CHARTA LEARNING · LESSON NOTES

Benchmarks: liabilities, assets and soundness

Performance Measurement

1 A story: the mortgage

- A family weighs savings against the mortgage
- A pension plan exists to pay promised pensions
- So the promises themselves are the yardstick
- An index knows nothing about what is owed

IN THE LESSON

- Think of a family that has taken out a mortgage.
- The sensible question each year is not whether their savings beat a stock index.
- It is whether their savings are keeping up with what they owe.
- A pension plan is the same.
- Its job is to pay pensions to its members, far into the future.
- Tamsin Reed begins with the Merrow trustees by asking one thing: what is this money for?
- If the answer is to meet promises, then the true yardstick is the promises themselves.
- A market index cannot describe them, because an index knows nothing about what Merrow owes.

2 What a liability-based benchmark is

- Pensions are promised far into the future
- Liability benchmark: bonds tracking them
- It reacts to rates and inflation as they do
- Asset benchmark: the yardstick for managers

IN THE LESSON

- Here is the idea in one sentence.
- A liability based benchmark is a portfolio, often made of high quality bonds, whose value moves in step with the present value of the plan's liabilities.
- Present value means what the promises are worth today, after discounting them for the time until they are paid.
- When interest rates fall, the discounting is lighter and the promises are worth more.
- Where pensions rise with inflation, that also pushes the promises up.
- A good liability benchmark moves the same way, so it captures the liabilities' sensitivity to interest rates and inflation.
- An asset based benchmark, by contrast, is built from markets, and is the right yardstick for each manager.

3 What it is used for

Four jobs for the liability benchmark

Purpose	What it does
Set the allocation	Mix behaves like the promises
Judge the allocation	Did the mix keep pace?
Track funded status	Assets against liabilities
Size the hedge	How much rate risk is left

IN THE LESSON

- So what is a liability based benchmark for?
- Tamsin Reed gives the trustees four uses.
- First, it helps set the strategic asset allocation, because the mix should be built to behave like the promises.
- Second, it helps judge that allocation afterwards, by showing whether the mix kept pace with what was owed.
- Third, it tracks the surplus or funded status, which is simply the assets compared with the liabilities.
- Fourth, it sizes hedging programmes, because it shows how much interest rate risk is left between the assets and the promises.
- Notice what is not on the list: judging individual managers.
- For that, asset based benchmarks remain the right tool, and we come to them shortly.

4 Funded status and rate sensitivity

Funded status = assets ÷ liabilities
Liabilities change ≈ −duration × rate change

Plan assets	What the plan owns
Liabilities	Present value of the promises
Duration	Sensitivity to rates, in years
Rate change	Change in the discount rate

IN THE LESSON

- Two simple pieces of arithmetic sit behind this.
- Funded status is the plan's assets divided by its liabilities.
- Above the full mark the plan has a surplus, and below it the plan has a deficit.
- The second piece is how far the liabilities move when rates move.
- To a good approximation, the percentage change in the liabilities is minus the duration times the change in the discount rate.
- Duration is a measure, in years, of how sensitive a value is to rates.
- Promises paid far in the future have a long duration, so a small fall in rates lifts them a lot.
- The minus sign says that rates and values move in opposite directions.
- This is only an approximation, but it is good enough here.

5 Example 1: winning on assets, losing on liabilities

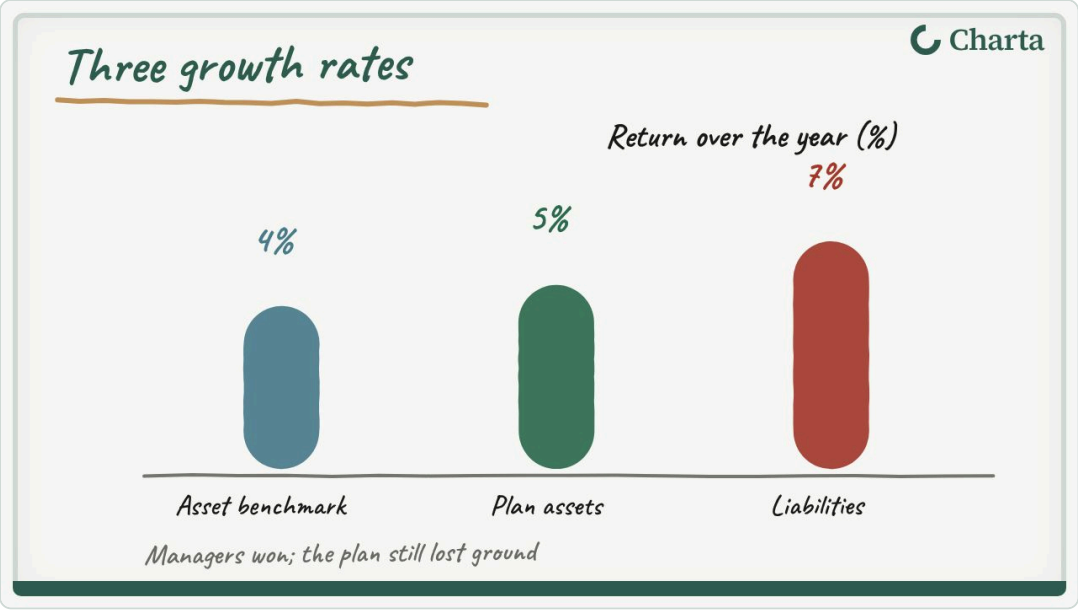
Merrow: assets = liabilities = 1,000; duration 14; rates fall 0.5%

Assets against their benchmark	5.0% − 4.0%	**+1.0%**
Liabilities grow	14 × 0.5%	**7.0%**
Assets at year end	1,000 × 1.05	**1,050**
Liabilities at year end	1,000 × 1.07	**1,070**
Funded status	1,050 ÷ 1,070	**98.1%**

IN THE LESSON

- Now Merrow.
- The plan is exactly fully funded, with assets and liabilities of one thousand each, and the liabilities have a duration of fourteen years.
- To keep it simple we ignore benefit payments and interest cost.
- Over the year, discount rates fall by half a per cent.
- The managers return five per cent against four per cent for their asset benchmark, so they beat it by one point.
- The liabilities grow by fourteen times half a per cent, which is seven per cent.
- At year end the assets are worth one thousand and fifty, and the liabilities one thousand and seventy.
- The funded status is one thousand and fifty divided by one thousand and seventy, ninety eight point one per cent.
- The managers did well, and yet the plan slipped into deficit.

6 Three growth rates



IN THE LESSON

- Here are the three growth rates as bars.
- The vertical axis is the return over the year, in per cent.
- The first bar is the assets' benchmark, at four per cent.
- The second is the plan's actual assets, at five per cent, so the managers won by a point.
- Now the third bar, the liabilities, at seven per cent.
- It is the tallest.
- The plan's assets grew, but the promises grew faster.
- The first two bars answer how well the managers did.
- The third bar is what a liability based benchmark measures, and it is the only one that shows the plan fell behind.
- Two yardsticks answer two different questions, and the trustees need both.

7 Example 2: how big a hedge?

Liabilities 1,000, duration 14; assets 1,000, duration 6; rates fall 1 point

Liabilities rise by	14 × 1,000 × 1%	**140**
Assets rise by	6 × 1,000 × 1%	**60**
Gap nothing covers	140 − 60	**80**
Share of rate risk covered	60 ÷ 140	**43%**
Duration to add to the assets	80 ÷ (1,000 × 1%)	**8 years**

IN THE LESSON

- Next, the trustees ask how big a hedge they need.
- Tamsin Reed measures the sensitivity of each side to a one point fall in rates.
- The liabilities are worth one thousand with a duration of fourteen, so they rise by one hundred and forty.
- Suppose the assets, taken as a whole, have a duration of only six.
- They rise by sixty.
- That leaves a gap of eighty that nothing covers.
- Put another way, the assets cover sixty out of one hundred and forty of the rate risk, about forty three per cent.
- To close the gap, the assets would need eight more years of duration, because eighty divided by one thousand times one per cent is eight.
- That is what it means to size a hedging programme.

8 Which yardstick answers which question

Two yardsticks, two questions

Question	Yardstick
Are the managers adding value?	Asset benchmark
Is the plan keeping pace?	Liability benchmark
Does the mix suit the promises?	Liability benchmark
How big a hedge?	Liability benchmark

IN THE LESSON

- Let us put the two kinds of benchmark side by side.
- Ask whether the managers are adding value, and the answer comes from the asset based benchmark, one for each manager's mandate.
- Ask whether the plan is keeping pace with what it owes, and you need the liability based benchmark.
- Ask whether the strategic mix suits the promises, and again it is the liability benchmark.
- Ask how big a hedge is needed, and the answer is the same.
- The exam trap is to use one yardstick for everything.
- A plan can beat its asset benchmark while its funded status gets worse, exactly as Merrow did.
- Throwing away asset benchmarks would be a mistake too, because managers need a fair test of their own.

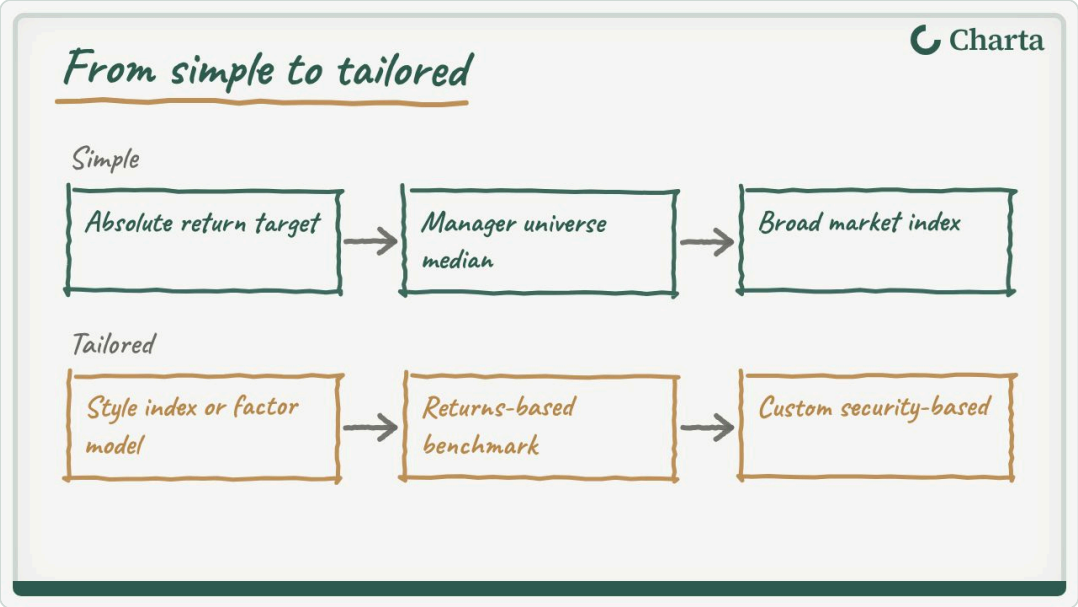
9 A story: the tailor

- A good suit is one that fits you
- A good benchmark is one that fits the manager
- Plain benchmarks are cheap but fit loosely
- Tailored benchmarks fit closely but cost more

IN THE LESSON

- When you buy a suit, the tailor does not ask whether it is a good suit in general.
- The tailor asks whether it fits you.
- A benchmark is the same.
- Any comparison needs a yardstick, and the verdict on a manager is only as fair as the yardstick used.
- Tamsin Reed now turns to the managers Merrow hires.
- She reviews the main kinds of asset based benchmark, from a plain target number to an index built security by security for one manager.
- The rule of thumb is simple.
- The more tailored the benchmark, the better it fits, and the more it costs to build and to keep up to date.

10 From simple to tailored



IN THE LESSON

- Here are the kinds of benchmark as a picture.
- Read the top row first, the simple ones.
- The first box is an absolute return target, such as a fixed number each year, or cash plus a margin.
- The second is the median of a universe of managers.
- The third is a broad market index.
- Now the bottom row, the tailored ones.
- The first box holds the style index and the factor model benchmark, which match the manager's style or systematic exposures.
- The second is a returns based benchmark, where the style mix is worked out from the manager's own past returns.
- The third is a custom security based benchmark, built from the manager's own universe and weighting.
- Fit improves along the rows, and so does the cost.

11 Three simple yardsticks and their flaws

Easy to use, loose in fit

Simple yardstick	Main weakness
Absolute target	Ignores the market
Peer group median	Not investable; survivor bias
Broad market index	May miss the style

IN THE LESSON

- Now the weaknesses of the three simple ones, because the exam asks for them.
- An absolute target is easy to state, but it says nothing about the market.
- The manager can miss it in a crash while doing well, or hit it in a boom while doing badly.
- A peer group median is not specified in advance, you cannot invest in it, and it suffers from survivorship bias, because the funds that closed have already dropped out and the survivors look better than the typical fund.
- A broad market index is transparent and investable, but it may not match the manager's style.
- Each is fine for a rough check, and none is the best test of a manager with a clear style.

12 Four tailored benchmarks

- Style index: fits, definitions differ
- Factor model: matches exposures, hard to read
- Returns-based: style inferred from history
- Custom: best fit, costliest to build

IN THE LESSON

- Now the tailored kinds.
- A style index fixes the broad index problem by narrowing to the manager's style, such as large growth or small value, although the definitions differ from one index provider to another.
- A factor model benchmark matches the manager's systematic exposures, but it can be hard to interpret, because few people think in factor loadings.
- A returns based benchmark derives the style mix from the manager's return history, so it needs no holdings data, but it looks backward.
- And a custom security based benchmark is built from the manager's own universe and weights.
- It fits best, and it costs the most to build and maintain.

13 Example 3: one return, four verdicts

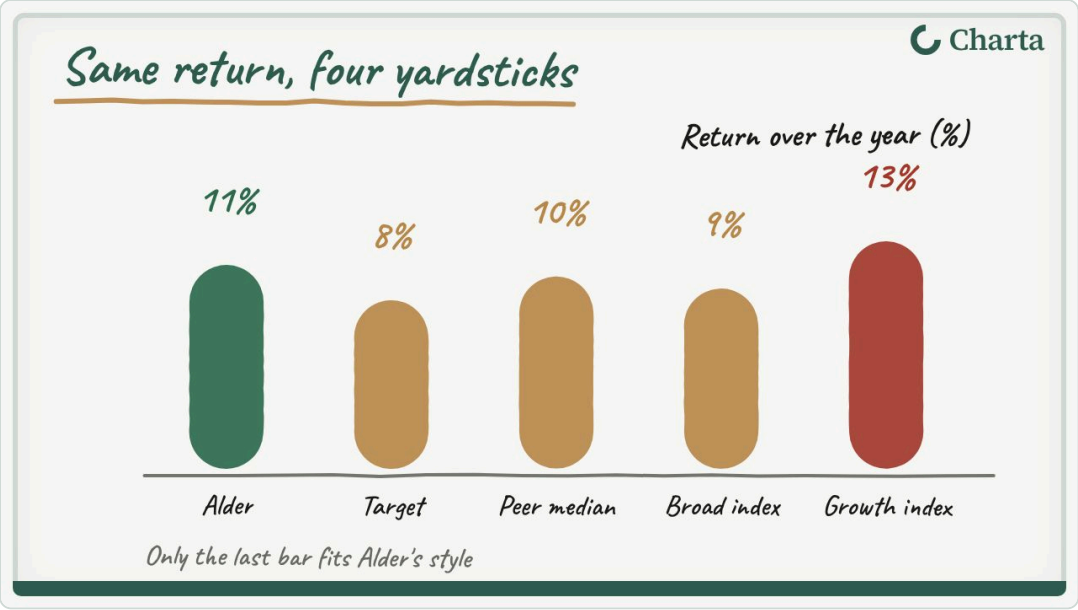
Alder Capital, large-cap growth, returns 11%

Against the absolute target 8%	11% − 8%	**+3%**
Against the peer median 10%	11% − 10%	**+1%**
Against the broad index 9%	11% − 9%	**+2%**
Against the growth index 13%	11% − 13%	**−2%**

IN THE LESSON

- Here is why the choice matters.
- Merrow hires Alder Capital, a large cap growth manager, which returns eleven per cent in the year.
- Four yardsticks are on the table.
- The client's absolute target is eight per cent, so Alder is ahead by three.
- The peer median is ten per cent, so Alder is ahead by one.
- The broad index returned nine per cent, so Alder is ahead by two.
- But the large cap growth index returned thirteen per cent, and against that Alder is behind by two.
- Three yardsticks say success, and the one that fits says failure.
- Growth stocks rallied, and Alder lagged its own opportunity set.
- Only the style index asks whether the manager's choices added value in the pond where the manager fishes.

14 Same return, four yardsticks



IN THE LESSON

- Here are those numbers as bars.
- The vertical axis is the return over the year, in per cent.
- The first bar is Alder's own return, eleven.
- Now the yardsticks.
- The absolute target stands at eight, the peer median at ten, and the broad index at nine.
- All three sit below Alder's bar, which is why they flatter it.
- The last bar, the growth index, stands at thirteen, above Alder's.
- Look at the gap between the broad index and the growth index: four points.
- That is the style gap.
- It was earned by growth stocks, not by the manager.
- So the growth index is the only fair bar to measure Alder against.

15 Example 4: a returns-based benchmark

Alder: 3 years of returns; growth index 13%, broad index 9%

Growth index share	found from past returns	**70%**
Broad index share	the rest	**30%**
Blended benchmark return	0.7 × 13% + 0.3 × 9%	**11.8%**
Alder's active return	11% − 11.8%	**−0.8%**

IN THE LESSON

- Suppose Merrow wants a closer fit without paying for a custom index.
- Tamsin Reed tries a returns based benchmark.
- She studies three years of Alder's returns and finds that they behave like a blend: seventy per cent growth index and thirty per cent broad index.
- The weights add up to one hundred per cent.
- With this year's index returns of thirteen and nine, the blended benchmark returns point seven times thirteen plus point three times nine, which is eleven point eight per cent.
- Alder returned eleven, so the active return is minus point eight.
- That is a small shortfall, rather than the flattering lead the broad index gave.
- The catch is that the blend comes from history, so it can lag any recent change in the manager's style.

16 A story: is the ruler straight?

- Check the ruler before you measure with it
- A weak benchmark misstates skill
- Test one: a checklist of properties
- Test two: statistics showing the fit

IN THE LESSON

- Before you trust a ruler, you check that it is straight.
- Benchmarks need the same check.
- A weak benchmark misstates skill, in either direction, so a careful consultant tests it first.
- There are two kinds of test.
- The first is a checklist of properties the benchmark should have on paper.
- The second is a set of statistics that show whether the benchmark really fits the manager's portfolio.
- Tamsin Reed applies both to the candidate benchmarks for Fenn Capital, Merrow's small cap manager.
- A benchmark that passes lets Merrow read the active return as the manager's own contribution.

17 Seven properties: the first four

- Specified in advance
- Appropriate to the manager's style
- Measurable, with a return calculated regularly
- Unambiguous: clear names and weights

IN THE LESSON

- The checklist has seven properties, and we take them in two slides.
- A valid benchmark is specified in advance: it is named before the period starts, so nobody can pick it afterwards to flatter a result.
- It is appropriate, which means it fits the manager's style and mandate.
- It is measurable: its return can be calculated regularly and reliably.
- And it is unambiguous: the names and weights of the securities in it are clearly stated, so everyone calculates the same return.
- Those four describe the benchmark as a document.
- If two analysts read the same rules, they should reach the same number.

18 Seven properties: the last three

- Reflects the manager's current opinions
- Accountable: the manager accepts it
- Investable: it could be held at reasonable cost

IN THE LESSON

- Now the last three.
- A benchmark should reflect the manager's current investment opinions: the manager should have views on the securities in it, so that holding more or less of them is a real decision.
- It must be accountable: the manager accepts the benchmark, and accepts responsibility for the result against it.
- And it must be investable: it is possible to hold the benchmark, at reasonable cost, as a passive alternative.
- If the benchmark could not be held, the active return would include a gap that nobody could close.
- Together with the first four, these make a benchmark fit to judge a manager by.

19 Market, style and active return

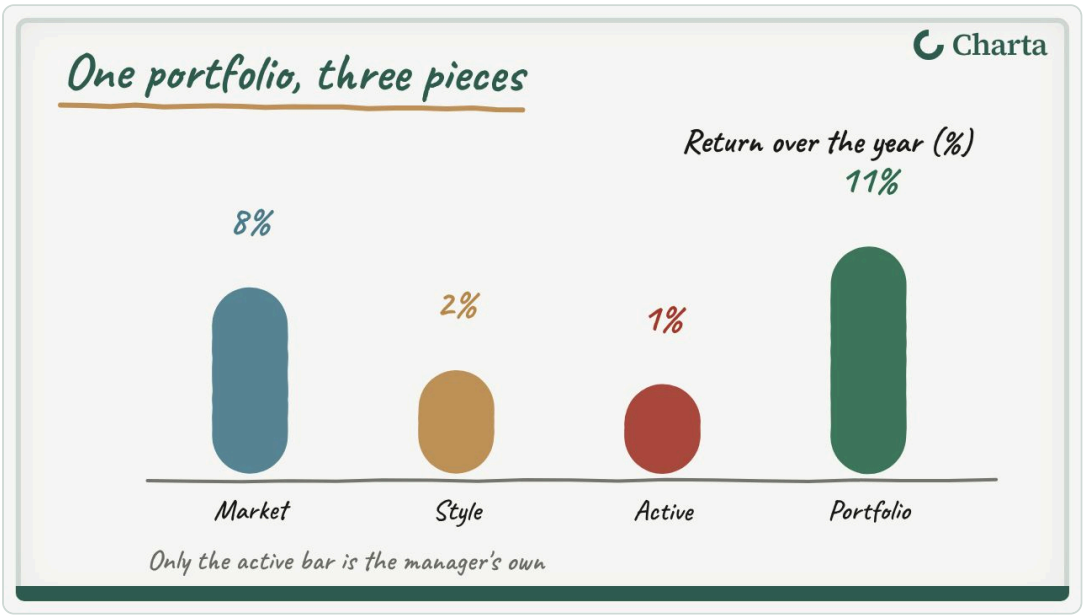
P = M + S + A
S = B − M
A = P − B

Portfolio return	Return of the portfolio
Market return	Return of the broad market
Style return	Benchmark minus market
Active return	Portfolio minus benchmark

IN THE LESSON

- Now the split behind the statistics.
- Write the portfolio return as the sum of three pieces.
- The market return is the return of the broad market.
- The style return is the benchmark return minus the market return: it is what the manager's style earned beyond the market.
- The active return is the portfolio return minus the benchmark return.
- So the portfolio return equals market plus style plus active.
- Only the last piece is meant to reflect the manager's decisions.
- That means the benchmark has to draw the line between style and active in the right place, and the tests we are about to meet check exactly that.

20 One portfolio, three pieces



IN THE LESSON

- Here is one portfolio split into those pieces.
- The vertical axis is the return, in per cent.
- The first bar is the market, eight.
- The second is style, two: the benchmark earned two more than the market.
- The third is the active return, one: the portfolio earned one more than the benchmark.
- Add them and you reach the tall bar, the portfolio, at eleven.
- Now see what a bad benchmark does.
- If it were set too low, some of the style bar would spill into the active bar, and the manager would look more skilled than they are.
- Set too high, and the manager would look worse.
- The tests check where that line sits.

21 Statistical tests of the fit

What a good benchmark shows

Test	A sound benchmark shows
Beta against the benchmark	Close to 1
Active against style return	Correlation near 0
Tracking error	Below that of a broad index
Size and value exposures	Match the manager's

IN THE LESSON

- These are the statistical tests, each checking one way a benchmark can fail.
- First, systematic bias.
- The portfolio's beta against the benchmark should be close to one.
- If it is well above one, outperformance in a rising market may be nothing more than extra market exposure.
- Second, the correlation between active return and style return should be close to zero.
- A strong correlation means the benchmark has missed the manager's style, which keeps leaking into the active return.
- Third, tracking error against the benchmark should be lower than against a broad index, or the benchmark fits worse than an ordinary index does.
- Fourth, the portfolio's size and value exposures should match the benchmark's.

22 Holdings tests

- Coverage: share held in benchmark securities
- Coverage should be high
- Benchmark turnover should be low
- Long-only: most active positions positive

IN THE LESSON

- Three more tests look at the holdings.
- Coverage is the share of the portfolio's value held in securities that are in the benchmark.
- It should be high.
- Low coverage means the manager mostly holds things the benchmark does not contain, so the comparison is between two different worlds.
- Benchmark turnover should be low.
- A benchmark whose membership changes a lot is costly to follow, and its changes may reflect index rules instead of the manager's universe.
- And for a long only manager, most of the active positions should be positive.
- A manager who cannot sell short but is left with mostly negative positions is probably being held against a benchmark that is too broad.

23 Example 5: two candidate benchmarks

Fenn Capital, small-cap; tracking error vs broad index 5.0%

Beta against the benchmark	Ash 1.35; Birch 1.02	**Birch**
Correlation of A with S	Ash 0.60; Birch 0.05	**Birch**
Tracking error	Ash 7.0%; Birch 3.0%	**Birch**
Coverage	Ash 40%; Birch 85%	**Birch**

IN THE LESSON

- Now the tests in action.
- Tamsin Reed compares two candidate benchmarks for Fenn Capital, the small cap manager, using three years of monthly data.
- Fenn's tracking error against a broad market index is five per cent.
- Beta against Ash is one point three five, and against Birch one point zero two, so Birch is the one close to one.
- The correlation of active with style return is point six under Ash and point zero five under Birch.
- Under Ash, style is leaking into active return.
- Tracking error is seven per cent against Ash and three against Birch, so Ash does worse than the broad index.
- Coverage is forty per cent for Ash and eighty five for Birch.
- Birch passes every test and Ash fails all four, so Ash would misstate skill.

24 Mistakes to avoid so far

- Judging plan health by its asset benchmark
- Treating a peer median as fair and investable
- Using a broad index for a styled manager
- Passing one test and calling it sound
- Dropping asset benchmarks for managers

IN THE LESSON

- Let us collect the common mistakes so far.
- One: judging the plan's health by its asset benchmark, when only the liabilities show whether the promises are covered.
- Two: treating a peer median as fair and investable, when it is unknown in advance and suffers from survivorship bias.
- Three: using a broad index for a manager with a clear style, so that the style gap is read as skill.
- Four: passing one test and calling the benchmark sound, when beta, correlation, tracking error and coverage can each fail on their own.
- Five: dropping asset benchmarks for managers altogether, because the liability benchmark is the wrong tool for judging a single manager.

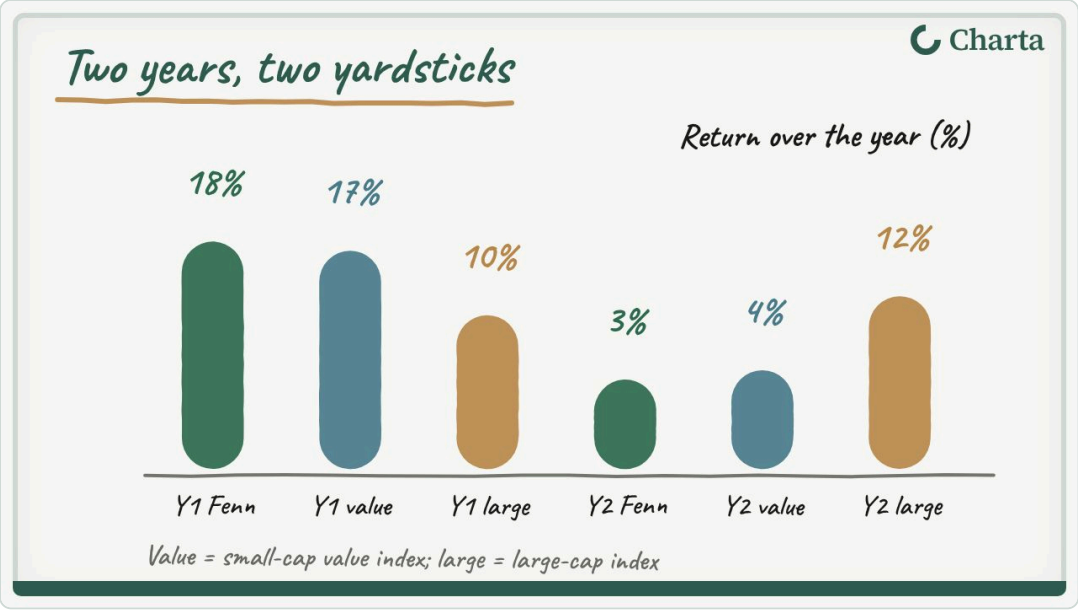
25 A story: the sprinter

- Rating a sprinter against a marathon pace
- The style gap looks like skill or failure
- Neither result reflects the manager's decisions
- Fenn: small-cap value, judged by large-cap

IN THE LESSON

- Imagine rating a sprinter by comparing her time with a marathon runner's pace.
- Whatever she does, the comparison will say more about the two events than about her.
- A misspecified benchmark does the same thing to a fund manager.
- If the benchmark does not reflect the manager's style, the difference between the two styles shows up in the numbers, and it gets read as skill in good years and failure in bad ones.
- Tamsin Reed finds that Merrow once judged Fenn Capital, a small cap value manager, against a large cap index.
- Here is what that did.

26 Two years, two yardsticks



IN THE LESSON

- Here are two years of returns.
- The vertical axis is the return, in per cent.
- In year one, the first bar is Fenn at eighteen, the second is the small cap value index at seventeen, and the third is the large cap index at ten.
- In year two, Fenn is three, the small value index four, and the large cap index twelve.
- Look at Fenn and the small value index first.
- They move together: one point ahead in year one, one point behind in year two.
- Now look at the large cap bars.
- They are well below in year one and well above in year two.
- That swing is the style gap, and Fenn had no part in it.

27 Example 6: skill or style?

Fenn Capital, small-cap value: year 1 and year 2

Year 1 against large-cap	18% − 10%	**+8%**
Year 2 against large-cap	3% − 12%	**−9%**
Year 1 against small value	18% − 17%	**+1%**
Year 2 against small value	3% − 4%	**−1%**
Style gap each year	17 − 10; 4 − 12	**+7%, −8%**

IN THE LESSON

- Now the same two years as a calculation.
- In year one, against the large cap index, eighteen minus ten is plus eight.
- That looks like outstanding skill.
- In year two, three minus twelve is minus nine, and now it looks like failure.
- Against the small cap value index, year one is eighteen minus seventeen, plus one.
- Year two is three minus four, minus one.
- That is a steady manager, tracking its own opportunity set.
- The style gap, small value minus large cap, is plus seven in year one and minus eight in year two.
- A committee using the large cap index might add money after year one and fire the manager after year two.
- That is buying high and selling low on a style cycle.

28 How the damage spreads

- Attribution: false allocation and selection
- Alpha is biased by the missed style
- Information and appraisal ratios biased too
- A far-off beta distorts risk adjustment

IN THE LESSON

- The damage goes deeper than the headline number.
- In attribution, the style gap does not vanish.
- Measured against the large cap index, Fenn's heavy holdings in small and value stocks look like big allocation and selection decisions.
- Those effects are spurious: they come from the mismatch in the benchmark, not from choices Fenn made.
- In appraisal, alpha is biased by the style that the benchmark missed, and the information ratio and the appraisal ratio are biased too.
- And if the portfolio's beta is far from the benchmark's, the risk adjustment is distorted, because the portfolio is simply carrying a different amount of market risk from the one the benchmark assumes.

29 The information ratio

Information ratio = average active return ÷ tracking error

Average active return	Average return above benchmark
Tracking error	Volatility of the active return
Information ratio	Active return per unit of risk

IN THE LESSON

- Let us see the appraisal damage in numbers.
- The information ratio is the average active return divided by the tracking error, which is the volatility of the active return.
- It tells you how much active return a manager delivered for each unit of active risk.
- A steady, modest active return gives a good ratio.
- A wild one, even with a similar average, gives a poor ratio.
- So if the wrong benchmark pours the style gap into the active return, it inflates the volatility and clouds the average, and the ratio stops measuring skill and starts measuring the style cycle.

30 Example 7: the ratio under two benchmarks

Fenn Capital: four years of active returns

Active vs small value (%)	+1, −1, +2, +2	**avg 1.0%**
Tracking error, small value	spread of those four	**1.41%**
Information ratio, right index	1.0 ÷ 1.41	**0.71**
Active vs large-cap (%)	+8, −9, +7, −4	**avg 0.5%**
Information ratio, wrong index	0.5 ÷ 8.35	**0.06**

IN THE LESSON

- Take four years of Fenn's results.
- Against the small cap value index, the active returns are plus one, minus one, plus two and plus two per cent.
- The average is one per cent and the tracking error is one point four one.
- The information ratio is one divided by one point four one, about point seven one.
- That is a modest but steady record.
- Now against the large cap index, the same four years read plus eight, minus nine, plus seven and minus four.
- The average is only point five, but the tracking error balloons to eight point three five.
- The information ratio is point zero six.
- The same manager looks skilled under the right benchmark, and worthless under the wrong one.

31 What it costs, and the cure

- Skilled manager fired after a bad style year
- Unskilled one kept after a good style year
- Active fees paid for what is really beta
- Cure: a benchmark that passes the tests
- Style index, or a custom index

IN THE LESSON

- What are the practical consequences?
- Skilled manager fired after a bad style year, as Fenn nearly was when the large cap index ran ahead.
- An unskilled manager may be kept after a good style year, because the style rally looks like skill.
- And the plan may pay active fees for what is really beta, which can be had cheaply.
- The remedy is a benchmark that passes the quality tests: a style index such as small cap value, or a custom index built from the manager's own universe and weighting.
- Then whatever active return is left over is the manager's own contribution, and the committee can judge it fairly.

32 Recap: the lesson in five lines

- Liability benchmark: set, judge, track, hedge
- Asset benchmarks: simple to tailored
- Sound benchmark: properties plus statistics
- Wrong benchmark: style read as skill
- Cure: a benchmark that fits the manager

IN THE LESSON

- Let us pull the lesson together.
- First, a liability based benchmark is a bond portfolio that moves with the present value of the liabilities, and it sets and judges the allocation, tracks funded status and sizes the hedge, while asset benchmarks judge managers.
- Second, asset benchmarks run from absolute targets and peer medians, through broad and style indexes and factor models, to returns based and custom benchmarks.
- Third, a sound benchmark passes the seven properties and the statistical tests.
- Fourth, a misspecified benchmark turns the style gap into false skill or failure.
- Fifth, the cure is a benchmark that fits the manager.

33 Try three quick questions

1. Assets 800, liabilities 1,000, duration 10. Rates fall 1 point; assets +6%. Funded status?
   Answer: 848 ÷ 1,100 = 77.1%, down from 80%.
2. Market 6%, style benchmark 8%, portfolio 10%. Style and active?
   Answer: S = 8 − 6 = 2%. A = 10 − 8 = 2%.
3. Manager 15%, broad index 9%, style index 14%. True active return?
   Answer: 15 − 14 = +1%. Of the apparent +6%, 5 points were style.

IN THE LESSON

- Now try three quick questions yourself.
- Pause after each one.
- Question one.
- A plan has assets of eight hundred and liabilities of one thousand, with liability duration of ten years.
- Rates fall by one point and the assets return six per cent.
- What is the new funded status?
- The liabilities grow by ten per cent to eleven hundred, the assets reach eight hundred and forty eight, and the ratio is seventy seven point one per cent, down from eighty.
- Question two.
- The market returns six, the style benchmark eight and the portfolio ten.
- What are the style and active returns?
- Style is eight minus six, two.
- Active is ten minus eight, two.
- Question three.
- A manager returns fifteen against a broad index of nine and a style index of fourteen.
- What is the true active return?
- It is fifteen minus fourteen, one point, so five of the apparent six points were style, not skill.