so far.
- One: copying peers, or feeding raw private market data into an optimiser, which makes private assets look safe and encourages it to overweight them.
- Two: forgetting that an unfunded commitment is a debt owed on demand, not a figure to ignore.
- Three: missing the denominator effect, so that a private share above target after a fall is read as a reason to sell stakes at a discount, or to stop committing when calls are still owed.
- Four: rebalancing by selling private stakes, when the better tool is to adjust future commitments.
- Five: judging a young private fund on its early negative returns, instead of using a money weighted measure and giving it time.

23 A story: the iceberg

- Clients name the tip: their investment account
- Below the surface: home, business, future earnings
- Real risk sits in the whole balance sheet
- Mira Castellane, 52, owns a distribution firm

IN THE LESSON

- An iceberg shows only a small part above the water.
- Ask clients what they are worth and they show you the tip: the investment account.
- Below the surface sits the rest, and it usually holds more of the risk.
- Kavya Rao's firm also advises Mira Castellane, who is fifty two, owns a distribution company, and has given a scholarship fund to Rowan Hill College.
- When Mira says what she is worth, she names her portfolio.
- But her wealth is a good deal wider than that.
- This part is about the forms personal wealth takes, how it is built, and how unevenly it is spread.
- An adviser who sees only the tip misses the iceberg.

24 Four forms of wealth

- Financial: deposits, securities, retirement accounts
- Real: home, land, collectibles such as art
- Private business: a stake in a firm
- Human capital: present value of future earnings

IN THE LESSON

- Wealth comes in four main forms.
- First, financial assets: bank deposits, securities such as shares and bonds, and retirement accounts.
- Second, real assets: a home, land, and collectibles such as art.
- Third, interests in private businesses, such as Mira's firm.
- Fourth, human capital, which is the present value of the earnings someone expects in the future.
- You cannot see it on any statement, but for most working people, especially younger ones, it is the biggest asset they own.
- These forms differ in how easily they can be sold and how their values are measured.
- A salary that depends on the same company as the shares you hold is a hidden concentration.

25 From easy to sell to impossible to sell

- Deposits
- Listed shares
- Home
- Private business
- Human capital

IN THE LESSON

- Here the forms sit on a line from easy to sell to cannot be sold.
- On the left, deposits can be spent at once.
- Next are listed shares, sold in seconds at a visible price.
- In the middle is the home, which takes months to sell and is valued by opinion, and you cannot sell it a room at a time.
- Further right is the private business, which is hard to value and slow to sell, and often has only a few natural buyers.
- At the far right is human capital.
- It cannot be sold at all.
- It can only be earned.
- Clients count what sits on the left and forget what sits on the right.

26 Example 9: valuing human capital

Mira: earns 0.2m a year, 9 working years left, discount rate 4%

Annual earnings	level for 9 years	**0.2m**
Annuity factor	(1 − 1.04^−9) ÷ 0.04	**7.435**
Human capital	0.2m × 7.435	**1.49m**
Rounded in the case		**about 1.5m**

IN THE LESSON

- How do you put a number on human capital?
- Treat future earnings like a stream of cash, and discount it.
- Mira earns zero point two million a year from her firm.
- She has nine working years left, and Kavya Rao uses a discount rate of four per cent.
- Level payments for nine years at four per cent have an annuity factor of one minus one point zero four to the power of minus nine, all over point zero four, which is seven point four three five.
- Multiply by zero point two million, and her human capital is about one point four nine million, which the case rounds to one point five million.
- Her earnings come from the same business she owns, so if it suffers, the stake and the salary fall together.

27 Example 10: the whole balance sheet

Mira: portfolio 1.2m, home 0.8m, business 3.0m, human capital 1.5m

Total wealth	1.2 + 0.8 + 3.0 + 1.5	**6.5m**
Tied to the business	(3.0 + 1.5) ÷ 6.5	**69%**
Hard to sell, without salary	(3.0 + 0.8) ÷ 6.5	**58%**
The portfolio alone	1.2 ÷ 6.5	**18%**

IN THE LESSON

- Now put the whole balance sheet on one page.
- Mira's portfolio is one point two million, her home is zero point eight million, her business is three point zero million, and her human capital is one point five million.
- Total wealth is six point five million.
- Now ask how much is tied to the firm.
- The business plus the salary it pays, three point zero plus one point five, over six point five, is sixty nine per cent.
- How much is hard to sell, setting the salary aside?
- The business and the home, three point zero plus zero point eight, over six point five, is fifty eight per cent.
- And the portfolio, the only part that is easy to sell, is just eighteen per cent.
- Judged alone, the portfolio might support lots of equities.
- But it is her only source of liquidity, so it should hold little in her own industry.
- The trap is ignoring the business when judging her true risk.

28 How wealth is built

- Employment income and saving
- Starting a business, then selling it
- Investment returns compounding over time
- Inheritance, passed from one generation to the next

IN THE LESSON

- How does wealth get built?
- There are four main routes.
- First, employment income and saving: earn, spend less than you earn, and invest the difference.
- Second, entrepreneurship.
- Many large fortunes begin with someone who starts a firm, grows it, and sells it, turning a private business into cash and financial assets.
- Third, investment returns compounding over time, which means earning returns on earlier returns.
- Fourth, inheritance, where wealth is passed from one generation to the next.
- Most families use more than one route in a lifetime.
- And each route points to a different adviser need: saving habits, planning a business sale, long run investing, or estate planning.

29 Example 11: compounding does the work

Save 20k a year for 30 years at 6% (k is thousand)

Paid in over 30 years	30 × 20k	**600k**
Growth factor	(1.06^30 − 1) ÷ 0.06	**79.06**
Value after 30 years	20k × 79.06	**1,581k**
Made by compounding	1,581k − 600k	**981k**
Share from compounding	981 ÷ 1,581	**62%**

IN THE LESSON

- Compounding deserves a number, because it is the quiet route.
- Suppose someone saves twenty thousand a year for thirty years and earns six per cent a year.
- The thirty payments add up to six hundred thousand.
- The growth factor for a stream of savings is one point zero six to the power of thirty, minus one, over point zero six, which is seventy nine point zero six.
- Multiply by twenty thousand, and the pot reaches one thousand five hundred and eighty one thousand.
- Compounding made nine hundred and eighty one thousand of it, which is about sixty two per cent of the final pot.
- The lesson is that a long horizon matters, and the later years of the journey do most of the work.

30 Example 12: wealth is not shared evenly

A made-up country: 100 households, 100m in all

Top 10 households	60m ÷ 10	**6.0m each**
Next 40 households	30m ÷ 40	**0.75m each**
Bottom 50 households	10m ÷ 50	**0.2m each**
Top against bottom	6.0 ÷ 0.2	**30 times**

IN THE LESSON

- Now, how is wealth shared?
- Around the world, wealth is spread very unevenly, both between countries and within them, and a relatively small share of households hold much of it.
- Real data varies, so here is a made up country of one hundred households holding one hundred million in all.
- The top ten households hold sixty million, six million each.
- The next forty hold thirty million, zero point seven five million each.
- The bottom fifty hold ten million, zero point two million each.
- A top household has thirty times as much as a bottom one.
- Few families sit at the top, and their needs are the most complex.

31 Client segments and their needs

Wealth segments and what they need most

Segment	Needs most
Mass affluent	Saving plan
High net worth	Estate, tax
Ultra-high net worth	Governance

IN THE LESSON

- Wealth managers group clients into segments.
- The mass affluent are many households with fairly simple needs: saving, a retirement plan and a sensible portfolio.
- High net worth clients have enough wealth that estate and tax planning matter.
- Ultra high net worth clients, a few families, need the full range: family governance, succession planning, and often a private office, and much of their wealth may sit in a family business.
- The thresholds vary between firms and countries, so do not memorise a number.
- The wealthier the client, the more advice is needed beyond the portfolio.
- And at every level, ask first what the whole balance sheet looks like.

32 Recap: the lesson in five lines

- Sizing: rules, optimiser with fixes, simulation, factors
- Liquidity: model calls, pace commitments, stress test
- Denominator effect: private share rises as public falls
- Oversight: programme, manager, IRR and PME
- Wealth: four forms, four routes, unevenly held

IN THE LESSON

- Let us pull the lesson together.
- First, sizing runs from holding none, through rules of thumb, to an optimiser with adjusted inputs, a simulation and a risk factor view, and the trap is raw private data.
- Second, liquidity planning models calls and distributions, paces commitments, and stress tests a fall, when calls go on and payouts stop.
- Third, the denominator effect lifts the private share when public assets fall, so rebalance through commitments.
- Fourth, oversight covers the programme and each manager, with money weighted measures and patience for the J-curve.
- Fifth, wealth takes four forms, is built four ways, and is held unevenly, so look at the whole balance sheet.

33 Try three quick questions

1. PE returns 12%, cash 4%, vol 8% reported, 20% unsmoothed. Sharpe ratios?
   Answer: (12 − 4) ÷ 8 = 1.00 reported; (12 − 4) ÷ 20 = 0.40 unsmoothed.
2. Public 800m, private 200m (20%). Public −25%, private −10%. Private share?
   Answer: 600 and 180, so 180 ÷ 780 = 23.1%, above the 20% target.
3. Calls grown 20m; payouts plus value grown 18m. PME?
   Answer: 18 ÷ 20 = 0.90, below one: the fund trails the index.

IN THE LESSON

- Now try three quick questions yourself.
- Pause after each one.
- Question one.
- Private equity returns twelve per cent and cash returns four per cent.
- Reported volatility is eight per cent, and unsmoothed volatility is twenty per cent.
- What are the Sharpe ratios?
- Eight over eight is one point zero zero as reported, and eight over twenty is point four zero unsmoothed.
- Question two.
- An endowment holds eight hundred million public and two hundred million private, which is twenty per cent.
- Public assets fall twenty five per cent and private is marked down ten per cent.
- What is the private share?
- Public is six hundred, private is one hundred and eighty, so the share is twenty three point one per cent, above target.
- Question three.
- Calls grown at the index total twenty million, and payouts plus final value, grown at the index, total eighteen million.
- What is the P M E?
- Eighteen over twenty is point nine zero, so the fund trails the index.
- Check each answer before you move on.